

**AN EXPLORATORY STUDY ON ORGANISATIONAL TRUST RELATIONSHIPS**

by

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I declare that “**An exploratory study on organisational trust relationships**” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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SIGNATURE

Hartmut von der Ohe

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DATE

## ACKNOWLEDGEMENTS

***Der Herr ist mein Licht und mein Heil;  
vor wem sollte ich mich fürchten? (Ps 27)***

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The consulting organisations, for permission to use the data collected over the years.

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SUBJECT: Industrial Psychology  
PROMOTOR: Prof N Martins  
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## **ABSTRACT**

The aim of this study was to unify a South African model of organisational trust with the globally accepted *Integrative model of organisational trust* on a theoretical and empirical level.

The antecedents of trust in direct supervisors represented by five personality dimensions and four managerial practices were used to extract the facets of trustworthiness of ability, benevolence and integrity to create a unified trust model. Based on literature, a methodology was developed to re-assign the various dimensions on an item level into three new scales representing the antecedents of trust. Data gathered between 1995 and 2013 in South African organisations by means of the Trust Relationship Audit was used and subject matter experts reassigned the items into the three antecedents of trust. Structural equation modelling was employed to replicate the Martins (2000) model and to test the measurement and structural regression models, arriving at a five-factor model. A unified model of trust in supervisors was fitted to the data and validated.

This unified model emphasises the importance of the affective component as an antecedent of trust towards supervisors in organisations in an African context. Managerial concern, based on benevolent managerial practices and communication, was found to have the biggest impact on trust. Integrity as a personality trait was the only other component that had a positive impact on trust. Contrary to most studies, ability had a minimal or negative impact on interpersonal trust in direct superiors, but is a prerequisite for high integrity and

benevolence as facets of trustworthiness. Managerial ability and, to a lesser degree, a benevolent personality are necessary but not sufficient for trust to develop. Being very agreeable and competent is not sufficient to be perceived as trustworthy; managers or supervisors also need to exhibit high levels of concern and integrity.

In this study the author responds to the calls in the literature that a common terminology be used in trust research. The multitude of measures causes a situation where studies and concepts cannot be compared and therefore no basis exists upon which to build trust research. Future researchers can now with confidence apply the South African model of organisational trust within the context of a globally accepted model.

*Key words:* interpersonal organisational trust, trustworthiness, antecedents of trust, personality traits, managerial practices, managerial concern, ability, benevolence, integrity

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## Chapter 1: Scientific orientation to the research

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*Clearly, the trust field needs to coalesce around a common terminology. Due to the prominence of the Mayer et al. (1995) model, we propose that future articles adopt the Mayer et al. terminology. In rare cases where that cannot be done, at a minimum, articles should explicitly clarify how their terminology relates to the Mayer et al. (1995) terminology.*

(Ferrin, Bligh & Kohles, 2008, p. 174)

The need for this study emanated from the realisation that although various studies had been conducted on the basis of the model suggested by Martins (2000), these studies were predominantly conducted in South Africa itself. It was very difficult to compare the local results with results that were reported in the international literature because of the differences in conceptualisation of the antecedents of trust. The need consequently emerged to somehow integrate the Martins (2000) model with a widely accepted model of trustworthiness – empirically as well as conceptually. The alternate international model identified was the *Integrative model of organisational trust* by Mayer, Davis and Schoorman (1995) – in line with the appeal by Ferrin et al. (2008) in the opening quote. According to this model three antecedents of trust, namely *ability*, *benevolence* and *integrity* determine how trustworthy a ‘trustee’ is perceived to be.

There are basically two types of trust in an organisational context when one differentiates according to the type of referent or who the focus of the trust is. The targets or foci of trust are known as trustees, while the individuals who are exposing themselves to risk and making themselves vulnerable are known as trustors. The level of trust is determined not only by the trustee’s perceived ability, benevolence and integrity, but also by the trustor’s *propensity to trust*. This propensity to trust is again dependent on the personality of the trustor.

Firstly there is trust in others such as trust in a supervisor or a manager, or secondly there is trust in the organisation as an entity (Sousa-Lima, Michel & Caetano, 2013, p. 419<sup>1</sup>). In this study the focus is on interpersonal trust and specifically on trust in the person to whom the trustee reports – whether the direct supervisor or the direct manager. It should however be kept in mind that the focus is on employee trust within the context of work organisations. It is neither concerned with the currently popular topics of trust in virtual organisations or teams, nor with trust in certain stakeholders such as clients, suppliers or government agencies. Some of the literature dealing with these topics will however be reviewed, seeing that important and relevant findings applicable to this study are contained therein.

Because of the recurring use of various composite terms, accepted abbreviations will be used for these in the remainder of this thesis. The Five-Factor Model of personality structure will be referred to as the FFM (McCrae et al., 2013, p. 832; Zecca et al., 2013, p. 684), and when referring to Ability, Benevolence and Integrity as a unitary concept, this will be abbreviated as ABI, following the convention of Dietz (2011, p. 215) and Tan and Lim (2009, p. 55).

## **1.1 Importance of trust research**

Trust research has become very important in the current socio-economic environment. A number of very public scandals branded the 20th century, starting with the often-quoted Enron, WorldCom and Parmalat scandals, the demise of Arthur Andersen, one of the then major five global auditing firms (Bachmann & Inkpen, 2011, p. 283; Currall & Epstein, 2003, p. 193; Fulmer & Gelfand, 2012, p. 1207; Spector, 2003) and the financial crash of 2008, where the liquidation of Lehman Brothers and financial bail-out of major banks such as the Royal Bank of Scotland by governments with tax-payers' money. These scandals destroyed or seriously eroded trust in institutions, and in bankers and financial advisors specifically (Searle, Weibel & Den Hartog, 2011, p. 164).

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<sup>1</sup> Although the American Psychological Association only requires the citation of specific page numbers in the case of direct quotes, in this study specific pages are cited wherever possible for the sake of accuracy and ease of cross referencing. This was especially necessary when the various meta-analysis results were used during the development of the conceptual model, as very fine nuances in the wording of alternative items are important. The citation of specific page numbers also simplifies the electronic location and verification of conceptualisations.

Trust has been declining and it is hence important to dedicate more effort into trust research, as was already indicated more than a decade ago (Bews, Martins & von der Ohe, 2002). Waning trust is attributed to the fact that employees have become cynical in the face of reengineering, pressures to perform and increased layoffs, while at the same time management received bigger bonuses and shareholder pay-outs increased (Shaw, 1976; Zeffane & Connel, 2003). The increasing wage gap between the lowest paid workers and top management in all probability also contributed to this scepticism. As if to confirm this, Searle, Weibel et al. (2011) remark in their review that in the last 20 years, research into trust in the different social science disciplines has flourished and a dedicated Journal of Trust Research has been established. These aspects will be discussed in more detail in Chapter 2.

### *1.1.1 Global state of trust*

On a macro level there seems to be a difference in focus between the developing countries where the focus is on using and improving social capital, and the developed richer countries where the focus is on loss of trust in major corporations, professionals and governments (Paliszkiwicz, 2011, p. 315). Edelman (2014) reports that in contrast to the previous 14 years when they conducted the global trust survey, a stronger distrust of state-owned companies than before now exists globally. Trust in organisations in BRIC countries (Brazil, Russia, India and China) scored the lowest in the world while in South Africa only 17% of respondents trusted the government to do what is right. Edelman (2014) attributes this to high-profile public scandals in for instance Hong Kong and South Africa. After the financial sector crash in 2008, the banking sector unsurprisingly trails all other sectors as far as trust is concerned, and “with additional incidents this year, [are] facing continued public and regulatory reprimand over ethics, business practices and malfeasance” (Edelman, 2014). Interestingly, family-owned businesses that are considered the most trustworthy in the developed world are seen as “nepotistic and sometimes even corrupt” in the developing world. Regarding trust in government or business leaders, Edelman (2014) reports that 20% or less of the respondents felt that one could trust business leaders to make ethical and moral decisions or tell the truth even when it is unpopular. In the case of government leaders, this figure declined to 15% and 13% respectively. From these results concerning the macro context, it becomes abundantly clear that there is a lack of trust globally that needs to be addressed urgently, as more than 50% of the respondents to the Edelman trust barometer felt that there was not enough regulation of for instance the financial, energy and food sectors. In contrast, Nooteboom (2007, pp. 37-38) postulates that trust is probably much more prevalent in developing nations where it is often a necessary precondition for

efficient organisational functioning. Institutional controls are not as manifest as in developed countries, where a more calculative approach is common.

On a micro level, Edelman (2014) found that the general public placed the highest amount of trust in a company's employees (36%), rather than in the chief executive officer (27%) or a media spokesperson (16%). When it came to organisational information, the most trusted sources of information were technical experts or academics (66 % and 67% respectively).

In the next section the discussion will be moving from a macro perspective and indications of the amount of trust reported, to the more relevant (in the context of the current research) outcomes of employee trust.

### *1.1.2 Outcomes of employee trust*

In a meta-analysis it was found that the largest effect trust has on positive organisational outcomes is through its effect on individual performance, workplace satisfaction and organisational citizenship behaviour (Dirks & Ferrin, 2001, p. 455). Colquitt, Scott and LePine (2007) found that ABI could predict trust as well as affective commitment, while Searle, Weibel et al. (2011) summarise the state of knowledge on the outcomes of employee trust as improved individual work-related behaviour – not improved team or organisational performance, as this is probably affected to a greater extent by 'felt trust' or the perception of being trusted. Another area where high trust has a positive effect involves an improved willingness to learn, to share information and to admit mistakes, thus encouraging innovation on the part of employees (Searle, Weibel et al., 2011, pp. 168-169).

The benefits of trust can be summarised as lower information-processing costs by individuals when they decide to trust somebody, increased satisfaction with the relationship under consideration and greater certainty about the other party's behaviour (Gargiulo & Ertug, 2006, p. 172). Productivity is also increased when workers find their workplace more satisfying as a result of being treated as adults who can be trusted to work towards a common goal (Fukuyama, 1995, p. 31).

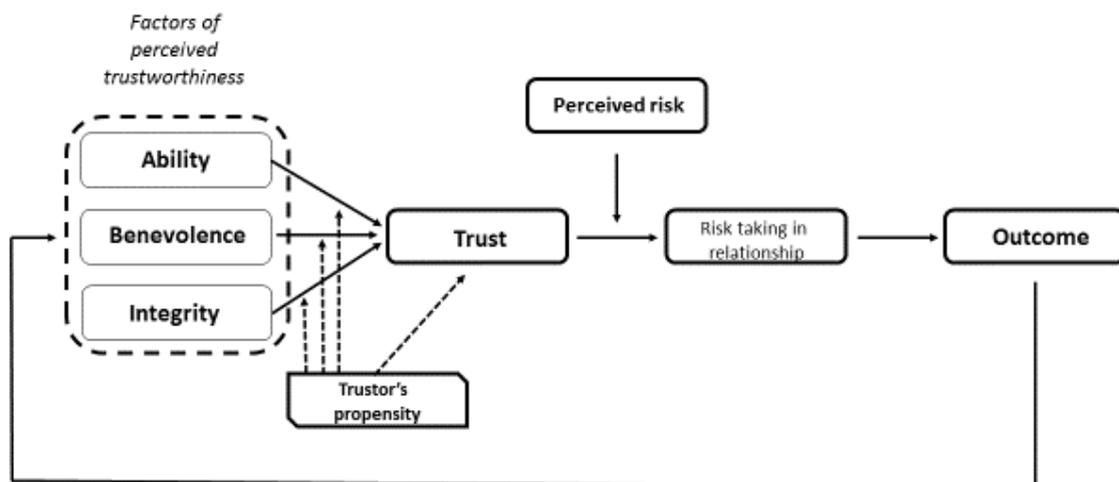
## **1.2 Relevant base models of trust**

Research undertaken by Martins, Watkins, Von der Ohe and De Beer (1997) led to the development of an instrument that could be used to provide an indication of the level of trust a subordinate has in the person to whom he/she reports. This instrument was based on the

assumption that trust in organisations is created by personality factors (agreeableness, conscientiousness, resourcefulness, emotional stability and extraversion) and managerial practices (information sharing, work support, credibility and team management). According to this model, a trustor views a trustee as trustworthy if certain levels of these characteristics or antecedents of trust are present. Von der Ohe and Martins (2010, p. 2) stated that the

*research by Martins et al. (1997) only focused on determining a relationship between personality, managerial practices and trust on a generic level but did not empirically address the specific aspects of personality and managerial practices that are at the core of the positive relationship found with trust. Martins (2000) subsequently developed a comprehensive model that defines the specific personality attributes or characteristics of the trust relationship, also taking into account specific components of managers' behaviour.*

In their chapter for the prestigious *International Review of Industrial and Organizational Psychology*, Searle, Weibel et al. (2011, p. 145) unequivocally state that the model by Mayer et al. (1995) is the most influential model of trust beliefs with its three components of trustworthiness. Ability, Benevolence and Integrity as postulated by Mayer et al. (1995) are deemed to be the antecedents of trust, and are believed to be the elements that constitute the basis for the perceived trustworthiness of any person who is to be trusted. In short, the *Integrative model of organisational trust* as proposed by Mayer et al. (1995) can be represented diagrammatically as depicted in Figure 1.1 below.



**Figure 1.1. Integrative model of organisational trust**

Source: Mayer et al. (1995, p. 715)

From Figure 1.1 it is evident that the one aspect that is not under the control of the direct supervisor or manager to whom the trustor reports, is the propensity to trust – a characteristic seated in the trustor. This variable could be considered a ‘given’ that any manager needs to take into account when trying to establish a trusting relationship and a decision was taken not to include it in the analysis.

Searle, Weibel et al. (2011, p. 145) however express their concern about the apparent inconsistencies when it comes to the content of each of these components and they suggest that “as this field matures, it may now be important to go back in order to tease out these differences”. This aspect will be addressed in greater detail on both a conceptual and practical level as an integral step in reallocating the item pool from the Trust Relationship Audit (that represents the Martins (2000) model), into the three Mayer et al. (1995) antecedents of trust.

### **1.3 The paradigm perspective**

In the empirical section, a quantitative and therefore deductive approach to empirical research was used and hence it follows a positivistic paradigm (Trafford & Leshem, 2012, p. 96) when revisiting the model proposed by Martins (2000). An inductive approach was adopted when the models of Martins (2000) and Mayer et al. (1995) needed to be integrated. To give due recognition to the complexity of the theory of trust in organisations, a more detailed analysis of the appropriate paradigmatic stance will follow in the next sections.

According to Lewicki and Bunker (1996) trust has been studied from the perspective of many different social sciences paradigms. They find it remarkable that little effort has been made to integrate these different perspectives, and summarise the three main perspectives as follows (Lewicki & Bunker, 1996, pp. 115-116):

1. *...personality theorists, who have focussed on individual personality differences in the readiness to trust and on the specific developmental and contextual factors that, shape this readiness...*
2. *...sociologists and economists, who have focussed on trust as an institutional phenomenon...*
3. *...social psychologists, who have focussed on the interpersonal transactions between individuals that create or destroy trust at the interpersonal and group levels.*

They claim that the third perspective is probably the one that is most applicable to trust in the business context. According to the original article by Martins (2000), trust appears to be a dynamic phenomenon that depends on the interplay between various factors that might affect the building of a model of trust. This also alludes to the social interaction between employees. Similarly, Cho and Poister (2014, p. 183) and Whitener (1997, pp. 396-397) use social exchange theory to explain the effect of managerial practices on trust in supervisors. The paradigmatic perspective that will be followed in this study is therefore closely associated with that of the social psychologists who define trust as an expectation about the behaviour of others in transactions (Bhattacharya, Devinney & Pillutla, 1998, p. 460; Lewicki & Bunker, 1996, p. 116) and reciprocity (Blau, 1989; Whitener, 1997).

From a paradigmatic viewpoint, the teachings of Gordon W. Allport are important not only as a proponent of the trait theory of personality, but also as a proponent of an eclectic approach to psychology (Allport, 1927, 1966). It epistemologically also avoids the pitfalls of a “(g)alloping empiricism [which] uses no rational method other than mathematical”, but rather follows a heuristic realism (Allport, 1966, p. 3) where empirical findings are interpreted from a rational perspective.

Since broad aspects such as managerial practices (as a behaviour), personality traits and trust – specifically the antecedents of trust as represented by ability, benevolence and integrity are investigated – the feeling is that humanistic psychology has the best fit as it is concerned with “the well-being of all persons, and in the importance of living life, with purpose and meaning” and its contribution to “organization and management, and social responsibility and change” ([www.apadivisions.org/division-32/about/index.aspx](http://www.apadivisions.org/division-32/about/index.aspx)). The founding researchers were Maslow, Fromm, Goldstein, Rogers, Horney and Gordon Allport, who all broke with the then prevalent positivistic, behaviourist or classical psychoanalytical perspectives (Sutich, 1961, p. viii). According to Greening (2006, p. 239), humanistic psychology has the following five basic postulates of which especially the last three are important in the context of the study of trust:

1. *Human beings, as human, supersede the sum of their parts. They cannot be reduced to components.*
2. *Human beings have their existence in a uniquely human context, as well as in a cosmic ecology.*
3. *Human beings are aware and aware of being aware — i.e., they are conscious. Human consciousness always includes an awareness of oneself in the context of other people.*

4. *Human beings have some choice and, with that, responsibility.*
5. *Human beings are intentional, aim at goals, are aware that they cause future events, and seek meaning, value, and creativity.*

The fourth assumption above regarding human choice and responsibility is especially pertinent in the context of the definition of trust as postulated by Mayer et al. (1995), as it concerns the trustees' willingness to undergo risk by making themselves vulnerable. Although in some instances studies in the behaviourist and neurology field are taken into consideration, a humanistic approach is adopted in this study as "[h]umanistic psychology aims to be faithful to the full range of human experience" and not only the data that supports a particular theory and concepts (Tart, 2005, p. 134).

The current revival of humanism in the field of organisational behaviour and more specifically in the field of management is represented by the "Humanistic Management Network" which subscribes to enhancing human dignity and well-being within a market economy and is "(a)gainst the widespread objectification of human subjects into human resources, against the common instrumentalization of human beings into human capital and a mere means for profit; we uphold humanity as the ultimate end and principle of all economic activity" (Amann & Stachowicz-Stanusch, 2013, p. xxviii). In principle the proponents of this paradigm want to balance quantitative methods with qualitative methods in managerial sciences. From this viewpoint it might seem like an antithesis that a study such as the current one which uses large quantities of organisational survey data and then analyses this, using advanced quantitative statistical modelling techniques, can have a humanistic grounding. However, for structural modelling techniques to be of any value, they have to be based on a strong theoretical model and domain knowledge (Hair, Black, Babin & Anderson, 2010, p. 110; Kline, 2011b, p. 5). Hence any decision taken consciously (or subconsciously) according to the accepted conventions of the technique applied is influenced by the researcher's choices and background. Kline (2011b, p. 191) addresses this directly when he unequivocally states that "(t)here is also no need to apologize about the role of human judgment in SEM or science in general ..., a scientific decision is ultimately a qualitative judgment that is based on the researcher's domain knowledge, but it will also reflect the researcher's personal values and societal concerns". In the current study this was the case every time before a new or alternative model was specified or a fit had to be tested, as the decision concerning which items to exclude or include as indicators of a latent construct was invariably influenced by the conceptual framework, literature studied and paradigm adhered to by the researcher. At the extreme this also concerns the seemingly objective choice of which variables to classify as endogenous or exogenous, or whether to accept or reject a structural regression

model (seeing that the mere fact that a model fits, does not make it theoretically acceptable). It is possible for an inexperienced or unethical researcher to manipulate modification indices, choose less sensitive fit indices, or change the number of cases included in an analysis to achieve statistically acceptable results, as a “specification search is an empirical trail-and-error approach” (Hair et al., 2010, p. 712). The above again emphasises the criticality of the ethical stance and underlying worldview that underpins any individual analysis decision. These aspects will be discussed in detail in Chapter 4.

Taking the multi-disciplinary nature of the trust literature into consideration, it is inevitable that there will be sections where for instance the insights from neuropsychology need to be considered, as their insights into certain trust-related phenomena give a unique explanation of behaviour that would not have been observable from behaviour. Combining paradigms, though often frowned upon and more problematic to use, has the advantage of taking cognisance of critical realism since we live in a real world – whether we believe it or not (ontological realism). How we make sense of this world is never really objective, as we are always constructing our own realism (epistemological constructivism; Maxwell, 2013, pp. 43-44). Kuhn (in Bird, 2013) pointed out this tension of commitment to one paradigm for the sake of progress in times of normal science – but to make real innovative advances, this paradigm-bound conservativeness needs to be abandoned. The fact that the original model by Mayer et al. (1995) was also based on a multi-disciplinary reading of the literature, ranging from philosophy and economics to psychology and management, has according to the original authors led to its robustness (Schoorman, Mayer & Davis, 2007, p. 344). One of the reasons the Mayer model seems to work so well is that it was initially based on multi-level and cross-level analyses. It not only looked at interpersonal trust, but also at (for instance) inter-organisational trust (Schoorman et al., 2007, p. 345).

In this study, only trust towards direct supervisors or managers is investigated – in other words, only the vertical, upward, dyadic trust between a trustor and a trustee. This approach can be classified as a social influence perspective since it does not address social processes as would have been the case from a social interaction perspective (Wekselberg, 1996, p. 333). Later studies such as Searle, Weibel et al. (2011, p. 144) will also focus on “individual employees’ trust of specific other organizational members (e.g., trust in a specific colleague or trust in the leader) as well as individual employees’ trust in generalized organizational entities (e.g., trust in management or in the organization as a whole)” and not only on the trustors’ psychological processes. Schoorman, Mayer and Davis (1996, p. 338) themselves defend the fact that they follow a social influence paradigm of social psychology as “the examination of relationships at the dyadic level (the social influence perspective) is a

critical step to understanding the concept of trust”. Furthermore, this study focuses on employee trust within the context of work organisations. It is not concerned with the currently popular topics of trust in virtual organisations or teams, nor trust in certain stakeholders such as clients, suppliers or government agencies.

Acknowledging the criticism of Wekselberg (1996, p. 333), the researcher focuses only on the perceived trustee characteristics of ability, benevolence and integrity, and thus on the “psychological processes and characteristics of the trustor”. Following the example of Dirks and Ferrin (2001, p. 451), trust itself will be considered from a psychological state and not as a dispositional construct as described by Rotter (1967, 1980) in his writings. Moreover, this study also adopts the additive principle as all the aforementioned antecedents of trust cumulate to a certain level of trust in a specific referent (Schoorman et al., 1996, p. 339).

As the Martins (2000) model uses the perceived personality characteristics of the person the trustor reports to as an antecedent of trust, the personality theorists’ viewpoint also needs to be considered, albeit to a lesser degree. Although, if the ‘propensity to trust’ as postulated by Mayer et al. (1995) were to have been included in the study, the personality approach would have been considered on a higher level. This research is consciously focused on the above paradigm and sees trust as a micro-level phenomenon between trustors and trustees. It does however acknowledge Bachman’s (2011, pp. 204-205) criticism that this does not recognise the complexity of organisational life and that it is not only a “dispositional attitude or state of mind” (p. 204) as proposed by Rousseau, Sitkin, Burt and Camerer (1998), but that the trust relationship is embedded in a greater socio-economic organisational reality that also influences the trust relationship between organisational members.

In this study trust will be defined from the perspective of industrial and organisational psychology. The researcher will use the definition that Martins (2000) and Mayer et al. (1995) used as a basis for their research and that will be discussed in the following sections.

#### **1.4 Definition of trust**

In their qualitative and quantitative analysis of the scientific literature dealing with the definition of trust over time, Walterbusch, Gräuler and Teuteberg (2014, pp. 1-2) find that since different scientific disciplines concentrate on different aspects, no single definition is possible. Also, since trust is considered a social construction, bias is always present, which makes it even more important to investigate the differences and similarities in definitions (as will be done in Chapter 2). After an extensive qualitative analysis of 121 definitions from the

last 50 years according to key words or concepts, a quantitative cluster analysis revealed some interesting generalisabilities. Except for the fact that nearly all definitions have a general stem, they do cluster certain key words together. This confirms the general trend of the definitions used in the organisational psychology or management studies disciplines above, for instance “confidence/confident”, “belief” and “exploit” cluster together, as well as “willingness”, “risk” and “vulnerability” (Walterbusch et al., 2014, p. 8).

Probably the most well-known definition of trust is the one by Rousseau et al. (1998, p. 395) cited 5010 times in Google scholar in 2014. This definition states that trust is “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another”. It again emphasises the psychological and interpersonal nature of trust that Lewicki and Bunker (1996) attributed to the social psychological domain. In the case of the current study, this definition is applied in the context of organisational behaviour and consequently falls in the field of industrial and organisational psychology.

In the context of the current study, the definitions of Mayer et al. (1995) and Martins (2000) are important as they are the foundations upon which their models are built. As such they form critical building blocks if these two models are to be integrated. Mayer et al. (1995, p. 712) defined trust as:

*... the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.*

Martins (2000, p. 28), on the other hand, defines trust “as the process where a trustor relies on a trustee (a person or group of people) to act according to specific expectations that are important to the trustor without taking advantage of the vulnerability of the trustor”. In conclusion, the approach adopted in this study can be summarised as follows: Trust is considered a workplace relevant belief or attitude towards another organisational member; it is in other words a psychological state – and concurring with Dirks and Ferrin (2001, p. 451) – is investigated from a micro-organisational and behavioural perspective.

Tinsley (1996) was of the opinion that the definition of trust needed an ethical component as both integrity and benevolence have an ethical undertone. But in the Mayer et al. (1995) model, benevolence does not have “ethical connotations” (Schoorman et al., 1996, p. 339), which makes “trust between thieves” possible (p. 340). The opposite is true in an

organisational context, as employees do not tend to trust organisations that do not behave according to moral and ethical principles (Hope-Hailey, Searle & Dietz, 2012, p. 14).

In the next section the measurement of trust as relevant to the current research will be addressed. It will address both theoretical considerations and practical measurement issues.

## **1.5 Measurement of trust**

Various versions of the Trust Relationship Audit (Martins & Von der Ohe, 2005) were used during the data collection. The detailed description of the original instrument is given in Martins (2000, p. 29).

### *1.5.1 Purpose*

The purpose of the Trust Relationship Audit is to

- indicate how satisfied employers are with the managerial practices and sources of information;
- discuss strengths and weaknesses regarding the organisation's trust levels and managerial practices;
- determine employees' satisfaction with change and change processes; and
- make suggestions/recommendations on how to increase or maintain the levels of trust and effective management practices in the organisation.

### *1.5.2 Dimensions of the Trust Relationship Audit*

The Trust Relationship Audit measures both personality aspects and managerial practices (Martins, 2000). In the Trust Relationship Audit, these personality factors are viewed as possible antecedents of interpersonal trust among superiors and subordinates. As an example, one of the elements of Agreeableness is being trusting (Harvey, Murry & Markham, 1995, p. 2).

The terminology that is commonly used when referring to the five-factor model of personality is based on the work of Norman (1963) who first used the terms "extraversion, emotional stability, agreeableness, conscientiousness, and culture" to label these personality dimensions as such (Furumo, de Pillis & Green, 2009, p. 39). This was also the origin of the expression "Big Five" as used by Martins (2000, p. 28) and of the alternative terminology

“Five-Factor Model” (FFM) that is used in the current research to avoid confusion between the factors found by Martins (2000) and the personality dimensions as identified in this study. The acceptance of the FFM of personality can mainly be attributed to the work of two groups of researchers who have centred around Costa and McCrae since 1985 (see for instance Costa & McCrae, 2010) and the meta-analysis by Barrick and Mount (1991).

No other model of personality has been as widely accepted or as much research been conducted with as the Big Five framework (Gosling, Rentfrow & Swann, 2003, p. 506). Not only do Martins (2000) and colleagues link personality to trust, but others have also investigated the impact of personality traits on trust – for instance, which personality traits are more important to maximise trust in virtual team members than in face-to-face teams (Furumo et al., 2009)?

### 1.5.3 *Personality aspects*

*The question ‘which traits influence workplace trust’ has largely remained unanswered.*

(Wöhrle, van Oudenhoven, Otten & van der Zee, 2014, p. 3)

In 1927<sup>2</sup> Allport defined a trait from different viewpoints, firstly from a quantitative paradigm as “... an independent statistical variable” (Allport, 1927, p. 285); from a genetic or behaviourist paradigm as “... a dynamic trend of behavior which results from the integration of numerous specific habits of adjustment, and which expresses a characteristic mode of the individual's reaction to his surroundings” (Allport, 1927, p. 288); and from a Gestalt paradigm as “a general and habitual mode of adjustment which exerts a directive effect upon the specific response” (Allport, 1927, p. 290). For the purpose of this study all of the above propositions are valuable, but summarised best as:

*A trait is known not by its cause, but by what it causes; not by its roots but by its fruits.*

(Allport, 1927, p. 289)

The above article by Allport seems to have regained popularity recently (32 Google Scholar citations since 2010) and was even proposed by Piekkola (2011, p. 2) as a theoretical basis

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<sup>2</sup> “To suggest that because a theory is old it has no further informative power would be an error.” (Piekkola (2011, p. 2) when revisiting Allport.)

for considering the traits as espoused by the Big Five theory as “traits of temperament and not personality traits”.

In this study a list of 39 bi-polar items was used to measure the Big Five personality traits – not of oneself, as is the case in most self-report studies, but rather how the respondent evaluates the trustee, in this case the person they report to. This procedure could be categorised as observer reports.

Although some would suggest that 39 items are not enough for a measure to have strong psychometric properties, a shorter instrument is sometimes necessary as it would not be practical to conduct the survey or research if the scale is too cumbersome and long. This is especially the case if multiple persons or multiple constructs need to be rated on multiple occasions (Gosling et al., 2003, p. 505) and especially pertinent if (as in this case) personality is not the principal focus area of the study (Gosling et al., 2003, p. 504). The Big Five Personality Dimensions included in the Trust Relationship Audit are Conscientiousness, Agreeableness, Emotional stability, Resourcefulness (openness to experience) and Extraversion. These dimensions will be discussed in more detail in Chapter 4.

#### *1.5.4 Managerial practices*

A unique feature of the Martins (2000) model is the fact that it measures certain managerial practices as antecedents of trust. Although Whitener (1997) already postulated that certain human resources activities would increase trust in the supervisor or leader, Brower, Lester, Korsgaard and Dineen (2009, p. 343) suggested that activities or practices that make the manager or supervisor more vulnerable – such as empowering employees and exchanging information – will increase their trustworthiness. The only published research that is currently available on managerial practices – except for that by Martins and colleagues in the context of trust in leadership – also focuses on human resources managerial practices and not on general managerial practices (Cho & Poister, 2013, 2014). The dimension of managerial practices originally consisted of the following four subdimensions:

- Credibility
- Team management
- Information sharing
- Work support

A detailed discussion of these subdimensions will be presented in Chapter 4.

### 1.5.5 *Trust relationship*

This dimension reflects the relationship with the immediate supervisor in terms of openness, honesty, fairness and intention to motivate employees. It consists of items that measure the following statements:

- I have an open, trusting relationship with the person I report to.
- The person I report to, openly and honestly reveals important work-related facts to me.
- The person I report to, is fair in judging my performances.
- The person I report to, demonstrates good intentions and motives towards me.
- I can believe what the person I report to, says.

Some of these items might load on the antecedents of trust as postulated by Mayer et al. (1995) as can be seen from cursory examination. For instance, the fourth item above refers to “good intentions” which in all probability will load on the benevolence component of trustworthiness.

### 1.5.6 *Additional dimensions*

Confidential contract research undertaken in South Africa from 1998 to 2000 has indicated that the following additional dimensions need to be included in the questionnaire:

- Information sources – this dimension measures the reliability and sufficiency of information sources.
- 360-degree trust – this dimension measures the impact of trust on all organisational levels, as well as felt trust. It is an indication of how much employees trust others and how well they think they are trusted.
- How change is experienced by different employees.

The above dimensions are not the direct target of this study, but certain items included in the 360-degree trust scale will be used as indicator variables for the dependent or outcome variable.

### 1.5.7 *Psychometric properties*

Concerning the psychometric properties of the Trust Relationship Audit, various studies have provided support for the reliability and validity of the underlying structural regression model

(Martins, 2000; Martins, 2002; Van der Berg & Martins, 2013; Von der Ohe, Martins & Roode, 2004). The detail indices will be discussed in a later chapter. These properties are of secondary importance to the aim of this study, namely the integration of the Martins (2000) model with the Mayer et al. (1995) model.

#### *1.5.8 Data collection*

In the majority of cases, either the researcher himself or (a) registered industrial psychologist(s) collected the original data for Martins et al. (1997). An online survey was used to collect the data for a longitudinal study that was conducted in 2008 and 2009 (Von der Ohe & Martins, 2010; Martins & Von der Ohe, 2011). For the study of Van der Berg and Martins (2013), the data was collected by way of internet-based survey methodology.

In a major organisational intervention from 1998 to 2001, which was the source of most of the data designated, organisational development practitioners who had been trained by the researcher distributed the questionnaires to the respondents. A covering letter explaining the nature of the audit, the fact that anonymity was guaranteed and what the results would be used for also accompanied the questionnaire. The practitioners furthermore assisted the respondents if they had any problems with any of the items, for instance language or semantic problems. The data was then captured electronically by professional data clerks and checked for correctness according to accepted data management procedures.

Although most of the data was used previously and underwent rigorous quality control before being used as a basis for peer-reviewed articles, additional analysis will be undertaken to ensure that it complies with the minimum requirements and underlying distributional assumptions for each technique used, as recommended by Kline (2011b, p. 98).

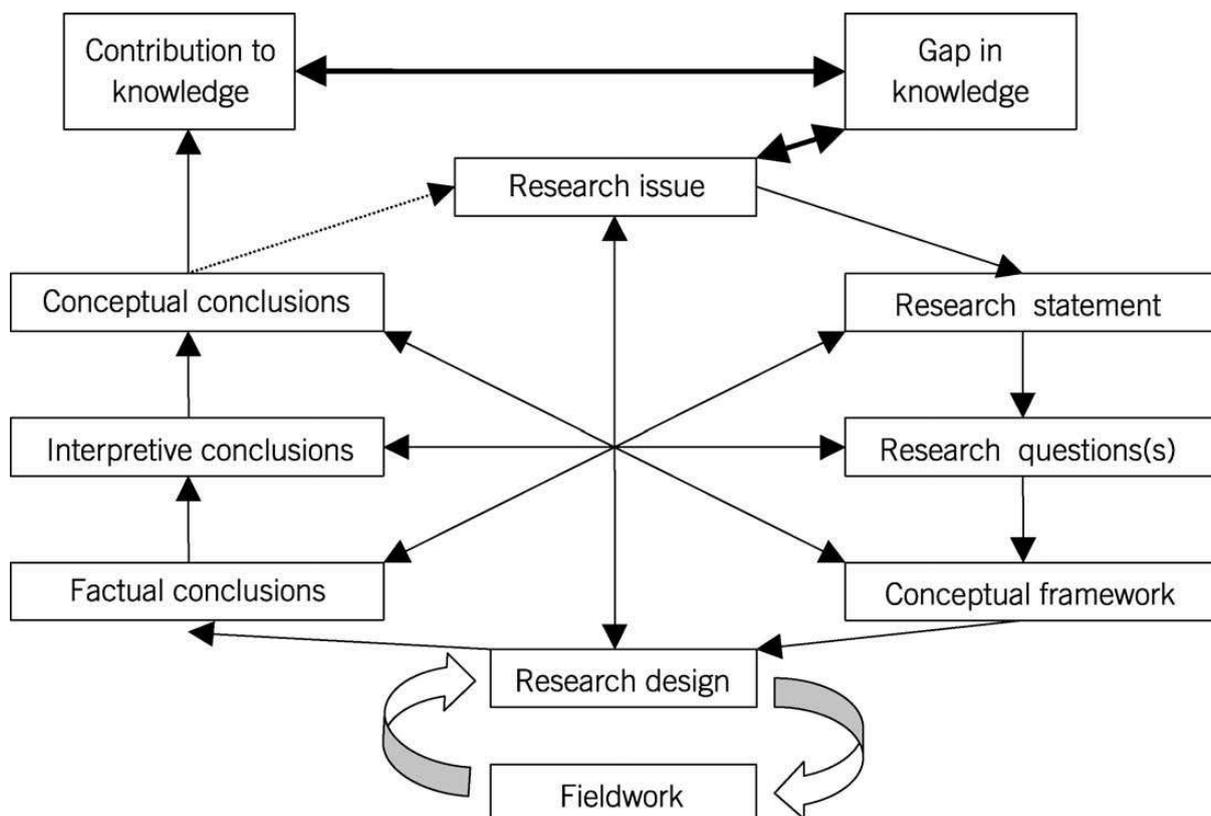
#### *1.5.9 Data processing*

Preliminary exploratory data analysis will be carried out by using SPSS 22 (2013) to gain insight into the statistical properties of the data and to explore any tendencies that can be identified. Aspects to be investigated will be the statistical distribution of the various biographical variables, and statistical properties such as the means, standard deviations and range of the various dimensions will be determined. A correlation analysis will be conducted to determine the relationship between the various dimensions and organisational trust. Internal consistency of the scales will be determined by way of Cronbach's alpha. The bulk

of the statistical analysis will be based on structural equation-modelling procedures that are discussed in more detail in Section 1.8.2.

## 1.6 Structure of the research: Conceptual framework

Figure 1.2 depicts the structure of the current study. It illustrates the “magic circle” of the doctoral journey as proposed by Trafford and Leshem (2012, p. 170), and provides a strategic overview of the research process (Trafford & Leshem, 2012, pp. 168-169).



**Figure 1.2. The magic circle – visualisation of the doctoral research process**

Source: Trafford & Leshem (2012, p. 170)

The advantage of following such a process is the interactive and circular process depicted. In the traditional linear depiction, the dynamic and interactive nature of the research process is lost. As the study progresses, certain previous stages are revisited and adapted as the need arises and new knowledge is gained. This is especially the case in the initial and final stages of the research. The cycle is the result of a gap in knowledge that is identified and that informs the general research issue as well as the research statement (aim). From the resulting research aim, in other words *what the study intends to achieve* ([www.oxforddictionaries.com](http://www.oxforddictionaries.com)), the research question needs to be stated in a more specific

manner, so that the research question can identify the specific *objectives* of the research (<http://airs.library.qut.edu.au/1/1/>). Hence, a specific research question is formulated.

The conceptual framework that constitutes the basis of the study is the “theoretical framework” or “idea context”, which is described by Maxwell (2013, p. 39) as “the system of concepts, assumptions, expectations, beliefs, and theories that supports and informs your research”. This framework is crucial as it determines the paradigms and meta-theoretical assumptions of the study and influences the research design and fieldwork. The gap in the body of scientific knowledge is hoped to be closed by the contribution made by the research, based on the conclusions reached. These factual, interpretive and conceptual conclusions are in constant interaction with the research statement, research questions and conceptual framework (as depicted by the double-headed arrows in the centre of Figure 1.2).

A conceptual framework is also known as a “core concept, focal theory, mapping the research territory, theoretical framework” (Trafford, 2014, p. 2) or even as foundation, paradigm or construct. Various tools can represent such a conceptual framework, such as visual displays, maps, networks, flow charts or web diagrams (Leshem & Trafford, 2007, p. 104). The conceptual framework represents “the researchers’ paradigm through a combination of identified conceptual variables” (Leshem & Trafford, 2007, p. 99) that “can be viewed as providing a theoretical overview of intended research and order within that process”, thus “paradigms and conceptual frameworks display certain similar dimensional characteristics and roles” in research (p. 96). According to their description and analysis of various authors over time, it is clear that structural regression models, as conceptual modelling, can be the underpinning origin of a conceptual framework (pp. 96, 98), as they provide the link “between empirical observations and conceptual conclusions” (p. 101).

To conceptualise the current study, the framework by Trafford and Leshem (2012, p. 170) presented in Figure 1.2 is deconstructed and discussed in the following sections (see 1.6.1, 1.6.2 and 1.6.3) in a linear sequence of steps for the sake of clarity. Certain aspects – such as the specific aims of the study as normally represented in the classical layout of quantitative research studies – are incorporated in this description for completeness.

A gap in the body of scientific knowledge became apparent when attempts were made to explain findings from South African trust research in terms of the international trust literature. Findings were subsequently published in the psychology literature instead. A case in point is Martins and Von der Ohe (2011) published in the *Journal of Psychology in Africa*. This severely limited the accessibility of important research for a large component of the scientific

community, specifically in the field of industrial and organisational psychology. This caused a situation where significant advances in international trust research could be linked to South African research only with great difficulty. In the global debate on the structure of trust, no answer could be given whether South African results pointed in the direction of Euro-American results or Asian results. Consequently, the current study aims to find a link between the model proposed by Martins (2000) as a representative of the South African trust research and the generally accepted model by Mayer et al. (1995).

### *1.6.1 Research problem*

Ferrin et al. (2008, p. 174, quoted as an opener for this chapter) request that a common terminology be used, while McEvily and Tortoriello (2011) remark that the multitude of measures lead to a state where studies and concepts cannot be compared and thus no basis is constructed whereupon the trust literature can develop. The study in hand attempts to “retranslate” the Martins (2000) model and the Trust Relationship Audit survey instrument (Martins & Von der Ohe, 2005) developed for the South African context into the conceptual model postulated by Mayer et al. (1995). It is essential to be able to integrate and compare the results of various studies on interpersonal trust in organisations so as to establish a “cumulative body of knowledge, consistent with Kuhn’s notion of ‘normal’ science” (McEvily & Tortoriello, 2011, p. 25). Such an integrated body of knowledge makes it possible to uncover the underlying causes of trust, what the outcomes or consequences of trust are and, more fundamentally, the real nature of trust (McEvily & Tortoriello, 2011, p. 25; p 40). Kuhn (1970, p. 35) himself sees this as a phase of “puzzle solving” where very few great discoveries are made – rather a period where small incremental discoveries build upon each other. Great discoveries can only be made when a paradigm shift occurs, i.e. one paradigm is exchanged for another (Kuhn, 1970, p. 66) or when a ‘new’ paradigm is applied to a problem that was previously always approached from a different paradigm (p. 29). Such a paradigm shift makes a cross-disciplinary comparison possible and encourages cumulative research. According to Searle, Weibel et al. (2011), the detailed differences between the various exact definitions of what ability, benevolence and integrity (ABI) as antecedents to trust really are, were evaded or dismissed as not important. This might have to change “as this field matures” and “it may now be important to go back in order to tease out these differences” (Searle, Weibel et al., 2011, p. 145). Thus it seems that researchers propagate a need for a phase of normal science, or according to Kuhn (1970), to fit the pieces of the puzzle together.

In this context, Dietz and Den Hartog (2006) made a promising start and as such constituted an important point of departure in the current study when it came to developing coding guidelines for classifying the Trust Relationship Audit item pool into clusters or factors representing the antecedents of trust under the ability, benevolence and integrity components as manifested in the Mayer et al. (1995) model.

The present study can also address another of the problems inherent in the huge number of trust measures in an indirect way. In their review McEvily and Tortoriello (2011, p. 41) discourage the creation of new measures of trust and rather encourage the use of the current “good” measures to build the database of replications. The only exception they consider as justified is when the trust measure involves different cultures or societies, as was the case when the Trust Relationship Audit was developed. Nonetheless, by “reverse engineering” the Trust Relationship Audit from a South African multi-cultural context back to the most widely accepted Western -based instrument and trust theory, it is perhaps possible to address the question they pose, namely whether trust in other cultures can be equated to what the authors of the mainstream literature understand under trust (for instance in the Mayer et al. (1995) model).

Returning to the conceptual framework as suggested by Trafford and Leshem (2012) in Figure 1.2, the first aspect that needs to be identified is the research issue or gap in the knowledge in the field of study. In the case of the current study, the issue is whether trustworthiness manifests itself in South Africa in the same way as in other countries in terms of the international accepted indicators of trustworthiness (ability, benevolence and integrity). There is a need to elaborate on the link between the South African research and the research based on Mayer et al. (1995) concerning the components of trustworthiness that function as antecedents of trust.

Currently the South African research based on the study by Martins (2000) is not comparable to international research and it is not possible to determine how trustworthiness in South Africa compares to the situation globally. Consequently, it is not clear which trust building strategies might be most beneficial. Secondly, as the South African literature is not directly comparable to the major international research findings, the local results are not included in the common knowledge base pertaining to trust literature.

The **research question** (RQ) can hence be formulated as follows:

How can the Martins (2000) antecedents of trust in organisations be incorporated in the Mayer et al. (1995) Integrative Model of Organizational Trust to explain the mechanisms by which trust manifests in the organisational context?

In other words:

How does trust as a psychological and sociological concept in an organisational context link to perceived personality traits and managerial practices? Specifically, how can the (1) perceived personality characteristics, and (2) perceived managerial practices of the direct supervisor or manager be used to determine ability, benevolence and integrity as components of trustworthiness or antecedents of trust in the person the employee reports to?

### 1.6.2 Aims and objective of the study

After the identification of the gap in the body of knowledge and the formulation of the research question, the general aim (GA) of the research can now be stated as follows:

*The general aim of this research is to develop a unified conceptual model of organisational trust relationships with specific reference to the structure of the antecedents of trust within the construct of subordinates' trust.*

The specific literature aim (L<sub>A</sub>) is to investigate the trust literature to assess the viability of and procedure for integrating the Martins (2000) and Mayer et al. (1995) models. To achieve this, two literature sub-aims are formulated to describe the concept of trust (L<sub>A1</sub>) and the practical implications of trust in organisations (L<sub>A2</sub>).

The specific aims regarding the concept of trust (L<sub>A1</sub>) are to investigate and describe

- the increased importance of trust in the academic literature and also the importance of trust on a macroeconomic and organisational level (L<sub>A1a</sub>);
- how the academic literature defines trust and the supported models of trust. This includes the different types of trust that have been described and the process of trust development and destruction (L<sub>A1b</sub>).

The specific aims concerning trust in practice (L<sub>A2</sub> as stated above) are to investigate and describe

- the process of maintaining, enhancing and repairing trust relationships in organisations and, specifically, trust in leaders and other foci of trust (L<sub>A2a</sub>);

- the Martins (2000) model for managing trust and its components of personality and managerial practices as antecedents of trust (L<sub>A</sub>2b); and
- South African trust research and the influence of different cultures on organisational trust relationships (L<sub>A</sub>2c).

The primary empirical aim of this study is to develop a unified organisational trust model by analysing secondary data collected through the Trust Relationship Audit (E<sub>A</sub>). The specific empirical aims are to

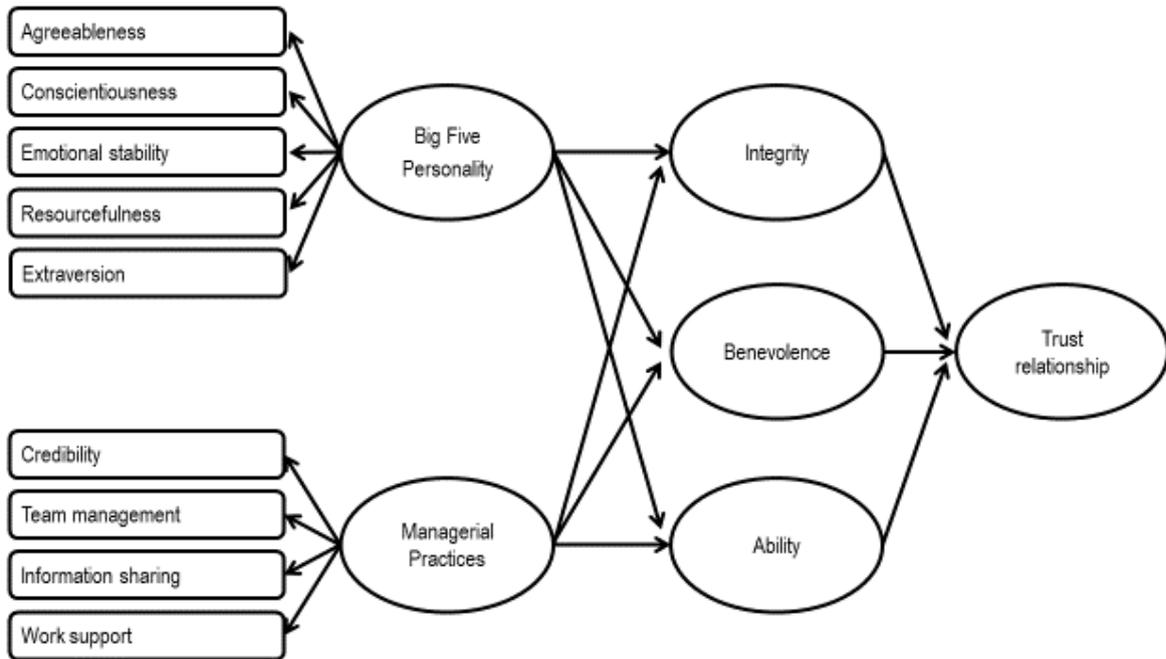
- investigate the trust relationship between employees and their supervisors as measured by an adapted version of the Trust Relationship Audit (Martins & Von der Ohe, 2005) to re-examine any significant relationships and determine the internal consistency of the adapted Trust Relationship Audit (E<sub>A</sub>1);
- confirm the validity of the Martins (2000) model by means of a confirmatory factor analysis (E<sub>A</sub>2);
- re-classify the Trust Relationship Audit (Martins & Von der Ohe, 2005) item pool into the three Mayer et al. (1995) antecedents of trust (E<sub>A</sub>3) by determining which questions from the item pool focus on ability, benevolence and integrity as components of trustworthiness in the organisational trust relationship; and
- empirically test a unified trust model by way of structural equation modelling (specifically structural regression) to find support for the theoretical model (E<sub>A</sub>4) by way of conceptualising a unified trust relationship model that incorporates both the Martins (2000) antecedents of trust and the Mayer et al. (1995) components of trustworthiness.

The objective hence became to develop a unified organisational trust model by integrating the South African Martins (2000) model with the generally accepted Mayer et al. (1995) model. **Specifically: how can the components of trustworthiness – ability, benevolence and integrity – as postulated by Mayer et al. (1995) be extracted from the item pool of the Trust Relationship Audit (Martins & Von der Ohe, 2005)?** (The latter measures the five main personality dimensions, four managerial practices and trust relationship according to Martins (2000) by using South African secondary data.)

### 1.6.3 *Conceptual framework*

In terms of the Trafford and Leshem (2012) model, the conceptual framework (or paradigm) used as a guideline for this study to develop a unified model of trust can be represented as

depicted in Figure 1.3. The unified model of trust integrates the Big Five trait theories of personality (Norman, 1963), and managerial practices (Martins, 2000) with ability, benevolence and integrity as antecedents of trust (Mayer et al., 1995).



**Figure 1.3. Conceptual model integrating antecedents of organisational trust**

The above unified model of trust will be used as the theoretical framework and function as the heuristic for this study (Trafford, 2014). It will also guide the research design, which consists of an analysis of secondary data collected by means of the Trust Relationship Audit between 1995 and 2013 in South Africa. Structural equation modelling will be employed to conduct confirmatory factor analysis and after re-allocation of the Trust Relationship Audit item pool into new constructs, latent variable analysis will determine the best-fitting model by means of structural regression analysis.

Lastly, the results represented on the left-hand side of the “magic circle” (see Figure 1.2) are inter-connected, interact with the aims and objectives above, and will be discussed in Chapter 6. Chapter 5 will only report on the factual findings of the empirical study as they are very extensive. The integrated findings, interpretive conclusions and conceptual conclusions will be presented in Chapter 6, as well as the limitations and future research possibilities flowing from this. In this last chapter the contribution of this study to the knowledge base of industrial and organisational psychology will also be discussed.

#### *1.6.3.1 Integrative findings*

The results will be interpreted by comparing the new integrated organisational trust relationship model with the original models and literature as discussed in the previous chapters.

#### *1.6.3.2 Conclusion*

The factual and conceptual conclusion concerning the main aim as set for this study will be specifically addressed. The integrated model is expected to explain organisational trust relationships significantly better than do current models, and it will greatly enhance the comparability of local to international findings using the Mayer et al. (1995) terminology.

#### *1.6.3.3 Limitations of the research*

The main limitation that may play a role in this study is that the results might not be generalisable to the general population, as the sample will be drawn only from employees in large organisations.

#### *1.6.3.4 Recommendations*

The recommendations flowing from the current study will be formulated to address the problem statement, give guidelines for solutions and identify areas for further research.

### **1.7 Chapter layout**

In chapter 2 the focus will be on the concept of trust and its importance. In Chapter 3, trust in practice and relevant South African research will be discussed, followed in Chapter 4 by the empirical research design and methodology. In Chapter 5 the actual research findings will be presented and the results of the confirmatory factor analysis, the structural equation modelling and associated statistical analysis are reported there. The final task, namely to bring meaning to these results (Trafford & Leshem, 2012, p. 128), is done in Chapter 6 where the integrated findings of this study will be presented. These integrated findings link the results back to the previous chapters and the literature, while they also serve as the basis for the factual and conceptual conclusions that are reported. The limitations and suggestions for further research will also be presented in Chapter 6, as well as the

implications emanating from this research as applicable to real-life trust building and maintenance in an organisational context. Hence, the chapter layout will be as follows:

Chapter 1 - Scientific orientation to the research

Chapter 2 - The concept of trust

Chapter 3 - Trust in practice

Chapter 4 - Empirical research design and methodology

Chapter 5 - Results

Chapter 6 - Findings, conclusions, limitations and recommendations

## **1.8 Research method**

The section below serves as a summary of the general background to the study, as secondary data was collected over a relatively long timespan from various organisations in South Africa. The details concerning the sample composition, measuring instrument and research procedure will be discussed in Chapter 4.

### *1.8.1 Phase 1: Literature review*

As a first step, organisational trust as a concept was investigated to determine the components of trust and what models of trust are currently accepted in the literature (Chapter 2). The second step describes the manifestation of organisational trust with the aim to determine its importance and role in trust relationships in an organisational context. Specific reference is made to the Martins (2000) model that measures trust in a South African context.

### *1.8.2 Phase 2: Empirical study - research procedure*

As there have been so many developments in the field of trust research (see Chapter 2) and hence some new insights into the theory of trust, it seemed wise to re-evaluate the model proposed more than ten years ago (Martins, 2000, 2002) and investigate if a re-analysis with newer statistical techniques would not answer the questions and clear up the idiosyncrasies that were found (van der Berg & Martins, 2013). As Martins (2002) comments, structural equation modelling is a statistical technique to confirm if a conceptual model fits the data collected. It confirms a model - it does not create new models. The main features of structural equation modelling as a statistical technique can be summarised as follows (Hair et al., 2010; Ho, 2006):

- It is a multivariate technique attempting to explain “multiple interrelated dependence relationships” (Hair et al., 2010, p. 635) between exogenous and endogenous variables simultaneously (Ho, 2006, p. 281).
- Its origins are factor analysis, path analysis and multiple regression analysis.
- It estimates unobserved (latent) variables or constructs from indicator variables.
- It includes an estimation of measurement error.

The detailed steps and associated background pertaining to structural equation modelling are discussed in Chapter 4.

In chapter 5 the empirical analysis of the data will be presented, and the sample composition and size will be described to place the data into context. Descriptive statistics for the Likert scales and Likert-type items will be reported to determine their suitability for latent variable analysis. The reliability of the various factor scales will also be determined by means of an internal consistency index, in this case the commonly used Cronbach’s alpha coefficient.

As a precursor to fitting the current data to the conceptual model by using structural equation modelling, the model of Martins (2000) will first need to be replicated by way of a confirmatory factor analysis (CFA) to confirm the factor structure (Mayer & Gavin, 2005, p. 879). This is necessary to ensure a sound foundation for the steps to follow.

If the data fits the Martins (2000) model, the next step will be to test the measurement model, which tests the “relationship among hypothesized latent variables and the observed variables whose scores they influence” (Bowen & Guo, 2011, p. 76). Determining the fit of the measurement model is accomplished by using another CFA (Bowen & Guo, 2011, p. 78; Hair et al., 2010, p. 673). This analysis will also determine if the measurement model chosen can replicate the matrix of the sample data.

In this step the indicator variables that represent the latent constructs are specified. Such specification is crucial in the current study as the items used in the Trust Relationship Audit (Martins & Von der Ohe, 2005) will need to be reclassified into the antecedents of trust as specified by Mayer et al. (1995). Following a similar procedure as used by Harvey et al. (1995, p. 2) who attempted “to determine the degree to which the existing MBTI item pool could be scored to provide a measure of the Big Five’s missing Emotional Stability dimension”, the current study will attempt to determine how to score the existing Trust Relationship Audit item pool to provide a measure of the Mayer et al. (1995) antecedents of trust. In this process, each item will be investigated individually and re-coded to represent

Ability, Benevolence or Integrity (if applicable). To ensure validity, this process will be a highly structured process. It will make use of the trust literature gathered in the literature chapters, analyse the results of other empirical published studies to determine the factor loading of similar items and last, but probably most important, it will use the opinions of subject matter experts as a basis for item classification and the resulting specification.

Any structural equation model that is test fitted to a dataset needs to be based on a strong theoretical model (Hair et al., 2010, p. 638). Also, any subjective decisions concerning the fixing of parameter constraints (Arbuckle, 2012, p. 43) or any modifications of the model should be based on sound theoretical reasons (Bowen & Guo, 2011). The researcher should avoid subconsciously making modifications for the sake of better fit (Kline, 2011b). Care should furthermore be taken, as in structural equation modelling (SEM) the purpose is to reject the null hypothesis, given that it is false (Martins, 2000). The null hypothesis is assessed by means of a discrepancy function of the covariance between the variables included in the model and the data characteristics.

A two-phase approach will be used to determine a structural regression model. In the first phase the measurement model will be tested by way of a confirmatory factor analysis as part of the data reduction task involved in scale development (Bowen & Guo, 2011, p. 75). This is also the first step when testing structural equation or regression models (Bowen & Guo, 2011, p. 73). In the second phase the structural regression equation will be determined by way of latent variable modelling where constructs (unobserved concepts) are estimated by way of multiple interrelated dependence relationships (Hair et al., 2010, p. 635).

Testing alternative models is an integral part of good SEM practice – no structural model will fit all possible data so well that another way of specifying the structural relationships will not be possible. Although this is a quantitative positivist approach, the need for sound theoretical conceptual decision making is not diminished, as a researcher should always strive for the most parsimonious model (Bowen & Guo, 2011, p. 75).

#### *1.8.2.1 Research participants*

The present study will make use of secondary data that has been collected in various organisations over nearly two decades (1995 to 2013), mostly as an integral part of various organisational interventions. Some of the data was collected for the development, improvement and validation of the original trust survey and will be discussed in detail in Chapter 4. Different subsamples will be used for the different analyses (depending on the

existence of missing values in the dataset) as structural equation modelling is very susceptible to the effects of incomplete data, especially if the data is not 'missing at random' or 'missing completely at random' (Kline, 2011b, p. 55).

#### *1.8.2.2 Measuring instrument*

The survey instrument that forms the basis for this study was originally conceived by Martins et al. (1997) and the original structural regression model based on it was published by Martins (2000). As the instrument was used for data collection in both primary research and organisational trust interventions, it was never a static entity and was consistently refined to address specific organisational needs or theoretical concerns. Items were added over time to include different foci of trust such as subordinates, peers, supervisors and change management (Martins & Von der Ohe, 2005).

#### *1.8.2.3 Research variables*

The main independent variables (or exogenous variables; Kline, 2011b, p. 95) of interest in this study are the various conceptualisations of the antecedents of trust as postulated by Martins (2000) and Mayer et al. (1995), while the outcome or dependent variable is the trust relationship with the direct supervisor or manager in an organisational context.

Concerning the trust construct, the items enquiring about how much the target person trusts various others (foci of trust) involve a single item each. Just as is the case with Searle, Weibel et al. (2011, p. 144), the current study includes both individual employees' trust of specific other organisational members (e.g. trust in a specific colleague or trust in the leader) and individual employees' trust in generalised organisational entities (e.g. trust in management or in the organisation as a whole). The five-point Likert-type items require the respondents to rate how much they trust their direct supervisor, manager, top management and lastly their co-workers or team members. On the other hand they also have to rate how much they think these same entities trust them. These eight items, measuring felt trust, were included only in certain surveys from 2000 onwards.

#### *1.8.2.4 Type of research*

The research in hand is a quantitative empirical study of an exploratory and descriptive nature, culminating in a conceptual model. It boils down to hypothesis testing, using structural equation modelling (Byrne, 1998; Schumacker & Lomax, 1996).

#### *1.8.2.5 Unit of analysis*

The individual as a member of an organisation will be investigated indirectly. More specifically, the individual's orientation towards his/her direct supervisor or manager will be investigated in a cross-sectional study.

#### *1.8.2.6 Methods to ensure reliability and validity*

To ensure validity and reliability, an exhaustive literature review will be undertaken and state-of-the-art structural equation modelling techniques as discussed in the following sections will be used as statistical procedures. The adapted Trust Relationship Audit (Martins & Von der Ohe, 2005) as a measurement of trust will be re-validated, while the currently used model (Martins, 2000) of organisational trust will be re-evaluated by means of a confirmatory factor analysis.

#### *1.8.2.7 Statistical analysis*

The data will then be analysed by means of structural equation modelling techniques (Byrne, 1998; Schumacker & Lomax, 1996) to determine the applicability of the model proposed by Martins (2000). Structural equation modelling is a linear cross-sectional statistical modelling technique that includes confirmatory factor analysis, path analysis and regression analysis (Kline, 2011a). Amos SPSS will be used for the purpose of conducting both the confirmatory factor analysis as well as the latent variable modelling (Arbuckle, 2013).

The resultant model should confirm the conceptual model illustrated in Figure 1.3 and will in all probability need to be refined after the extensive literature review. Further adaptations will take place during the empirical analysis as the specification and fitting of alternative models is an integral component of structural equation modelling.

### **1.9 Conclusion**

In summary, it can be said that the aim of this study is to empirically and conceptually integrate the Martins (2000) model (consisting of two constructs (Big Five and MP) and nine subdimensions) with the three-factor model of Mayer et al. (1995). The nine subdimensions are to be redefined into the three components of trustworthiness (ability, benevolence and integrity). These antecedents of trust function as observed endogenous variables that predict trust in the supervisor or direct manager.

In Chapter 1 the scientific background to the study was sketched, the research problem was stated, the research aims were declared and the paradigmatic perspective was set. Next, the research design and research methodology were described and the layout of the study was determined.

In Chapter 2 the literature on trust will be discussed, specifically the importance of trust to an organisation, the different definitions of trust, the various classifications of trust and the models that have been proposed to clarify the relationship between trust and organisational behaviour.

## Chapter 2: The Concept of Trust

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*Generally speaking, trust reflects the process of one party A (the trustor) trusting another party B (the trustee).*

(Costa & Anderson, 2011, p. 122)

In this chapter the literature background for this study is provided. An explanation of what trust is, is given and why it is important for organisations to investigate this concept. Different models that have been suggested in the literature to investigate trust are also discussed.

A multi-disciplinary or multi-paradigmatic approach will be adopted in this chapter, taking into account the dangers of following such an approach. The advantages of this approach should however outweigh the disadvantages. In their editorial published in the *SA Journal of Industrial Psychology*'s special issue on organisational trust, Bews et al. (2002) emphasised the use of an interdisciplinary and not only a multi-disciplinary approach. A cross-disciplinary openness is an advantage. Concerning the need for multidisciplinary research, various authors (see Fichman, 2003; Lewicki, Tomlinson & Gillespie, 2006; Rousseau et al., 1998) suggest that it is necessary to take into account the insights of scholars in fields such as "biology, economics, psychology, organisational behaviour, sociology, political science, social psychology, and anthropology" (Fichman, 2003, p. 135).

Chapter 2 therefore corresponds with the objectives as set out in the first chapter, namely to first give a background to the concept of trust in the current wider economy and organisational setting, then look at the way trust is defined, how these definitions are conceptualised in models of trust, and what bases or types of trust flow from the models of trust. Lastly, the process of trust formation will be discussed as this represents the way in which trust is operationalised from the trust models.

## 2.1 The state of trust

Research on trust in the organisational field really blossomed during the mid-1990s when the often-cited book by Kramer and Tyler (1996) and the articles by Mayer et al. (1995), Hosmer (1995) and McAllister (1995) were published (Schoorman et al., 2007). This sudden interest in trust could possibly be linked to the general climate of mistrust at the time (Edelman, 2013a). For instance, in an article aptly titled “Sceptical, disgruntled and mistrustful”, Ettore (1995) reported that three surveys in the United States of America (US) found that workers did not trust their management anymore, due to unethical behaviour by business leaders (Hassan & Ahmed, 2011). Another series of surveys conducted in the US found that trust had declined in 75% of the organisations during 1996 and 1997. Similar results were found in Europe and blamed on the pending European Union expansion by McCune (1998). She also cited the results of another survey where 66% of human resources managers saw mistrust of management as a problem. Reasons mentioned for the importance of trust include the time wasted on checking on employees who are not trusted, and the mistrusted trying to prove their worth rather than focusing on their real tasks. In their annual surveys that measure trust across the globe, Edelman (2013a, p. 12) found that both business and government are trusted less because of corruption and fraud (27% for business sector compared to 33% for governments). When considering only those that reported a decline in trust between 2012 and 2013, the second highest contributor to distrust was poor performance or incompetence for governments (31%), compared to 23% who blamed business that was driven by wrong incentives (Edelman, 2013b, p. 5).

This decline in trust also coincided with the collapse of organisations such as Enron Corp, WorldCom, Parmalat and others that were linked to major scandals (Bachmann & Inkpen, 2011; Currall & Epstein, 2003; Gillespie & Dietz, 2009; Rogers & Riddle, 2003; Schoorman et al., 2007). The collapse of the global financial systems in 2008 has only increased the importance of understanding the role of trust in organisations on an interpersonal as well as an interorganisational level.

In a type of déjà vu for the financial meltdown of 2008, Brown (1992) posits that during times of recession, decreased trust also makes it much more difficult to get participatory management to succeed as a result of management actions such as the freezing of salaries or retrenchment of workers.

### *2.1.1 The need for a trans-disciplinary approach and multiple units of analysis*

From the literature it appears that one cannot in the conventional sense follow only one paradigm – in other words – look only at one disciplinary perspective. It would seriously limit the dynamics of the study if the inputs from other scholars with different theoretical viewpoints were to be ignored (Dirks et al., 2009, p. 68). In the introduction to the special topic forum “Not so different after all: a cross discipline view of trust”, Rousseau et al. (1998) clearly show how this multidisciplinary approach enriches the development of the theory on trust in organisational science.

Although agreeing with Rousseau et al. (1998, p. 402) that new developments are generated (“we observe considerable overlap and synthesis in contemporary scholarship on trust”), Fichman (2003) considers it necessary for trust to be studied from both a biological and a cultural evolutionary perspective. The aim of his theoretical paper was to investigate what he calls “empirical regularities which should be or are likely constraints on any theory of trust” (Fichman, 2003, p. 134), as otherwise they increase the risk that the research in the field would stagnate because of a diffuse, wide approach. This echoes the other more recent theoretical investigations such as those by Lewicki et al. (2006) and Searle, Weibel et al. (2011). Fichman (2003, p. 135) sees trust as a type of “lens” that can be used to investigate any study of coordination or co-operation in organisational behaviour. As trust is studied from both an interpersonal or individual and organisational perspective, it has been of importance for a wide-ranging number of disciplines such as “psychology, sociology, economics, political science and moral philosophy” (Dietz, Gillespie & Chao, 2010, p. 9). As a result, trust can be construed to be a meso concept that joins together such diverse behaviours from inter- and intrapersonal psychological processes on the one side of the continuum to group, institutional or organisational and societal processes on the other side of the continuum (Dietz et al., 2010, p. 10).

The study in hand is mostly influenced by the science of psychology and not much information is taken from sociology or the economic and information technology sciences, as these normally are concerned with inter- or “between” organisational trust on a macro level (Bachmann, 2011). This study therefore focuses mainly on individual level trust and not on multilevel trust (group / firm / institutional) or trust between organisations. This is despite the fact that these constitute without doubt a very important facet of trust research in the organisational and even broader environment – “advanced socio-economic systems can hardly rely on interaction-based forms of trust creation alone” (Bachmann & Inkpen, 2011, p. 282).

Thus, just as was the case with Dietz and Den Hartog (2006), the present study focuses mainly on dyadic trust *between* individuals *within* organisations. This includes trust relationships between employees and between employees and supervisors (or managers). According to Tan and Tan (2000) this so-called *trust within organisations* has mostly focused on interpersonal trust, trust in the supervisor and trust in the organisation as such. According to Gambetta (1988b) the latter is defined as the belief that the organisation will behave in a favourable or at least not in a detrimental way. An area of trust research that will not be addressed directly – as it does not directly address dyadic relationships, although it does involve interpersonal and within-organisational trust – is that of virtual teams (Mitchell & Ziguers, 2009).

This assertion deliberately shifts the focus away from the other current major areas of trust research in an organisational context. These are firstly inter-organisational (or *between-organisations* trust), for instance trust between supply chain partners (see Kwon & Suh, 2004) or secondly, mainly from a marketing viewpoint, trust among organisations and their clients. Flowing from the latter is the research on trust between parties in virtual reality, such as when using the Internet for either social or business reasons (see Riedl, Hubert & Kenning, 2010). These literatures consider trust as a form of social relationship. There is also another area of investigation that concerns trust in computing systems (He et al., 2010; Mason, 2005) and trust in information systems and technology usage (Li, Hess & Valacich, 2008), and to complicate matters, sometimes these interact.

Shifting the paradigms slightly, yet remaining on the periphery of the field of industrial or organisational psychology, the *International Journal of Human-Computer Studies* in 2003 published a special edition on trust and technology. The contributions that are the most applicable to this study are those by Grabner-Kräuter and Kaluscha (2003) who reviewed empirical studies on online or e-commerce trust and Corritore, Kracher and Wiedenbeck (2003b) who proposed a model on how trust develops online. These areas will not be ignored and can add value to our understanding of the field, seeing that transdisciplinary research can definitely add value to our understanding of the concept of trust (Fichman, 2003; Mouton, 2003; Rousseau et al., 1998).

However, this is not a new phenomenon, as Mayer et al. (1995) already indicated that research on trust has become more and more pertinent in the latter part of the 20th century. Jones and Bowie (1998) mention that the issue of trust was already discussed more than any other management concept at the annual meeting of the Academy of Management in

1996. In Section 2.1.2 the importance of trust in organisations will be discussed as a background to the main discussion.

There are mainly two approaches towards trust research (Kramer, 1999; Lewicki et al., 2006): firstly the behavioural tradition, which presupposes rational choice and is often based on laboratory work, and secondly the psychological tradition. The latter approach to trust research, which is the one followed in this study, “attempts to understand the complex intrapersonal states associated with trust, including expectations, intentions, affect, and dispositions” (Lewicki et al., 2006, p. 993). These are based mainly on the work of Mayer et al. (1995) and Rousseau et al. (1998).

### *2.1.2 Increased importance of trust in the academic literature*

To understand the importance of trust, various publications offer an overview of the discussion in the 1990s (Weibel, 2003) – for instance Lane and Bachman (1998), Kramer and Tyler (1996), and the special issue of the *Academy of Management Review* in 1998 (volume 23, number 3).

Dietz and Den Hartog (2006, p. 557) identified some key articles (e.g. Mayer et al., 1995; Robinson, 1996; Whitener, 1997; Kramer, 1999), and added Gambetta (1988a) and Nooteboom and Six (2003) to the compendiums identified by Weibel (2003) above. Over the years, several special issues dedicated to trust were published (Dietz & Den Hartog, 2006, p. 557; Nielsen, 2011, p. 159; McEvily & Tortoriello, 2011, p. 42):

- *Academy of Management Review*, 1998, Vol. 23, No. 3
- *Organization Studies*, 2001, Vol. 22, No. 2
- *Organization Science*, 2003, Vol. 14, No. 1
- *International Journal of Human Resource Management*, 2003, Vol. 14, No. 1
- *Personnel Review*, 2003, Vol. 32, No. 5

In South Africa, a special edition of the *Journal of Industrial Psychology* focusing on trust was published in 2002 (Bews et al., 2002). Lately the *MIS Quarterly* published a special issue on novel perspectives on trust in information systems (Benbasat, Gefen & Pavlou, 2010) and in 2011 the topic of trust was addressed in its own chapter in the *International Review of Industrial and Organizational Psychology* (Searle, Weibel et al., 2011).

Lastly, the growing importance of trust research is underlined by the fact that the *Journal of Trust Research* (JTR), a peer-reviewed scientific journal was launched in 2011, dedicated to the research of trust in general and organisational trust in particular. According to the editor, “JTR seeks to open the *black box* of trust in various contexts” (Li, 2011, p. 2). The Journal aims to investigate trust from an interdisciplinary and cross-cultural perspective.

According to Li (2011) only two special issues on trust appeared in scientific journals in the period between 1990 and 1999; this increased to nine between 2000 and 2005, while 21 were published in the next four years till 2009. Concerning the number of articles, Li states that this climbed from an average of 39,5 per annum in the early 1980s to 359 articles in the first eleven months of 2010.

In the *Handbook of Trust Research*, Gargiulo and Ertug (2006, p. 165) mention that this revival of trust research can be linked to the article in 1986 by Zucker on institutional trust, the edited volume by Gambetta (1988a), as well as the work of Fukuyama (1995). The latter will form the basis for some of the sections below to provide a broader perspective than just the interpersonal psychological viewpoint on trust. This is necessary to develop the needed holistic background and perspective. After investigating this wider perspective, the study will be narrowed down to cover the organisational and then the interpersonal perspective.

## **2.2 The importance of trust on a macro-economic level**

Kramer and Cook (2004) also point to the seminal nature of the work by Fukuyama (1995), who explores how important trust is as a resource in any social system. Each person’s behaviour is a result of genetics and environment (nature and nurture). Our upbringing and cultural background or heritage will have an influence on how we trust or not. As organisational researchers we often tend to forget that organisations are part of the larger social and economic environment and that each employee, from the youngest trainee to the top manager, is also part of their own society and culture. It is thus deemed important to include the wider societal background in the study of trust.

Bachmann and others (Bachmann, 2011; Bachmann & Inkpen, 2011) are concerned that the wider organisational aspects of trust research is not given enough importance. They are specifically worried that too much focus is placed on narrow interactional trust and not on institutional trust. Other literatures such as in the fields of socio-technology and knowledge sharing in virtual environments (such as e-trading and virtual teamwork) actually investigate

these aspects of trust, but organisational scientists tend to neglect the institutional aspect of trust research.

*Trust is the expectation that arises within a community of regular, honest, and cooperative behaviour, based on commonly shared norms, on the part of other members of that community* (Fukuyama, 1995, p. 26).

According to Fukuyama (1995, p. 7), the most important cultural characteristic that comes to light when a nation's well-being and its ability to compete is investigated, is the level of trust inherent in that society. He came to this conclusion after completing a detailed investigation of different high- and low-trust societies and their economic functioning.

Fukuyama (1995) cites the example of the German system where a blue-collar worker can become a supervisor who knows all the aspects of the jobs that the workers perform. This also allows for job rotation in case of need. Such a supervisor can furthermore work towards obtaining the needed credentials as an engineer by attending in-house training programmes without having to attend university. According to Fukuyama (1995, p. 8), the German workplace is egalitarian and flexible as workers trust their co-workers and managers to a higher degree than in other European countries. These workers then become motivated by something bigger than individual self-interest – they are united by trust (Fukuyama, 1995, p. 9).

Seeing that this more sociological and macro perspective lies on the boundaries of the current research, the reader is referred to the work by Lane and Bachman (1998) as it gives a very good overview of the topic from that particular perspective (Weibel, 2003). The next concept that needs to be discussed is that of social capital, as trust is often seen as a form of social capital.

### *2.2.1 Social capital*

A very important consideration that has to be taken into account is the cost of the so-called social capital, which can be defined as follows:

“... a capability that arises from the prevalence of trust in a society or certain parts of it. It can be embodied in the smallest and most basic social group, the family, as well as the largest of all groups, the nation, and in all other groups in between” (Fukuyama, 1995, p. 26).

Social capital (and by implication trust) is unlike financial capital as it does not become less when shared and might even increase with use (Nooteboom, 2007, p. 33). Social capital is also the ability of people to work together for common purposes in groups and organisations (Fukuyama (1995, p. 10). This ability to associate depends to a large extent on the degree to which norms and values are shared and individual interests are rendered secondary to group interests. These shared values build trust that has an economic value, as people who work together in an organisation trust each other because they are adhering to common ethical norms and do not have to fall back on a system of formal rules and regulations that "have to be negotiated, agreed to, litigated, and enforced, sometimes by coercive means" (Fukuyama, 1995, p. 27). On a related note, if employees as internal stakeholders are of the opinion that their employer is socially responsible, they tend to exhibit higher levels of trust towards the organisation and hypothetically render improved work performance those results in improved financial performance (Hansen, Dunford, Boss, Boss & Angermeier, 2011, p. 41). Bachman and Inkpen (2011) link this to institutional-based trust which "...refers to the phenomenon that individuals or collective actors develop trust in the face of specific institutional arrangements in the business environment" (p. 284). Taking this into the context of behaviour within groups in organisations, Yakovleva, Reilly and Werko (2010, p. 82) propose that trust could possibly be the "mechanism for reproducing social capital".

#### *2.2.1.1 Reputation*

Another factor that determines institutional trust is reputation. The reputation of an organisation will make it easier for the trustors to trust the organisation as they will feel less vulnerable and thus more willing to behave in a manner that exposes them to potential risk. They anticipate and assume that a fear of losing its reputation might compel the institution to refrain from harming the trustor, as the institution could lose some of its social capital (Bachmann & Inkpen, 2011; Dietz, 2011). Reputation is based on what others say about the target (third party testimony) or on the role that the trustor occupies.

Trustworthiness is based on the assumption that certain roles or occupations can be trusted by implication, because we know that there are legislative sanctions or implied risk to themselves for violation. We trust the surgeon who is going to operate on us in an emergency without having any interaction with him/her beforehand (Dietz, 2011). Another everyday example would be the role that commercial pilots fulfil. Passengers fly with them despite having had no interaction with them and despite the fact that they could use alternative forms of transport. The trustee evaluates the risk and then decides to trust the institution the pilot represents. This reputation comes about as a result of the concept of trust

transferability<sup>3</sup> (Ferrin, Dirks & Shah, 2006, p. 874 based on McEvily, Perrone & Zaheer, 2003b), which refers to the fact that trustors take note of the testimony of others when deciding whether an institution is trustworthy. This third party guarantor (Bachmann, 2011) fills the knowledge gaps that the potential trustor has about the trustee's future behaviour. This is essential, as in an organisation we do not only observe behaviours but also try to determine the trustworthiness of the organisation on the basis of what we hear from co-workers.

To take this one step further, Ferrin et al. (2006, p. 875) suggest that employees use this third party information about co-workers, seeing that organisational realities are too complex to observe or interpret all behaviours of a co-worker to determine his/her trustworthiness. Third parties can give the trustor information about their experiences with said co-worker and also how much the latter can be trusted. Employees in their role as trustors consequently use third party information to augment their lack of direct knowledge about the trustee's trustworthiness. Additionally, to confirm and strengthen this trust belief, the trustor will determine how many other co-workers trust the colleague. The more consistent this information, the easier it is to apply the principle of trust transferability.

The implications for social capital are that each dyad of individuals now adds third parties, who again have third parties. In this way a whole lot of trust is built without direct interaction, and leads to more cooperation and social support. Conversely, this also points to the dangers of trust violations as these will have the same exponential effect on the creation of distrust (McEvily et al., 2003b). Tan and Lim (2009, p. 45) found that the trust that employees have in co-workers influences the trust they have in other "foci", especially their trust in the organisation. One of the main reasons why they consider co-workers so important is that they constitute the backbone of the informal information network. The latter is distinguished by a horizontal flow of information, in contrast to the formal up-down channels.

In the case of a society that becomes more individualistic and loses the ability to associate, this attitude is replaced by an increased reliance on laws and rules, and thus on policing and lawyers, instead of trust in others. Costs are incurred for litigation and keeping citizens in prison. Fukuyama (1995, p. 11 ) sees this as a direct tax imposed on countries such as the

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<sup>3</sup> "The basic premise behind trust transfer is that rather than being based on direct experience with the object of trust, initial trust impressions are based on trust in a source other than the trustee, such as another individual or collectivity." (McEvily et al., 2003b, p. 94).

United States of America because of their breakdown of trust in society. Conversely, legislation or reliable contract law makes it possible for institutions to trust each other more easily, as it reduces the risk of doing business with unknown partners or institutions (Bachmann & Inkpen, 2011). This is especially valuable in a virtual business environment.

In contrast, Tan and Tan (2000) found that the organisation as trustor has procedural and distributive justice as antecedents and that it results in higher organisational commitment and lower turnover intentions.

### *2.2.1.2 Family ties and social capital*

When family ties are not strong, individuals find it easier to support non-family relations and hence build social capital in the form of trusting interdependent relationships that are created with persons outside one's own family (Fichman, 2003, p. 146). Concerning the difference between high- and low-trust societies and their influence on interpersonal trust, Fichman (2003, p. 146) (based on Fukuyama (1995) and others) comes to the conclusion that the pattern according to which families form trust relations, especially using different marriage strategies, explain variations in trust levels:

*High-trust societies tend to have later marriage, newly married couples locating away from their families, and nuclear families that are only loosely tied to their maternal and paternal families. Low-trust societies have earlier marriage, extended families and the married couple remaining very close to their maternal and paternal families.*

The general economic welfare, institutional failures, experience and even level of economic training may increase self-interested behaviour as individuals become more wary and vigilant (Fichman, 2003, p. 154).

### *2.2.2 Trust, the Internet and the virtual world of work*

In today's world of online shopping and banking and the ubiquitous Google, Facebook and YouTube, it seems quaint that Fukuyama was seriously concerned when two lawyers used the Internet for advertising purposes in 1994 and, in so doing, threatened to set a precedent that would overload the systems. He felt persons were exploiting what amounted to the public good for private purposes (Fukuyama, 1995, p. 196). Today, millions of consumers (or employees) and organisations use the online environment to buy and sell, without considering time and place (Beldad, de Jong & Steehouder, 2010). On an interpersonal trust level, when trusting the other party during online negotiations, these negotiations were

characterised by lower levels of trust before and even after the interaction, compared to face-to-face negotiations. It also decreased the desire for future interaction (Naquin & Paulsen, 2003).

As already mentioned, in 2003 the *International Journal of Human-Computer Studies* published a special edition on trust and technology which suggests the importance of trust research in this emerging field. Areas that are investigated are trust and e-commerce; trust towards websites; trustworthiness in computer-mediated communication in virtual teams; getting communities online; trust in automated decision systems; and trust in safety-critical systems (Corritore, Kracher & Wiedenbeck, 2003a).

In trying to answer the question why consumers often do not trust online offerings, Grabner-Kräuter and Kaluscha (2003) found that this question cannot be answered yet. Trust research is not thorough enough to cover institutional and interpersonal trust aspects, as well as trust in the technology involved. They suggest that it is possible to use the Mayer et al. (1995) model with some caveats to determine the trustworthiness of online vendors. Because of the constant risk of losing money during an online transaction or the risk of identity theft, trust is essential for the system to function (Beldad et al., 2010, p. 860). In this context, Stewart (2003, p. 5) found trust can be “transferred” via hyperlinks from a trusted website or by referring to a physical organisation (bricks and mortar) online. Trust transfer must consequently be taken into account when considering how to build trust, especially which cognitive processes need to be considered in initial trust development.

Corritore et al. (2003b) propose a model on how trust develops online, specifically between the online user and a website as an entity. They found that the main factors that determine online trust are the degree of credibility or believability of the website, as well as the perceived ease of using and perceived risk of using the website. Here they borrow most concepts from the interpersonal trust literature such as Mayer et al. (1995). In a follow-up, Beldad et al. (2010) review the antecedents of trust in electronic services. They assert that ability, benevolence, and integrity (ABI) as identified by Mayer et al. (1995) are also relevant to determine trustworthiness in the virtual or online environment. They find that antecedents of trust in online services can be divided into three categories:

- Customer-/client-based antecedents such as the propensity to trust (after Mayer et al.) and proficiency in internet usage (interestingly this follows the inverted U relationship – novices and experts trust the least).
- Website-based antecedents such as perceived ease of use; information quality; graphical characteristics (the more complex, the more trust in banking sites); social

presence; possibility to individualise; privacy and security features; and third party guarantors (the latter can be equated with transference of trust in the case of interpersonal trust).

- Company-/organisation-based antecedents such as reputation (also familiar from interpersonal trust); perceived size and offline presence; and lastly (as is the case with interpersonal trust) familiarity or previous experience.

Interestingly, Jones, Leonard and Riemenschneider (2009, p. 196) found that the expected consumer characteristics “(h)igh anxiety toward the Web, positive attitude toward the Web, high innovativeness toward information technology, and high Web ability” did not actually influence fundamental trust in the Internet itself. Only their disposition to trust and experience of the web influenced how much persons trusted the Internet itself. In this context Grabner-Kräuter (2009) asks the interesting question why literally millions of individuals share personal information on social networks online, where they have little or no control over the use or abuse of this information. She postulates that this is the case because trust is the only mechanism available to reduce uncertainty – whether interacting with other individuals, organisations or even security providers and the technology itself (Grabner-Kräuter, 2009, pp. 514-515).

An indication of the breakdown in trust on the Internet that has led to great economic costs is the spread of computer viruses and the prevalence of hackers (Luzwick, 2002; Fukuyama, 1995). These have forced organisations to install firewalls and introduce data compartmentalisation. While the Internet once was self-managing, it now requires laws that make spreading viruses or hacking illegal, with the accompanying costs of administration and bureaucracy. This clearly points out the importance of trust in any society, virtual or real. When trust breaks down, costs are incurred to keep the systems functioning efficiently. Scarily, Luzwick (2002, p. 15) is of the opinion that the fact that hackers and terrorists are so destructive is because as a group they trust one another and have developed excellent knowledge management systems to share information via the technology that is available to them. They are not hindered by bureaucracy or internal distrust (Luzwick, 2002, p. 16).

### *2.2.3 Occupational level and trust*

Because of the high level of both general and specialised training that professionals such as doctors and lawyers receive, they are expected to display a high degree of judgement and to work independently or with minimal supervision (see earlier discussion of reputation in Section 2.2.1.1). This leads to professionals being trusted to a much higher degree than

non-professionals. Although they can betray the trust placed in them as much as anybody else, Fukuyama (1995, p. 223) still regards the concept of a professional as “a prototype of a high trust, relatively unregulated occupation”. Their shared values (Cho & Ringquist, 2011, p. 60) and professional codes of conduct (Bachmann & Inkpen, 2011, p. 285) also inhibit inappropriate behaviour, which decreases the risk involved for the potential trustor. Dietz (2011, p. 218) remarks that the professions differ greatly when a decision has to be made about which indicators are of a higher priority when judging trustworthiness. He refers to the difference between social workers and investment bankers as an example.

Fukuyama (1995) suggests that a hierarchy of trust be created, where the skilled worker or craftsperson is given less autonomy (or trust) than a professional, but more than an unskilled worker who would, according to Fukuyama (1995), require more supervision and rules. This decline in trust is the result of the inverse relationship that usually exists between rules and trust – if we use rules to manage our relationships, then we need less trust. If we have more trust, we need fewer rules (Fukuyama, 1995, p. 224).

#### *2.2.4 Operational and production implications*

High-trust societies can organise workplaces more efficiently as they can be more flexible and group oriented, and responsibilities can be delegated to lower levels of the organisation (Fukuyama, 1995, p. 31). They do not need burdensome bureaucratic rules to keep functioning. Lean production (also known as Just-in-time production (JIT)) is only possible if a high level of trust exists between the workers and their unions on the one side (Fukuyama, 1995, p. 262) and the producers and their supplier networks on the other side (p. 261). The more manufacturers make use of JIT, the more they need to rely on subcontractors as suppliers. This would entail sharing critical information with the subcontracting supplier. This now becomes a double-edged sword, as the manufacturer needs to trust the supplier that he will not start supplying the opposition and in this way give them access to the original manufacturer’s proprietary information (Hagen & Choe, 1998, p. 594).

According to Fukuyama (1995, pp. 317-318) many managers do not realise the ethical basis of lean production as a reciprocal obligation. Also, “...those managers who hope to get loyalty, flexibility, and cooperativeness out of their workers without giving anything in return, whether in the form of security, benefits, or training, are being exploitative”. In the case of institutional relationships, these same managers need to understand that they will need to establish and maintain long-term relationships with their suppliers (Hagen & Choe, 1998, 595).

In the case of the supplier-buyer network, a mutually beneficial relationship and the sharing of information is only possible if a high level of trust exists that allows both sides to gain the economic benefits of working together closely. In countries such as Korea and Japan, Dyer and Chu (2003) found that confidential and critical information will not be exchanged unless the supplier is trusted. Each party is afraid that the other might abuse their knowledge of the other's secrets (Dyer & Chu, 2003, p. 64; Fukuyama, 1995, p. 261). Reputation is of utmost importance in this situation, as a supplier with a good reputation will gain acceptance much more easily and buyers might even refrain from insisting on certification or quality guarantees because they trust the supplier (Bachmann & Inkpen, 2011, p. 295). In emerging economies this becomes even more important, as the legal remedies and institutional safety networks do not exist in the way they for instance exist in Japan or the USA (Şengün & Wasti, 2011, p. 302).

### **2.3 Importance of trust to the organisation**

In a survey of sociological and psychological literature conducted more than two decades ago, Gratton (1982, p. 132) found that the trusting relationship is most often described in terms of the absence of trust. In a less competitive world, trust was a nice-to-have as it did not determine the survival of an organisation and relationships in the organisation could be based on power or fear (Reynolds, 1997, p. 4). Another factor that led to the low level of trust in industrialised, automated factories was an outflow of Fredrick W. Taylor's *The Principles of Scientific Management* and his time-and-motion studies. These took away the need for the individual assembly-line worker to show creativeness, judgement, initiative and skill (Fukuyama, 1995, pp. 225-226). White-collar workers and specialists were tasked with the latter. Supervision was allocated on a strict vertical division of labour and supervisors were allowed to punish subordinates that did not perform up to standard (Frost, Osterloh & Weibel, 2010, p. 127). This gave rise to the low-trust and rule-based factory system of the early 20th century and negative labour management relations as a consequence of workers getting the feeling that they are not "going to be trusted with significant responsibilities and that their duties will be laid out for them in a highly detailed and legalistic form" (Fukuyama (1995, p. 226). In the modern knowledge society employees have more power, as each has unique knowledge and skills and therefore cannot be replaced so easily (Frost et al., 2010, p. 127).

Trust-based relationships are necessary as the world becomes more competitive. Organisations use flatter hierarchies and outsource most tasks, except their core business,

to suppliers or partners (Reynolds, 1997). In organisations where employees trust their leaders' organisational commitment, organisational citizenship behaviour, team performance and organisational performance are of a higher standard and quality (Lau, Lam & Salamon, 2008).

The rising importance of trust in an organisational context in the 21st century can be attributed to environmental concerns and global competition that necessitate flatter organisational structures and an increasing reliance on multi-functional teams. Employees are empowered to make more of their own decisions, which requires much more trust from management (Connel, Ferres & Travaglione, 2003, p. 570). The increased importance of trust research in an organisational context is also driven by the rapid development and changes in technology and virtual reality – which makes it prudent to gain a competitive advantage by collaborating on a global scale (McEvily, Perrone & Zaheer, 2003a; Vanhala, Puumalainen & Blomqvist, 2011).

Paradoxically, exactly the factors that demand trust are the ones that break down trust. Reynolds (1997) for instance cites that massive layoffs as a result of global competition may have been the correct short-term survival strategy, but it had the effect of breaking down trust, not only in the employees who were laid off, but also among the survivors.

A reduced need to monitor behaviour on the one hand and faster decision making on the other hand are some of the obvious advantages of higher trust in organisations (Shapiro, Sheppard & Cheraskin, 1992, p. 365). In addition, Shapiro et al. (1992) see increased quality of output, more efficient processes, more flexibility and an enhanced strategic focus as benefits of establishing trust in the right conditions. Macoby (1997) sees the ability to trust as the main distinguishing factor between bureaucratic management and entrepreneurial management; entrepreneurs have to trust their associates and risk failure, since only relationships between companies that are built on trust (and not contracts) can be profitable. High-trust societies can organise workplaces more efficiently because they can be more flexible and group oriented, and responsibilities can be delegated to lower levels of an organisation (Fukuyama, 1995, p. 31). They do not need to obey burdensome bureaucratic rules to keep functioning.

Productivity is also increased in a trusting relationship as people cooperate and work towards a common interest (Zand, 1997, p. 124). The fact that they disclose relevant information and develop plans together also improves productivity. On the other hand, mistrust depresses productivity, as people who mistrust one another feel they cannot

depend on others and thus pursue their own interests. Hence they do not cooperate to achieve common goals (Zand, 1997, p. 125).

### 2.3.1 *Trust and control*

Costa and Bijlsma-Frankema (2007, p. 392) make an interesting observation to the following effect: whereas *control* used to be the research topic of choice in the management sciences, *trust* has taken over this position because it is seen as a way of managing expectations and behaviours in organisations. This shift in management paradigm echoes the changes that have occurred in the ever-changing world of work, but it is not such a radical shift as it seems at first. There is a general feeling that the change away from control towards trust does not imply that management is giving up control, but rather that they are exercising informal control for the purpose of improved teamwork or collaboration and “mitigating the risk for opportunism” (Şengün & Wasti, 2007, p. 431). If managers give up direct control, they become more vulnerable – depending on the level of risk involved in this decision – and trust consequently becomes more or less important (Searle et al., 2011).

A manager can enhance an employee’s trustworthiness by exerting direct control, but control needs to be seen as being for the benefit of the group, not for the self-benefit of the manager. Mutual benefit can be achieved provided that managerial control is based on participation and two-way communication (Weibel, 2007, p. 513). If this is not the case, we might have a situation where employees seem to be merely compliant and not acting in the interest of the organisation, as they will not be able to show their trustworthiness. Nooteboom (2007) states that managers need to exercise less control if they want to substitute control with trust.

### 2.3.2 *Implications for HR Practices*

Seeing that perceived organisational support (POS) is based on the principle of reciprocity that Mayer et al. (1995) postulated for trust, Byrne, Pitts, Chiaburu and Steiner (2011) investigated the role of managerial trustworthiness in the employee–organisation relationship. They confirmed that higher managerial trustworthiness leads to higher employee performance as rated by the supervisor, as well as greater organisational commitment. Therefore, to improve the job performance and organisational commitment of employees, Byrne et al. (2011, p. 108) suggest that the trustworthiness of managers should be enhanced through training (improved ability), corporate policies that address the integrity of managers, as well as through encouraging an organisational climate of benevolence.

In the case of virtual teams, Yakovleva et al. (2010, p. 87) suggest that one should take note of the propensity to trust when making selection decisions. The propensity to trust is more important for virtual teams than for co-located teams, as the former have very little chance to develop an assessment of the trustors' trustworthiness (especially benevolence), since it is very difficult to assess the latter without direct contact. Yakovleva et al. (2010, p. 87) go so far to suggest that it is important to select members of high-priority virtual teams (where trust is important) according to their level of propensity to trust, as this would increase the level of meaningful information sharing in the team.

### *2.3.3 Learning and innovation*

In the introduction to their book, Lazaric and Lorenz (1998, p. 1) ask if learning is important for the establishment of trust and, conversely, if trust promotes learning in or among organisations. They come to the conclusion that the first question cannot be definitely answered but that trust definitely promotes organisational learning, as individuals would not "commit their resources to a collective endeavour in the absence of trust". Reynolds (1997, p. 171) sees it a little differently and puts it bluntly that "(w)ithout learning, there is no competence; without competence there is no trust". In what Macoby (1997, p. 56) calls the "age of learning", the success of an organisation depends on both hard factors (such as finance and technology) and soft factors (like loyalty and trust). Trust is seen by many as integral to the learning organisation and its success (Duden, 2011, p. 218). The importance of learning cannot be denied, as the learning organisation links to innovation in an organisation through knowledge sharing as a collective learning process that requires trust for optimal collaboration (Lee, Gillespie, Mann & Wearing, 2010, p. 15). Innovation leads to new ideas that in turn lead to improved or new procedures, products or services (Semerciöz, Hassan & Aldemir, 2011, p. 126). It was found that both institutional trust and interpersonal trust (co-worker trust and trust in leaders/supervisors) were positively associated with innovation. Product and process innovativeness was linked to institutional trust, while strategic innovativeness was linked to interpersonal trust (Semerciöz et al., 2011).

A finding of practical value by Tan and Tan (2000) involves the identification of a significant positive relationship between trust of the supervisor and innovative behaviours. They argue that as trust is postulated to be characterised by risk-taking behaviour, organisations that require creativity to function should ensure higher trust in supervisors. Improving the antecedents of trust can be achieved through training or selection, thereby increasing the ability, benevolence and integrity levels required for trust in the supervisor.

The results found by Tan and Tan (2000) suggest a possible positive relationship between trust in the supervisor and perceived organisational support. This was to be expected, as they also found a positive relationship between trust in the organisation and organisational commitment and negative correlations between trust in the organisation and turnover intentions.

#### 2.3.4 Global competitiveness

According to Fukuyama (1995), some national cultures are more trusting than others, which not only makes it inherently easier for them to build business relationships based on trust, but also gives them a global competitive advantage. Hayes (2010) on the other hand points out that in an environment of mistrust, corruption follows. This creates an inevitable vicious circle, leading to higher tax evasion by the dissatisfied and disempowered. Macoby (1997, p. 56) also refers to Fukuyama's work and concludes that

*[w]here trust is low, as in many less-developed countries, corruption erodes efficiency. Leaders rule by fear, there are huge differences in wealth, and people become cynical. What teamwork exists, takes place largely in Mafia-like families or in semi-feudal, authoritarian groups.*

This statement seems very prophetic considering the events in 2011 with the uprising of Arab nations during the so-called Arab Spring. In support, Atkinson and Butcher (2003, p. 292) also refer to Fukuyama who saw trust as the "social glue" that can "hold diversified, global organisational structures together".

Because of continuing globalisation, Hardin (2013) claims that trust in government is declining and distrust is increasing. However, this does not really matter as in the bigger picture governments' incompetence is rendered irrelevant as different national economies are unattached to a specific government and its ideology. Conversely, he suggests that most governments no longer have to protect their citizens from exploitative industrial or business interests, as a generalised fear of corporate power no longer exists in the advanced economies. Hardin (2013, p. 50) controversially concludes that

*[d]eclining confidence in government may well be evidence of a trend towards the declining role of government in certain activities that it was not wise enough to handle anyway, often **because incumbents could gain opportunistic short term advantage from manipulating the economy.** For the time being, Madison and the Austrians and the theory of liberal distrust may return to favour and **we may welcome distrust in government.** (Own emphasis)*

Firstly, Möllering (2013) states that Hardin's argument is unbalanced as one cannot presume that a lack of knowledge leads to trust (of a government), and that enough knowledge leads to distrust because governments do not have the interests of the individual at heart. He further questions Hardin's (2013) interchangeable use of the concepts of trust and confidence and suggests that more research needs to be conducted to determine if the latter really is a "weaker, one-sided form of trust" or "asymmetric trust" (Möllering, 2013, p. 56). Lastly, Möllering (2013) suggests that governments need to continue protecting their citizens as the latter have lost their faith in the economic system even more than they have lost trust in government as a result of the enduring financial and economic crisis after 2008.

In another comment in reaction to Hardin (2013), Li (2013) states that a balanced view is probably the best, as too little or too much trust in government is not healthy. He proposes the classic inverted U-shaped curve approach and consequently remarks that is not healthy to trust either the government as a whole or only a few government institutions.

As East European academics, Kovač and Jesenko (2010, p. 11) use a non-Anglo Saxon perspective and come to a similar conclusion, namely that trust can be a source of competitive advantage for a particular organisation:

*[...] a higher level of trust within an organisation can contribute to:*

- *Open forms of communication*
- *Lower levels of formality*
- *Simplified forms of coordination*
- *Lower transaction costs*
- *More stable interpersonal and inter-organisational connections*

Although trust seems to have the effect that it decreases the cost of governance in an organisation, this relationship is not as straightforward as is often thought. For instance, Puranam and Vanneste (2009) point out that if managers or supervisors rely on governance, they might crowd out the possible formation of trust, as governance makes it unnecessary for employees to be wary of opportunistic behaviour.

### *2.3.5 Organisational support and commitment*

In the Malaysian Higher Education context, Ghani and Hussin (2009) found that while trust is the most effective predictor of perceived organisational support, access to information and

access to opportunity to learn and develop are also significant indicators. This is very important in the context of the ever fiercer battle for scarce talent:

*“Such perceived organizational support would increase the employees’ felt obligation to help the organisation reach its objectives, their affective commitment to the organization, and their expectation that improved performance would be rewarded.”*

(Ghani & Hussin, 2009, p. 123)

Confirming the Mayer et al. (1995) model, Tan and Tan (2000) found that the perceived ability, benevolence and integrity (ABI) of the supervisor lead to innovative behaviour and satisfaction with that supervisor.

### 2.3.6 *Survival in complex organisational settings*

In an extensive review of the literature until the turn of the century, Six (2005, pp. 2-3) identifies certain recurring main themes concerning the importance of trust. She found that trust is important as it

- is necessary in contexts of high ambiguity and uncertainty, and in contexts of high complexity;
- can provide a sense of security which will help survival in these contexts;
- can help with risk taking that is necessary for survival in these contexts;
- enhances ability to change and supports (radical) change;
- assists in learning, creativity and innovation;
- is a lubricant for social relations which improves efficiency;
- fosters and maintains cooperation, as it encourages information sharing, enriches relationships, increases openness and mutual acceptance, and enhances conflict resolution and integrative problem solving;
- reduces the need for detailed contractual and monitoring devices and is thus important in governance issues; and
- has an intrinsic value.

The reason why trust is not as prevalent in organisations as could be expected from the above list of advantages, is threefold, according to Reynolds (1997). Firstly, to build trust takes time and requires a lot of up-front effort by all parties concerned. In some cases this effort may even be in vain. Secondly, Reynolds (1997) sees trust as requiring a measure of toughness or hardiness. Low-trust organisations are often not very hard on poor performance, while high-trust organisations will act very quickly against poor performance as

they require a high level of individual accountability to keep high trust. Lastly, Reynolds (1997, p. 21) is of the opinion that high trust "(t)akes a lot of skill, practice and sheer willpower to get it right".

Now that the importance of trust on a macro-economic level, as well as organisational aspects of trust have been discussed, in the next sections the focus will be on the micro level and the detail concerning interpersonal trust will be investigated. Firstly an attempt will be made to gain clarity about what is meant by trust on this level: how is it defined?

## 2.4 Defining trust

*To date, we have had no universally accepted scholarly definition of trust.*

(Rousseau et al., 1998, p. 394)

*The growth of literature on trust has generated much debate and divergent opinion focusing on what trust is, what it is not, and how trusting relationships might be created. .... there is no ubiquitous definition of trust ...*

(Connel, Ferres & Travaglione, 2003, p. 570).

As is evident from the above two citations, there is no real consensus on what trust is. More than twelve years after the statement by Rousseau et al. (1998), not much has changed. This is apparent from Sendjaya and Pekerti (2010, p. 644) who concur with Atkinson and Butcher (2003) and claim that after decades of academic discourse, it is "virtually impossible to have a universal definition of trust since it is a socially constructed phenomenon". Their remark confirms that not much has changed in the last decade and in the following section an attempt will be made to formulate a definition.

By deconstructing this complex phenomenon into the four aspects identified by Nootboom (2007, p. 35) namely that:

- a trustor
- trusts a trustee
- in one or more aspects of behaviour
- under certain circumstances,

the complexity of the phenomenon "trust" becomes apparent. Firstly there is the generic definition as the lay person understands the concept of trust. The Oxford English Dictionary defines trust as "confidence in or reliance on some quality or attribute of a person or thing, or

the truth of a statement" (Bhattacharya et al., 1998, p. 460). This definition seems vague and more concerned with the confidence aspects and not the psychological aspects. It is necessary to investigate in which way trust is seen in the context of industrial and organisational psychology. Because humans are complex and we cannot predict their behaviour, we want to simplify this process. Trust is a method of helping us to make a choice and take action by reducing the complexity of our environment when insufficient information is available to make a rational decision – for example when co-operative actions are required in organisations, which involve trusting a supervisor or manager (Luhmann, 1968, pp. 20-23). In its most basic form, trust is a “very effective complexity reduction method” to simplify social complexities (Grabner-Kräuter & Kaluscha, 2003, p. 787). This principle is based on Luhmann (1968, 1988) who discusses the difference between confidence and trust (in German the same word “Vertrauen” is used) and familiarity from a sociological philosophical paradigm. The difference between trust and confidence in this context is that trust includes an element of choice and risk (the latter emanating from some decision (choice) and action), while confidence does not entail risk or choice (Luhmann, 2000, p. 100; Trapp, 2011). If an employee needs to trust somebody, he/she has to decide whether to trust this person, while if the employee has confidence, then he/she has “positive expectations for the words or actions of others” (Trapp, 2011, p. 549).

Möllering (2001, p. 403) warns that researchers should not confuse what he calls the “functional consequences” of trust, in other words, “risk-taking, co-operation, relationships or social capital” with trust itself. The fact that there is no universally accepted definition – because each discipline from psychology, economics and sociology tries to determine what is important to it – indicates that there is a possibility that we are dealing with a ‘meso’ concept, integrating microlevel psychological processes and group dynamics with macrolevel institutional arrangements” (Rousseau et al., 1998, p. 393). In the next paragraphs a few of the original definitions of trust to which trust researchers like to refer will be given as a foundation.

One of the first and most quoted definitions states as follows:

*Interpersonal trust is defined here as an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon.*

(Rotter, 1967, p. 651)

As mentioned in Section 1.3, Lewicki and Bunker (1996) say that trust has been studied from many different social sciences perspectives, and that each one of these approached the

concept from its own point of view. They suggest that the social psychology stance is probably the one that is most applicable to trust in the business context as social psychologists stress “the interpersonal transactions between individuals that create or destroy trust at the interpersonal and group levels” (Lewicki & Bunker, 1996, p. 116). One of the first definitions of trust to gain popularity and that is quoted still today describes trust as the

*... particular level of the subjective probability with which an agent or group of agents will perform a particular action, both before he can monitor such action ... and in a context in which it affects his own action.*

(Gambetta, 1988b, p. 217)

Gambetta (1988b) elaborates on this definition and explains that if a person is regarded as trusted or trustworthy, it means that another person is willing to cooperate with him/her, because this other person believes that the trusted person will – with a high probability – act in a beneficial or at least not in a detrimental way.

Mayer et al. (1995, p. 712) define trust from an organisational point of view as

*the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.*

According to Mayer et al., their own definition runs parallel to that of Gambetta (1988b, p. 217), with the critical addition of vulnerability or the implication that there is something of importance to be lost. Mayer et al. (1995, p. 712) explain that “(m)aking oneself vulnerable is taking risk. Trust is not taking risk per se, but rather it is a willingness to take risk.”

Zand (1997, p. 91) defines trust as

*... a willingness to increase your vulnerability to another person whose behaviour you cannot control, in a situation in which your potential benefit is much less than your potential loss if the other person abuses your vulnerability.*

He distinguishes between trust and affection by quoting the simple example of the affection that a parent has for a ten-year-old child, and his/her refusal to trust the child to drive the family car. On the other hand, a passenger may feel no affection for a commercial pilot and yet trust the pilot.

Sako (1998, p. 26) defines trust as “a mutual expectation that partners will not exploit the vulnerabilities created by cooperation”. Trust therefore hinges on the way a person interprets the other party’s intentions and possible behaviour. What the trustors see as acceptable behaviour by the other person will determine if the trustors feel that their vulnerability has been taken advantage of. “[A] shared sense of what is acceptable behaviour” is thus a prerequisite for mutual trust to exist (Sako, 1998, p. 26).

In their introduction to one of the first special topic forums by the Academy of Management, Rousseau et al. (1998) admit that the most commonly cited definition even then was that of Mayer et al. (1995), which concentrates on the “willingness to be vulnerable”. When they subsequently analysed the different definitions posited by the contributors from various disciplines, they developed their own definition, which is normally cited together with the Mayer et al. definition:

*Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another.*

(Rousseau et al., 1998, p. 395)

In their exploration into cross-disciplinary commonalities, Rousseau et al. (1998) found that risk and interdependence are conditions that need to be present for trust to exist. They conclude that trust is not a behaviour or a rational choice (for instance to take a risk), but rather a psychological state resulting from or caused by these behaviours or choices.

As there is a tendency to take “snapshots” (Lewicki et al., 2006) when measuring trust, Rousseau et al. (1998) suggested that one should rather look at the natural stages in any relationship, i.e. the building, stability and dissolution phases of trust, although most researchers tend to concentrate on conceptualising their studies within a certain phase.

Bhattacharya et al. (1998) attempt to define trust in a more precise or “rationalist” way. They claim that trust as a concept was defined from the viewpoint of the various disciplinary perspectives from which the researchers approached the concept, such as anthropology, economics, psychology, sociology, political science and others. Since only specific aspects of trust were concentrated on, Bhattacharya et al. (1998) reason that each of these different disciplines provides only a partial description of what we would normally recognise as trust. In an attempt to rectify this limitation, they use a statistical approach to define trust and give some additional structural validity to Gambetta's definition of trust. Bews (2000), on the other hand, also uses the definition by Mayer et al. (1995) as the basis for his definition:

*A voluntary action of one party, flowing from an evaluation, based on the social skills of that party, concerning the potential of another, or others, not to take advantage of the vulnerability of the first party.*

In contrast, Fichman (2003, p. 134) views “trust as a choice”, following the definition by Messick and Kramer (in Fichman, 2003) who explore trust from the constraints of trust games and describe “the trusting act ... as an altruistic act in that it is an act that increases the outcomes for the other while either decreasing or risking a decreased outcome for the truster”. Hence Fichman argues “that trust is in part an outcome of both biological and cultural evolutionary processes” (2003, p. 135).

However, there is still no real consensus on the definition of trust (Costa & Anderson, 2011; Nielsen, 2011; Norman, Avolio & Luthans, 2010). It is such a broad concept that there is not even consensus on whether it is a unitary construct as stated by Mayer et al. (1995) or multidimensional as suggested by McAllister (1995) (see also Borum, 2010, pp. 7-8; Searle, Weibel et al., 2011, pp. 146-147). One of the reasons for this disparity can be ascribed to the fact that quite a number of disciplines are involved in trust research (Kramer & Lewicki, 2010). According to Borum (2010), Castaldo found that in the marketing field many researchers did not even attempt to discuss the problem of defining trust.

Nonetheless, Table 2.1 is an attempt to summarise the main concepts as formulated by other researchers. Tan and Tan (2000) support the definition by Mayer et al. (1995) and refer to the special issue on trust in organisations in the *Academy of Management Review* (Rousseau et al., 1998, p. 394) where it was indicated as the most common definition of interpersonal trust. There seems at least to be a consistency concerning the use of the definition by Mayer et al., as Mitchell and Ziguers (2009) also found it to be the most cited definition in the selection of articles they reviewed. McEvily and Tortoriello (2011, p. 24) mention that the definition proposed by Rousseau et al. (1998), which is based on the conceptualisation of Mayer et al. (1995), is cited more than 650 times, while Mayer et al. themselves are cited more than 1300 times

Researchers use the Mayer et al. (1995) definition as a foundation as it is relevant to individuals' trusting behaviours inside as well as outside an organisational context. As it also covers *risk* and *interdependence* as basic conditions necessary to establish trust, it is applicable across most disciplines that study trust (Rousseau et al., 1998, p. 395; Yakovleva et al., 2010, p. 79). If there is no risk involved in a relationship, we do not need to trust the other party as we function from a basis of knowledge. Alternatively, if we are not dependent

on the other party, we are not vulnerable and again do not need to trust (Searle, Weibel et al., 2011).

To approach this problem from a totally different viewpoint and see if it is not possible to find greater clarity, Mitchell and Zigurs (2009) used a modified systematic review methodology (Jesson, Matheson & Lacey, 2011) on the state of the literature on trust in virtual teams. The fact that their search concentrated on virtual teams is taken into account, as the following sections are concerned with the basic theoretical background that is common to all trust research in organisations. According to Mitchell and Zigurs (2009, p. 71) the definition by Mayer et al. (1995) classifies trust as a dependent variable – an outcome or end state of “a willingness to be vulnerable”. The themes that they identified in the definitions that were used in the studies that qualified for inclusion concerned outcomes such as “belief, expectation, confidence, honesty, and vulnerability” (Mitchell & Zigurs, 2009, p. 71). These correspond well with the foci that Rousseau et al. (1998, p. 394) considered when developing their much-cited definition. In the following table the definitions included by Mitchell and Zigurs (2009) are indicated with an asterisk.

**Table 2.1. Common Definitions of Trust**

| Definition  | Author                       |
|---|------------------------------|
| <i>...an individual may be said to have trust in the occurrence of an event if he expects its occurrence and his expectation leads to behavior which he perceives to have greater negative motivational consequences if the expectation is not confirmed than positive motivational consequences if it is confirmed</i> | Deutsch (1958, p. 266)       |
| <i>The conscious regulation of one's dependence on another</i>  | Zand (1972)*                 |
| <i>...an increase in one's vulnerability to another whose behavior is not under one's control</i>   |                              |
| <i>The extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people</i>  | Cook and Wall (1980)         |
| <i>A state involving confident positive expectations about another's motives with respect to oneself in situations entailing risk</i>   | Boon and Holmes (1991)       |
| <i>The extent to which a person is confident in, and willing to act on the basis of, the words, actions and decisions, of another</i>   | McAllister (1995)            |
| <i>The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party</i>  | Mayer et al. (1995, p. 712)* |

|   |   |
|---|---|
| <i>The specific expectation that another's actions will be beneficial rather than detrimental and the generalised ability to take for granted . . . a vast array of features of the social order.</i>   | Creed and Miles (1996)                                    |
| <i>...the end state of a situation in which an 'individual or group (a) makes good faith efforts to behave in accordance with any commitments both explicit and implicit, (b) is honest in whatever negotiations preceded such commitment and (c) does not take excessive advantage of another even when the opportunity is available'</i>    | Cummings and Bromiley (1996, p. 303)*                     |
| <i>the belief that our collaborators will act in a way designed to improve our situation rather than worsen it, in situations of uncertainty</i>  | Lazaric and Lorenz (1998, p. 217)*                        |
| <i>Confident positive expectations regarding another's conduct in a context of risk</i>   | Lewicki et al. (1998)*                                    |
| <i>... reflects an expectation or belief that the other party will act benevolently a psychological state comprising the intention to accept vulnerability (to another) based upon positive expectations of the intentions or behaviour of another, fitting the reliance/risk trade-off that characterizes inter-organizational alliances</i> | Whitener et al. (1998)<br>Rousseau et al. (1998, p. 395)* |
| <i>...the process in which a trustor relies on a trustee (a person or group of people) to act according to specific expectations that are important to the trustor without taking advantage of the trustor's vulnerability</i>  | Martins (2002, p. 755)                                    |

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Adapted from Borum (2010, p. 9); Dietz and Den Hartog (2006, p. 559); Martins (2002) and Mitchell and Zigurs (2009, p. 72).

Dietz and Den Hartog (2006, p. 558) summarised the most quoted definitions, and deduce that they can be broken down into trust as a

- a belief,
- a decision,
- an action.

In summary, Kramer and Lewicki (2010) conclude that all this boils down to the fact that in the broadest sense trust is a psychological state with many components and antecedents or consequences, and with the one particular characteristic: it has "some sort of positive expectation regarding others' behavior" (p. 247). In the definition below, taken from the practical real-world context of organisational climate measurement, organisational trust was defined similarly. The concepts of open communication, risk and vulnerability (referred to as "sensitive or personal issues" in the definition below), expectations and integrity, all featured in this conceptualisation and lend greater credibility to the definitions as conceptualised by trust researchers:

*The perception of freedom to communicate openly with members at higher organisational levels about sensitive or personal issues with the expectation that the integrity of such communications will not be violated.*

(Martins & Von der Ohe, 2003, p. 48)

Dietz and Den Hartog (2006) agree with Mayer et al. (1995) that ability, benevolence and integrity are the three main components of trust, but they add predictability (reliability), seeing that Cunningham and MacGregor (2000, pp. 1578-9) and Mishra (1996, p. 265) make out a strong argument for the inclusion of the latter. Since they occur most commonly in the intra-organisational literature, Dietz and Den Hartog (2006, p. 560) define each of these attributes of the trustee as follows:

- Benevolence reflects benign motives and a personal degree of kindness toward the other party, and a genuine concern for their welfare.
- Competence refers to the other party's capabilities to carry out her/his obligations (in terms of skills and knowledge).
- Integrity involves adherence to a set of principles acceptable to the other party, encompassing honesty and fair treatment, and the avoidance of hypocrisy.
- Predictability relates specifically to consistency and regularity of behaviour (and as such is distinct from competence or integrity).

These components are said to be independent, i.e. if one is missing then we might not trust. However, according to Dietz and Den Hartog (2006, p. 561) they are also interdependent and

*...compartmentalised and aggregated such that parties, if they wish, may accommodate contradictions and errors, if they still judge the quality of the other's trustworthiness, and/or the benefits of continuing to trust them, to be sufficient. In other words, one can trust or distrust different aspects of the other party.*

Having tested the above empirically, Yakovleva et al. (2010, p. 85) came to the conclusion that, as expected, ability is related to the cognitive dimension of trust and that perceived integrity and benevolence are associated with the affective dimension of trust.

According to organisational behaviour writers, there are five key dimensions that underlie the concept of trust, namely integrity, competence, consistency, loyalty and openness (Robbins (2001, p. 336; Robbins, Judge, Odendaal & Roodt, 2009, p. 329). The most important dimension is integrity which refers to honesty and truthfulness, as without this dimension the

others are meaningless. Competence refers to the technical and interpersonal skills of the individual (whom we want to trust). One will only trust a person who one believes has the abilities and skills to carry out a task.

An individual's reliability, predictability and good judgement in handling situations are included in the dimension of consistency. Loyalty refers to the willingness to protect and save face for another person. Lastly, openness is concerned with the question: "Can you rely on the person to give you the full truth?" Martins (2000) interprets this as a willingness to share ideas and information freely. This last dimension is the one that is of greatest importance in the present study.

In this study trust was defined (as already stated in Chapter 1) from the perspective of industrial and organisational psychology and the Martins (2000, p. 28) definition was used as a basis for his research:

*Trust can be defined as the process where a trustor relies on a trustee (a person or group of people) to act according to specific expectations that are important to the trustor without taking advantage of the vulnerability of the trustor.*

According to Martins (2000), trust is a dynamic phenomenon that depends on the interplay of various factors that might affect the building of a model of trust. Interestingly, more than a decade later Fulmer and Gelfand (2012, p. 1174) also use the term "expectations" when they define trust on an individual level concerning an individual trustee. They regard trust in this case as "a psychological state comprising willingness to accept vulnerability based on positive expectations of a specific other or others" (p. 1174). According to them, 'positive expectations' refer to the three trustworthiness dimensions of ability, benevolence and integrity. They also adopt the vulnerability concept, rather than only the 'positive expectations' concept. (See Fulmer and Gelfand (2012, pp. 1171-1172) for an extensive review and discussion on this point.) It is notable that Martins specifies the referent trustee as both a group or an individual, thus addressing the repeated complaint by various influential reviews such as those by Fulmer and Gelfand (2012, p. 1172), Colquitt et al. (2007) and Schoorman et al. (2007).

The above definition by Martins (2000) covers all three the "forms" of trust that McEvily and Tortoriello (2011, pp. 38-39) included in their framework for measuring trust in organisations on a psychometric level. These are *trustworthiness beliefs* about another person (perceptual or attitudinal); *trusting intentions* whereby the trustor is willing to be made vulnerable, and *trusting behaviours* represented by risk-taking behaviour.

From the above definitions it becomes clear that other authors (Kramer, 1999; Lewicki, Tomlinson & Gillespie, 2006; Searle, Weibel et al., 2011) also highlight the perceived vulnerability of the trustor and the underlying risk linked to such a dependant relationship. The other definitions focus mostly on the beliefs that an employee holds about the supervisor, manager or leader, and the consequent relationship between them. A product of this is the belief in the trustworthiness of a trustee as postulated by Mayer et al. (1995) where the ability, benevolence and integrity of the trustee are the main components that determine this trustworthiness.

The next step – after defining the main concept, i.e. trust – is to investigate the two models of trust that are relevant to this study and that are accepted as valuable in the literature (as was pointed out in Chapter 1).

## **2.5 Models of trust relevant to the current research**

Following the discussion of the definition of trust, the next step is to consider the relevant models that have been proposed to explain trust within the paradigm of the current study. As can be expected from the plethora of definitions and the near impossibility of finding one commonly agreed upon definition, it is to be expected that the models will also be quite diverse. Nonetheless, the applicable models will be discussed in chronological order and not in any order of importance, although the first model by Mayer et al. (1995) seems to have gained the largest following in the community of trust researchers internationally.

### *2.5.1 The Mayer et al. (1995) model*

One of the most significant attempts to develop a model of trust is that of Mayer, Davies and Schoorman who published their article introducing the *Integrative model of Organisational Trust* in 1995. According to Bews (2000), they were the first to address the importance of risk taking in relationships (RTRs) and the characteristics of both the trustor and trustee. Mayer and colleagues tried to break away from the socio-psychological approach to trust and focused the design of their model on trust in an organisational setting. Trust in an organisational setting used to be problematic, as previous research had been hindered by "a lack of clear differentiation among factors that contribute to trust, trust itself, and outcomes of trust" (Mayer et al., 1995, p. 711). Their model is an attempt to integrate the different research orientations such as personality theory research, experimental laboratory research and sociological research (Clark & Payne, 1997, pp. 205-206).

This model will now be discussed in more detail (see Figure 1.1 in Chapter 1). The characteristics of the trustee and trustor will be discussed, as well as the relationship between trust and risk. Attention will also be given to the influence of the context in which trust occurs and the long-term development of trust within the context of this model.

The model of Mayer et al. (1995) involves two specific parties – a trustor and a trustee. A trustor is someone who engages in trusting behaviour, while the party to be trusted is the trustee (Searle, Weibel et al., 2011, p. 144). Mayer and colleagues argued that it is important to investigate trust from this particular perspective and not from the perspective of trust for others in general, as the latter approach does not give information on the specific relationship between two individuals. It also does not explain why a trustor would trust a trustee. Lastly, they claim that if the trustor and trustee are not specified by researchers, it "encourages the tendency to change referents and even levels of analysis, which obfuscates the nature of the trust relationship" (Mayer et al., 1995, p. 711).

This dyadic model differentiates between factors that contribute to trust (antecedents), trust itself, and outcomes of trust that have to be measured to validate their model (Engelbrecht & Cloete, 2000, p. 24; Mayer et al., 1995, p. 729).

It is important to take cognisance of the characteristics of the trustor and trustee in order to understand the willingness to trust between two persons.

Personality characteristics or traits of the trustor that tend to let them trust others vary between individuals; some persons trust easily while others do not tend to trust others easily. Mayer et al. (1995, pp. 715-716) refer to this trait as the *propensity to trust*. It is seen as a general willingness to trust others, which is not situation-specific, in other words this kind of trust is stable across situations (Ashleigh, Higgs & Dulewicz, 2012). It seems to be a stable personality trait that affects the likelihood that the person will trust others (Clarke & Payne, 1997; Engelbrecht & Cloete, 2000; Mayer et al., 1995). It is also referred to as *trait trust* or "... represents an individual's dispositional tendency to trust or distrust other individuals" (Chughtai & Buckley, 2008, p. 50). Alternatively, it is also referred to as *dispositional trust*, and can be described as the initial amount of trust a trustor is willing to grant a trustee without any initial information (Hamm et al., 2013, p. 16). Some persons tend to trust "most people" when they first meet them (a predisposition – cf. Costa & Anderson, 2011; Kramer, 1999), while others, perhaps because of previous experience, do not really trust other persons when they just get to know them. This starting point or base level of trust that different persons exhibit, is influenced by developments in early life, cultural background

(Dietz et al., 2010) and the status of the trustor (Lount & Pettit, 2012). Trustors who are high-status individuals tend to display a higher disposition to trust others of lower status. Table 2.2 contains a brief summary to conceptualise the main points of the Mayer et al. (1995) model.

**Table 2.2. Main concepts of the Mayer et al. (1995) model**

|  |  |
|--|--|
| Trust is a   |  |
| <ul style="list-style-type: none"> <li>• <i>willingness to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor</i> (Mayer et al., 1995, p. 712),</li> <li>• <i>irrespective of the ability to monitor or control that other party</i> (Mayer et al., 1995, p. 712).</li> </ul> |  |
| <b>Trustee</b>   | <b>Trustor</b>   |
| <b>Perceived trustworthiness</b>   | <b>Propensity to trust</b>   |
| Consists of <ul style="list-style-type: none"> <li>• ability,</li> <li>• benevolence, and</li> <li>• integrity.</li> </ul>   | <i>a stable within-party factor ... propensity might be thought of as the general willingness to trust others ... People with different developmental experiences, personality types and cultural backgrounds vary in their propensity to trust</i><br>(Mayer et al., 1995, p. 715). |
| <i>... trust is a dyadic phenomenon and that propensity to trust and perceptions of ability, benevolence, and integrity of both partners affect the manifested level of trust.</i><br>(Yakovleva et al., 2010, p. 79)  |  |

From the above table it is clear that the perceived trustworthiness of the trustee, in other words the latter's perceived ability, benevolence and integrity (on the one hand), and the trustor's propensity to trust (on the other hand) will determine whether the trustor is willing to make him-/herself vulnerable to the trustee.

With regard to the relationship of propensity to trust, trust and trustworthiness included in Table 2.2, Yakovleva et al. (2010, p. 79) confirm in their study that trustworthiness fully mediates the influence that propensity to trust has on trust. They see propensity to trust as a stable part of everybody's personality structure and an important antecedent of trustworthiness. Once trustworthiness has been determined, propensity to trust will only have an indirect effect (Yakovleva et al., 2010, p. 85). Individuals with a high propensity to trust have been found to be more positive and less suspicious towards others in general,

more sensitive to signs of trustworthiness, but not more gullible than others – just less sensitive to unfavourable information (Searle, Weibel et al., 2011). Individuals with a low propensity to trust are more keenly aware of any signs that their trust might be broken or betrayed (Yakovleva et al., 2010, p. 81) and are not willing to co-operate as much as high propensity to trust individuals (Searle, Weibel et al., 2011).

Using the above definitions as a starting point, some authors (e.g. Kramer, 1999; Lewicki et al., 2006; Searle, Weibel et al., 2011) emphasise the fact that a perceived vulnerability needs to exist and as such an underlying risk is involved in what has become a dependent relationship. Other authors focus on an employee's beliefs about other individuals in the organisation (co-worker, supervisor, manager or leader) and the resulting relationship. From this follows the belief in the trustworthiness of a trustee as postulated by Mayer et al. (1995). The ABI of the trustee are the main components that determine this trustworthiness.

#### 2.5.1.1 *Trustworthiness*

*The extent to which a leader effectively influences others and performs their role (competence), shows genuine concern (benevolence) and acts congruent with their words (integrity), affects the extent to which the leader is trusted.*

(Lee et al., 2010, p. 5)

Over time, different numbers of antecedents to trust were proposed, varying from one single factor or trustee characteristic to as many as ten. This continued until 1995 when Mayer et al. developed their integrative model and reduced these to the commonly known three-factor model of trustworthiness (Dietz et al., 2010, p. 10). Although these factors are not unrelated and often are highly correlated (Colquitt et al., 2007, p. 917), they make an own unique contribution to the perceived trustworthiness of the trustee (Mayer et al., 1995; Lapidot, Kark & Shamir, 2007). To clarify, trust is a “psychological construct or state” (Cho & Ringquist, 2011, p. 55) and should not be confused with the antecedents or behaviours that demonstrate trustworthiness and that are to be discussed here.

These personality traits or characteristics of the trustee are also important in the context of understanding the concept of trustworthiness. After an extensive literature review, Mayer et al. (1995, p. 717) concluded that certain factors help build the foundations for the development of trust. Ability (competence), benevolence and integrity are the three traits or characteristics that explain a major portion of trustworthiness, and trustworthiness is a precondition of trust (Cho & Ringquist, 2011).

*Most contemporary researchers agree – whether they subscribe to a unitary or multidimensional view of trust – that trust has multiple drivers. The trustee’s perceived ability, benevolence, and integrity (collectively, her or his “trustworthiness”) provide the key data for the decision.*

(Borum, 2010, p. 14)

**Ability** refers to "that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain" (Mayer et al., 1995, p. 717). Engelbrecht and Cloete (2000) point out that a similar construct, namely competence, is used by authors such as Butler (1991), Mishra (1996) and Clarke and Payne (1997). Kramer and Lewicki (2010) also use the term competence and include the willingness of the trustee to acknowledge their own shortcomings and other performance issues.

**Benevolence** refers to “the extent to which a trustee is believed to want to do good to the trustor” (Mayer et al., 1995, p. 718), or in the words of Engelbrecht and Cloete (2000, p. 25), “the extent to which the trustee is believed to act in good faith towards the trustor, aside from an egocentric profit motive”.

According Mayer et al. (1995, p. 719), the implication of **integrity** for interpersonal trust “involves the trustor’s perception that the trustee adheres to principles that the trustor finds acceptable”. The following issues affect the degree to which a person is deemed to have integrity:

- Consistency of the party’s past actions
- Credible communications about the trustee from other parties
- Belief that the trustee has a strong sense of justice
- The extent to which the party's actions are congruent with his/her words (Mayer et al., 1995, p. 719)

The cognitive component of trust (Borum, 2010; Mayer et al., 1995) to determine ability and integrity is also referred to as cognition-based trust (McAllister, 1995) or knowledge-based trust (Shapiro et al., 1992). The affective component known as affective-based trust (McAllister, 1995) or identification-based trust (Shapiro et al., 1992; Zeffane & Connell, 2003) is often the base for judging a trustee’s **benevolence**. Interestingly, Yakovleva et al. (2010, p. 85) found that in the case of virtual relationships, integrity is related to the affective rather than the cognitive dimension of trust, as it is possibly more difficult to collect information

about the trustee's benevolence and integrity. From this perspective, they ask the question if virtual trust is perhaps more cognitively based, as ability is easier to judge.

Trustworthiness should not be confused with the behaviour of trust itself, but rather as an antecedent or determinant of trust, while ABI have been shown to be very stable antecedents or determinants of trustworthiness (Borum, 2010). Although ability, benevolence and integrity vary independently, they are not unrelated to each other and Colquitt et al. (2007, p. 919) report significant intercorrelations higher than 0,6. If all three are perceived to be high, a trustee will be seen as quite trustworthy. As all three factors of trustworthiness have to be seen as varying on a continuum, "there may be situations in which a meaningful amount of trust can develop with lesser degrees of the three" (Mayer et al., 1995, p. 721). The three facets (ABI) of trustworthiness as postulated by Mayer et al. (1995) have shown to be very stable and even hold for different types of behaviours and different trust relationships such as co-workers and leaders. They correlate directly with the propensity to trust as an antecedent of trust and trust (Colquitt et al., 2007).

#### *2.5.1.2 Trust and risk taking*

Mayer et al. (1995, p. 724) argue that it is important to understand the role of risk as it is an essential component of any model of trust: "[t]here is no risk taken in the willingness to be vulnerable (i.e., to trust), but risk is inherent in the behavioural manifestations of the willingness to be vulnerable". According to them this means that trust is the willingness to assume risk, while trusting behaviour is the actual assuming of risk.

On trying to empirically validate this model in the South African work context, Engelbrecht and Cloete (2000) found a positive relationship between interpersonal trust, trustworthiness and successful trust relationships. However, they could not demonstrate a moderating effect of propensity to trust or length of the supervisor-subordinate relationship on trustworthiness.

Bews (2000) investigated the discrepancies in terminology mentioned above and states that there is a degree of inconsistency in the literature:

- Mayer et al. (1995) use the terms ability, benevolence, integrity.
- Mishra (1996) uses competence, openness, concern and reliability.
- Robbins (1997) uses integrity, competency, loyalty and openness.

Bews (2000) subsequently supplies a comparative table to illustrate some of these inconsistencies. His table was expanded for the purposes of this study to include the

information supplied by Engelbrecht and Cloete (2000) and Burke et al. (2007), as researchers often include other elements under ABI (McEvily & Tortoriello, 2005). The detailed labels in Table 2.3 show the amount of overlap and slight differences in interpretation of factor structures or even nuances in interpretation by the researchers concerned.

**Table 2.3. Antecedents of trust in the literature**

| Labels      | Mayer et al. (1995)      | Theorists according to Bews (2000); Burke et al. (2007) and Engelbrecht and Cloete (2000)   |
|-------------|--------------------------|---|
| Competency  | Ability                  | Competency (Barber, 1983 in Husted, 1998; Mishra, 1996); competency (Clark & Payne, 1997); competence (Butler, 1991); competence (Mishra, 1996); ability (Sitkin & Roth, 1993); communication, sharing and delegation of control, perceived competence (Whitener et al., 1998); ability, affect (Williams, 2001); unmet expectations, perceived organisational support (Dirks & Ferrin, 2002).  |
| Benevolence | Benevolence              | Concern (Barber, 1983 in Husted, 1998); loyalty, openness, receptivity, availability (Butler, 1991); loyalty, openness (Clark & Payne, 1997); caring, openness (Mishra, 1996); demonstration of concern (Whitener et al., 1998); benevolence, affect (Williams, 2001); interactional justice, perceived justice, participative decision making, transactional leadership, distributive justice, transformational leadership, unmet expectations, perceived organisational support (Dirks & Ferrin, 2002). |
| Integrity   | Integrity                | Fairness, consistency (Martins 1996); integrity (Barber, 1983 in Husted, 1998; Robbins, 1997); consistency, discreteness, fairness, integrity, promise, fulfilment (Butler, 1991); honesty, truthfulness, sincerity, promise fulfilment (Clark & Payne, 1997); reliability, openness (Mishra, 1996); value congruence (Sitkin & Roth, 1993); behavioural consistency, behavioural integrity, perceived similarity (Whitener et al., 1998); integrity, affect (Williams, 2001).                            |
| Propensity  | Propensity               | Propensity to trust (Dirks & Ferrin, 2002; Whitener et al., 1998); motivation to trust (Williams, 2001).  |
| Openness    | Listed under benevolence | Openness (Martins, 1996; Mishra, 1996; Robbins, 1997).  |

|                             |     |   |
|-----------------------------|-----|---|
| History of interactions     | N/A | History (Zucker, 1986 in Husted, 1998; Lewicki & Bunker, 1996).   |
| Personality characteristics | N/A | Personality characteristics (Martins, 1996).  |
| Additional constructs       | N/A | Task interdependence (Whitener et al., 1998); organizational context (competition), in-group/ out-group membership (Williams, 2001); length of relationship, direct/indirect leadership (Dirks & Ferrin, 2002). |

Adapted from Bews (2000, p. 26); Burke et al. (2007, p. 614) and Engelbrecht and Cloete (2000, p. 25).

In the years since these comparisons were been made no clarity on the terminology has been reached and it has been suggested that for the sake of clarity a single terminology be adapted (Ferrin et al., 2008, p. 174). Searle, Weibel et al. (2011, p. 145) suggest that the time has come to leave the “pragmatic approach” behind and investigate the real differences behind the labels. This might be a function of context or even statistical artefact. In a first step towards this Von der Ohe and Martins (2010) summarise the elements in a trust relationship conceptually as represented in *Table 2.4* below.

**Table 2.4. Summary of the elements in a relationship of trust**

| Dimensions                                 | Kreitner & Kinicki (1995) | Martins (2000) | Mayer et al. (1995) | Pennington (1997) | Shaw (1997) |
|--|---------------------------|----------------|---------------------|-------------------|-------------|
| Ability/competence (team management)       | ✓                         | ✓              | ✓                   | ✓                 | ✓           |
| Benevolence                                |                           |                | ✓                   |                   |             |
| Integrity/concern                          |                           |                | ✓                   |                   | ✓           |
| Communication (information sharing)        | ✓                         | ✓              |                     | ✓                 |             |
| Fairness (trust relationship)              | ✓                         | ✓              |                     |                   | ✓           |
| Character / personality (B5)               |                           | ✓              |                     | ✓                 |             |
| Predictability / consistency (credibility) | ✓                         | ✓              |                     | ✓                 |             |
| Respect (trust relationship)               | ✓                         | ✓              |                     |                   |             |
| Support (work)                             | ✓                         | ✓              |                     |                   |             |
| Changes                                    |                           | ✓              |                     |                   |             |
| Courage                                    |                           |                |                     | ✓                 |             |

Adapted and corrected from Von der Ohe and Martins, (2010, p. 2).

From the above it is evident that no consensus has been reached concerning these factors, and it is hoped that the proposed approach in this study will link the different conceptualisations to constitute a single more generic model. What becomes abundantly clear is that the components suggested by Mayer et al. (1995) feature predominantly (Burke et al., 2007, p. 614, Searle, Weibel et al., 2011, p. 145), but this does not imply that there are no problems with their model. In the following section these problems will be investigated.

### 2.5.2 Critique of the Mayer et al. (1995) model

When revisiting their model, Schoorman et al. (2007) addressed the proposition of trust as an aspect of a relationship, the levels of analysis, the role of the time dimension, risk taking, reciprocity and the measurement of trust.

Since the Mayer et al. (1995) model of trust is one of the most popular models used in the literature, it has been interpreted in many different ways. In 2007 the authors published an article that attempted to clarify their original model by reviewing its history, their interpretation of its current status and research that according to them should be undertaken.

The proposition that trust is an aspect of a relationship and not a trait – in other words that trust “varied within person and across relationships” (Schoorman et al., 2007, p. 344) – has been accepted widely.

The fact that Mayer et al. (1995) consider both intra- and interorganisational trust in their model makes it applicable across various levels of analysis:

*The fact that our initial goal was to develop a multilevel theory is probably why the model works as well as it does across levels, but we do agree with those who argue that one of the weaknesses in much of the current trust research is that it is limited to relationships at a single level of analysis, considering either dyadic trust relationships within organizations or trust between organizations.*

(Schoorman et al., 2007, p. 345)

In this regard they find that their definitions of the trustworthiness dimensions are valid on an interpersonal, intergroup, as well as interorganisational level of analysis. On all of these levels trust depends on the perceptions about the ability, benevolence and integrity of the individual or group or organisation as unit of analysis. They contend that although Mayer et al. (1995) defined benevolence as “the extent to which a party is believed to want to do good for the trusting party”, this definition will hold even on an interorganisational level

(Schoorman et al., 2007, p. 345). Nielsen (2011, p. 160) found this limiting as, in the context of research on the effect of trust on strategic alliances between partners, this model has three shortcomings. At the outset, it assumes trust is one-dimensional and has universal properties, and secondly, it neglects the interaction between management processes and trust (e.g. how do monitoring and control influence trust, and vice versa: if there is high trust, is there less monitoring and control?) Lastly, the model does not make provision for various stages in the relationship over time as proposed by Lewicki and Bunker (1996). The latter see trust as a dynamic phenomenon and not as a static entity (Lewicki & Bunker, 1996, p. 118).

In addressing this latter comment, Schoorman et al. (2007) admit that against their expectations the issue of *time* has not been sufficiently explored in real-life situations. Aspects of time are important in their model (proposition 3 and 4 on page 722 in Mayer et al., 1995), but more research needs to be conducted – especially as laboratory studies often show high correlations between benevolence and integrity, supposedly pointing to the interdependence between them. However, in field studies where there has been a more realistic longer-term relationship between the parties, this effect is negated – “[b]y including a consideration of time, studies of trust should lead to more predictable results” (Schoorman et al., 2007, p. 352). Trying to address exactly this problem of the effect of time on trust, and specifically the development of interpersonal trust over time, Lewicki, Tomlinson and Gillespie (2006) investigated trust and distrust, and developed a very interesting model. Von der Ohe and Martins (2010) attempted to take note of this in a longitudinal study where they found that the passage of time, combined with certain demographic variables such as job levels, did not conclusively influence interpersonal trust, but did seem to have some effect on organisational trust. In a follow-up study, Martins and Von der Ohe (2011) again found little effect of time.

Concerning their proposition 5, namely that trust equates the willingness to take risk – in other words that “the level of trust is an indication of the amount of risk that one is willing to take” (Schoorman et al., 2007, p. 346) – there has been a question concerning the role that control systems play in this process. Schoorman et al. (2007, p. 346) do not regard control systems and trust as mutually exclusive, because “when the risk in a situation is greater than the trust (and, thus, the willingness to take risk), a control system can bridge the difference by lowering the perceived risk to a level that can be managed by trust”. However, these authors warn that if there is excessive control, trust will not develop, as trustors will credit the control systems and not the benevolence and integrity of the trustees.

An area where Schoorman et al. (2007) maintain that more research is needed, concerns the reciprocity of trust. Contrary to popular leadership theories (such as leader-member exchange or LMX), not enough empirical work has been conducted to show that trust is a two-way process. In other words, a person can trust you, but you do not have to trust the person (no reciprocity necessary).

### 2.5.3 Evaluation of the Mayer et al. (1995) model

Jones and Bowie (1998, p. 276) already mentioned their concern with the moral aspects that would have a bearing on the Mayer et al. (1995) model:

*Finally, we are concerned primarily with the moral aspects of trust, the intent to perform as promised, not ability or competence, other elements of trust discussed by Mayer, Davis, and Schoorman.*

They argue for an ethics-based trust (especially in an virtual organisational environment), as morals are a normative method to decide what we want to do or refrain from doing. We use heuristics to save time when we have to decide if somebody is trustworthy. Morality makes the cognitive decision-making process much easier, as it tells us what is right and wrong.

A similar evaluation of the Mayer et al. (1995) model is undertaken by Parra, de Nalda and Perles (2011) as they investigate it from a humanistic viewpoint by focusing on the implied ethics and virtues. They link onto a footnote in the original article by Mayer et al. (1995, p. 717) where parallels are drawn with Aristotle's three antecedents for the perceived ethos of a speaker. Parra et al. (2011, p. 609) link this to Plato's three components of persuasive communication, which are equated as "*logos* to competence or the trustee's ability, *pathos* to his/her benevolence and *ethos* to the integrity of his/her ethical principles". Parra et al. (2011, pp. 610-611) see this link to fundamental philosophy as one of the primary reasons for the acceptability and longevity of the Mayer et al. model. They however suggest that the model needs to be more explicit on the following three points:

- Integrity needs to be linked to virtues and character, not only to adherence to ethics. The trustee needs to internalise moral behaviour, or the trustor will see the trustee as a hypocrite.
- The ability of the trustee to make moral judgements needs to be made explicit, otherwise the integrity of the trustee cannot be judged. This requires practical rationality.
- Free will is implied, not made explicit, as the free will of both the trustee and the trustor are what brings in the risk factor into any trust relationship. Both parties are

free to decide what they want to do. The trustor might for instance decide not to “become vulnerable” (p. 610) or the trustee might decide not to be perceived to be trustworthy.

The suggestions they make are very constructive as the perception of integrity can improve its value if it is refined from a conceptual point, especially with the increasing importance that is placed on ethics in the organisational environment. In the current study one could investigate if there are items that “...address moral habits and the trustee’s ability to distinguish between good and evil” (Parra et al., 2011, p. 612).

#### *2.5.4 Support for the Mayer et al. (1995) model*

According to Caldwell, Hayes and Long (2010), there seems to be enough empirical evidence (for instance Bews & Rossouw, 2002b; Mayer & Gavin, 2005; Serva, Fuller & Mayer, 2005) that reinforces the importance of Mayer et al.’s (1995) model concerning the role of trustworthiness as an important antecedent to trust. Schoorman et al. (2007) revisit and discuss their own seminal article (Fulmer & Gelfand, 2012; Wasti & Tan, 2010) from 1995 (Mayer et al., 1995), which has been cited over 1100 times. According to them, theirs was one of the first articles to aim at the management literature that focuses directly on trust. Their aim was to integrate the research from various “bodies of literature” (Schoorman et al., 2007, p. 344) and to integrate the perspectives of management, psychology, philosophy and economics into one model.

Lee et al. (2010) reiterate the fact that the model by Mayer et al. (1995) has received widespread empirical support (see Table 2.5). Here they also refer to the meta-analysis by Colquitt et al. (2007) and Dirks and Ferrin (2002). In their meta-analysis, Colquitt et al. (2007) found that perceived ABI each explains a different part of the variance found in trust. Knoll and Gill (2011) tested the integrative model of trust by Mayer et al. (1995) itself and found that it was generalisable with reference to workplace relationships and trust formation between different referent groups or foci.

**Table 2.5. Selected studies that made use of Mayer et al. (1995) between 2008 and 2011**

| Study                                     | Aspects utilised  | Field of research   |
|---|---|---|
| Ballinger & Rockmann (2010)               | Trustworthiness (Tomlinson & Mayer, 2009)                                     | Social exchange relationships                               |
| Bernerth & Walker (2010)                  | Propensity to trust   | Social exchange   |
| Byrne et al. (2011)                       | Definition ABI  |   |
| Caldwell et al. (2010)                    | Trustworthiness   | Leadership ethics   |
| Cho & Park (2011)                         | Definition  | Trust, employee satisfaction, and organisational commitment |
| Cho & Ringquist (2011)                    | Definition & ABI  | Trustworthiness of managerial leadership                    |
| Colquitt, LePine, Zapata & Wild (2011)    | Definition & ABI  | Firefighters – trust in co-workers                          |
| Costa & Anderson (2011)                   | Trustworthiness   | Trust in teams  |
| De Jong & Elfring (2010)                  | Propensity to trust   |   |
| Dimoka (2010)                             | Explain definitional problems   | Team performance  |
| Gillespie & Dietz (2009)                  | Defined & Dimensions (ABI & predictability / reliability)                     | MRI / cognitive neuroscience                                |
| Grant & Sumanth (2009)                    | ABI adapted to organisational level   | Trust repair interventions                                  |
| Greifeneder et al. (2010)                 | Dimensions ABI;   | Manager trustworthiness and prosocially motivated employees |
| He et al. (2009)                          | Trustworthiness   | Economic games  |
| Keyton & Smith (2009)                     | Definition ABI  | Use of knowledge management systems                         |
| Knoll & Gill (2011)                       | Definition  | Distrust in leaders   |
| Kramer & Lewicki (2010)                   | Definition & ABI  | Trust in supervisors, subordinates and peers                |
| Lau & Liden (2008)                        | Definition  | Breaking trust / enhancing trust and repair                 |
| Lee et al. (2010)                         | Definition & B  | Group leaders and co-worker trust                           |
| McNeish & Mann (2010)                     | Definition & ABI  | Knowledge sharing and team performance                      |
| Puranam & Vanneste (2009)                 | Definition  | Knowledge sharing   |
| Six & Skinner (2010)                      | Definition  | Governance  |
| Six, Nooteboom & Hoogendoorn (2010)       | Definition & A,B  | Managing trust (repair)                                     |
| Rusman, van Bruggen, Sloep & Koper (2010) | Definition  | Actions that build trust                                    |
| Tan & Lim (2009)                          | ABI   | Virtual teams and trustworthiness antecedents (TWAN) schema |
| Tomlinson & Mayer (2009)                  | Definition & ABI  | Organisation and group trust                                |
| Wasti & Tan (2010)                        | Defined & ABI   | Trust repair  |
| Werbel & Henriques (2009)                 | Definition & ABI  | Culture-specific workways and trust                         |
|   | Definition, mention ABI but use finer Butler (1991) conditions of trust scale | Trust and relational leadership                             |

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*Note:* ABI: ability, benevolence and integrity<sup>4</sup>

Tomlinson and Mayer (2009, p. 86) is a good example of a study that uses the Mayer et al. (1995) model for their research. They motivate their choice as follows:

- It “has gained a great deal of acceptance in the literature” (see Table 2.5).
- It “integrates a feedback loop from outcomes of taking risks to subsequent perceptions of the trustee”.
- It describes a “parsimonious but fairly encompassing set of trustee characteristics that comprise factors the trustor may perceive as causing a negative outcome”.

In conclusion, it has to be pointed out that although the definition of Mayer et al. (1995) is concerned with interpersonal trust, researchers such as Kwon and Suh (2004) have used the same definition to define institutional trust between organisations. They also refer to the willingness to take risks, but they substitute the individual with an organisation as the unit of analysis.

In the previous sections the Mayer et al. (1995) model was discussed in detail, but conceptually it has very few links to the model by Martins (2000). To assist in developing this conceptual linkage and to expand on the model of Mayer et al. (1995), the model proposed by Reynolds (1997) will be investigated in the paragraphs that follow. Although this model has gained very little support in the academic literature – perhaps because it focuses too much on implementation and aims at the commercial consulting market (very little evidence of empirical support could be found) – it nevertheless includes unique aspects that link the Mayer model to the Martins model.

#### *2.5.5 Reynolds’ model (1997)*

For the purpose of this study and building on the Mayer et al. (1995) model, the next model that is of importance is that of Reynolds (1997). Although not so widely accepted, it contains aspects that can be used to link the Mayer et al. (1995) model with the Martins (2000) model.

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<sup>4</sup> The abbreviation “ABI” is gaining acceptance (see Tan & Lim (2009) and Dietz (2011)).

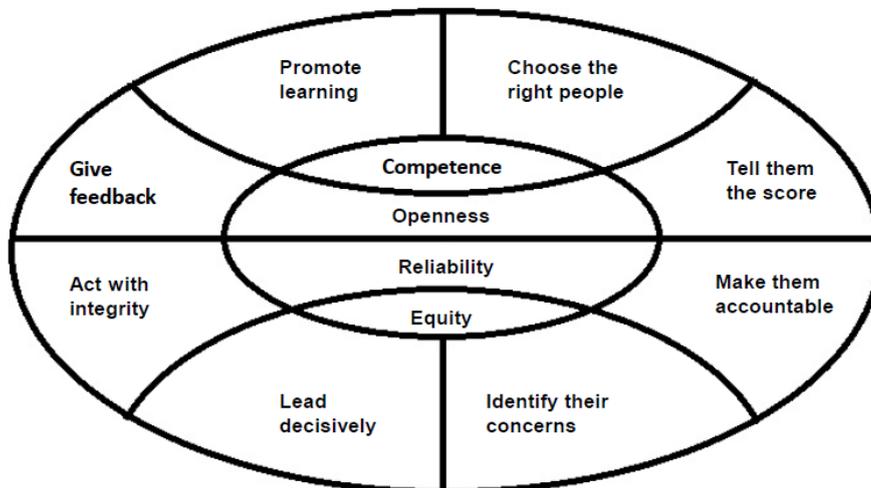
Competence, openness, reliability and equity are the four principles underlying trust according to Reynolds (1997, p. 25). This CORE of trust depends on various other aspects as depicted in his model represented in Figure 2.1. We only trust persons who are competent (competence); transparent, honest and truthful (openness); dependable and consistent (reliability); fair and equitable (equity).

As trust is a two-way relationship, Reynolds (1997, p. 29) postulates that for a person to trust others, the following practices are linked to the CORE principles:

- **Competence:** choose the right people
- **Openness:** tell them the score
- **Reliability:** make them accountable
- **Equity:** identify their concerns

To be trusted by others, the above practices are related to the CORE principles as follows (Reynolds, 1997, p. 29):

- **Equity:** lead decisively
- **Reliability:** act with integrity
- **Openness:** give feedback
- **Competence:** promote learning



**Figure 2.1. Reynolds' model**  
(Source: Reynolds, 1997, p. 2)

The main aspects that are of significance in this study are the practices that are directly connected to openness on a lateral basis. These are what Reynolds (1997, p. 31) calls “tell

them the score” and “give feedback” (p. 33). Openness is a concept that also features in the personality dimensions as included in the Martins (2000) model.

By ‘telling them the score’ he points to the importance of not being secretive or devious. Employees can only contribute positively to an organisation if they “know what they are contributing to” (Reynolds, 1997, p. 65). In other words, employees need to know how success is judged in the organisation for them to work towards these organisational goals. This is done by communicating the organisation’s key values and objectives to create openness and also build competence, thus enhancing trust (refer to Figure 2.1 above and Reynolds, 1997, p. 72). The advantage of sharing this organisational knowledge lies in the fact that employees do not have to guess when taking a decision, or (even more unproductive) to push decisions up the organisational hierarchy, thereby adding time delays and increasing costs.

The other practice of interest in Reynolds’ model is to give *individual* feedback. This element distinguishes it from the previous practice that mainly concerned employees as a group (Reynolds, 1997, p. 153). Feedback should be about both positive as well as negative aspects. Though many managers avoid negative feedback as they believe it might harm a relationship, Reynolds (1997, p. 154) states that the manner in which feedback is given, is more important than the content of the feedback. This feedback should be given privately, after the necessary rapport has been established and when there is a willingness to listen and act on behalf of the person who is being given feedback (Reynolds, 1997, pp. 155-156). The feedback should also be behaviourally anchored, accurate and balanced between negative and positive aspects. A very important aspect that Reynolds (1997, p. 160) touches on is the importance of also being willing to receive feedback, as this builds competence and enhances the trust relationship. In the current study, special attention will be given to aspects such as feedback and informing employees about organisational goals and values as discussed by Reynolds (1997).

## **2.6 Types of trust**

To clarify a point of confusion, it is in order to distinguish between the dimensions and the types of trust at this stage. Dimensions of trust are commonly understood as the “underlying aspects or properties of trust (e.g., its risk-reducing or goodwill-creating properties)”, while types of trust refer to the different forms trust can take and “pertains to its different nature (calculative trust, affective trust, competence-based trust, benevolence-based trust, normative-based trust, and/or institution-based trust)” (Nielsen, 2011, p. 161). McKnight,

Cummings and Chervany (1998, pp. 476) summarise the main research streams in the field of trust as personality (linked to disposition to trust, p. 474); institutional (institution-based trust); calculative (choices on who to trust based on rationally derived costs and benefits, p. 473), and cognitive (categorisation processes linked to rapid, cognitive cues or first impressions, p. 473). The fifth stream that they identified was knowledge-based trust (interaction history or reputation).

To describe relationship development in organisations, some scholars believe that there are only three types of trust (Dietz, 2011; Lewicki & Bunker, 1996). These are deterrence-based trust, also called calculus-based trust by Lewicki and Bunker (1996), knowledge-based trust, and identification-based trust. The types can be summarised as follows (Robbins, 2001, pp. 338-340; Robbins et al., 2009, pp. 330-331):

- Deterrence-based trust is “trust based on fear of reprisal if the trust is violated”.
- Knowledge-based trust is “trust based on behavioural predictability that comes from a history of interaction”.
- Identification-based trust is “trust based on a mutual understanding of each other’s intentions and appreciation of the other’s wants and desires”.

Another type of trust that is frequently mentioned in the literature is institutional-based trust, of which Bachmann and colleagues are the main proponents (cf. Bachmann, 2011; Bachmann & Inkpen, 2011). They argue that it is not always possible to base trust on interactions between individuals but rather on collective trust in institutions. This tends to be a macro view based on a sociological approach and has already been discussed in Section 2.2.1.

In stark contrast, Zhu, Newman, Miao and Hooke (2013, pp. 94-95) argue that literature has indicated that there are only two types of trust – cognitive trust, which is based on character, and affective or relational trust, which is based on social exchange. The latter depends on reciprocity while the former is an evaluation of character, in other words their ABI. Zhu et al. (2013) link this back to McAllister’s (1995) two-dimensional model of trust in which both deterrence-based and knowledge-based trust are included as part of cognitive trust, and identification-based trust is included under affective trust.

Mitchell and Zigurs (2009, p. 73) initially identified 17 dimensions of trust (see Table 2.6) and subsequently classified them under socio-emotional processes and task processes (which again broadly correspond with more affective and cognitive types of trust). Although the

framework is specifically developed for research on trust in virtual teams (this explains the centrality of technological capabilities), it is nonetheless very insightful as most of the input and output factors are also important for co-located teams and dyadic relationships. The relative importance of each will vary according to circumstances. Taking into consideration the rigour of the systematic review process followed, the classification below is probably generalisable from virtual trust to other interpersonal trust situations.

**Table 2.6. Trust dimensions from a process perspective**

| <b>Dimension</b>                         | <b>Socio-Emotional Processes</b> | <b>Task Processes</b>         | <b>Definition: This dimension of trust develops from ...</b>   |
|--|----------------------------------|-------------------------------|--|
| Action-based trust                       | -                                | Communication                 | <i>a process based on or promoted by fast and frequent feedback with minimal delay.</i>  |
| Affect-based trust                       | Relationship building            | -                             | <i>a process that consists of the emotional bonds between people.</i>  |
| Calculus-based or deterrence-based trust | -                                | Coordination                  | <i>an interaction process of assessing opportunities and risks based on rational choice and economic exchange.</i>   |
| Cognitive trust                          | Relationship building            | -                             | <i>a process based on individuals gaining more information about team mates and getting to know each other.</i>  |
| Commitment trust                         | Cohesion                         | -                             | <i>a process based on contractual agreements (formal or psychological) between parties who have an expectation of mutual benefit derived from cooperative relations.</i>   |
| Companion trust                          | Relationship building            | -                             | <i>a process based on judgments of goodwill or personal friendships, resting on a moral foundation that others will behave in a way that does not harm other members of the network.</i>   |
| Competence trust                         | -                                | Task-Technology-Structure Fit | <i>a process based on perceptions of another's competence to carry out the tasks that need to be performed and is based on an attitude of respect for the abilities of the trustee to complete their share of the job at hand.</i> |
| Delayed trust                            | -                                | Communication                 | <i>a process that slowly progresses toward full cooperation, potentially slowed down through technology use.</i>   |
| Dispositional trust                      | Relationship building            | -                             | <i>a process based on a personal tendency to believe in either positive (more trusting) or negative (less trusting) attributes of others on the team.</i>  |

| <b>Dimension</b>           | <b>Socio-Emotional Processes</b> | <b>Task Processes</b> | <b>Definition: This dimension of trust develops from ...</b>   |
|----------------------------|----------------------------------|-----------------------|--|
| Fragile trust              | Relationship building            | -                     | <i>a process that is vulnerable to opportunistic behaviour and vulnerable to defections (i.e. fragile).</i>  |
| Identification-based trust | -                                | Communication         | <i>a process based on assumptions about similar goals or common values.</i>  |
| Institutional-based trust  | -                                | Coordination          | <i>a process guided by the norms and rules of institutions (such as organisations) and based on formal institutional arrangements such as contracts, sanctions, or legal procedures.</i> |
| Interpersonal trust        | Relationship building            | -                     | <i>a process based on “an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon”.</i>        |
| Knowledge-based trust      | -                                | Coordination          | <i>a process of predicting the behaviour of others based on previous experience.</i>   |
| Personality-based trust    | Cohesion                         | -                     | <i>a developmental process that occurs during infancy when a person seeks help from caretakers and that results in a general propensity to trust others.</i>                             |
| Situated swift trust       | -                                | Coordination          | <i>a process of assessing and comprehending a situation in which time is not available for trust to be built in a normal way.</i>  |
| Transferred trust          | -                                | Coordination          | <i>a process that may occur when the trustor knows and trusts a person or the institution that recommends the trustee.</i>   |

Extracted from Mitchell and Zigurs (2009, pp. 73-74).

As can be seen under the socio-emotional processes in Table 2.6, Mitchell and Zigurs (2009, p. 74) classify relationship building and cohesion as trust dimensions. The former includes affect-based trust, cognitive trust, companion trust, dispositional trust, fragile trust and interpersonal trust. Cohesion on the other hand only consists of commitment trust and personality-based trust.

On the task process side, they include communication, co-ordination and “task-technology-structure fit” (Mitchell & Zigurs, 2009, p. 74). Each one of these is linked to its own trust dimensions. Communication includes action-based trust, delayed trust and identification-based trust. Coordination includes calculus-based trust, institutional-based trust, knowledge-

based trust, situated swift trust and transferred trust, while the task-technology-structure fit only consists of competence trust.

In the next sections the three major recognised types or bases of trust will be discussed in more detail. These are deterrence-based (or calculus-based) trust, knowledge-based trust and identification-based trust. Then the question of the relationship between these bases of trust will be considered, especially if there is some sort of hierarchy between them.

### *2.6.1 Deterrence- or calculus-based trust*

Shapiro et al. (1992, p. 368) are convinced that for deterrence-based trust to work, three conditions must exist. Firstly, the profit potential for untrustworthy behaviour must be smaller than the potential loss of future business. Secondly, both parties must ensure that they would know when harm is being done by the other, and lastly, the potentially harmed party must be willing to withdraw benefits or punish the other party for untrustful behaviour. In short, there must be a realisation by the trustee that unacceptable behaviour will be penalised. The threat of higher penalties makes the probability of trustworthy behaviour more likely (Adabor, 2006, p. 539).

Lewicki and Bunker (1996, p. 120) prefer to use the term calculus-based trust (instead of deterrence-based trust) as they are of the opinion that trust is not only the result of fear of punishment for violating trust, but also the reward for keeping the trust relationship on a good footing. They see this type of trust as an “ongoing, market orientated, economic calculation” where the person calculates the value of being trusting or trustworthy by comparing the advantages of keeping the relationship to the cost of not maintaining this relationship. This is normally the first stage in a trust relationship when it is only partial and still very fragile. Trust is built slowly, step by step, but it can be broken by just one small act of inconsistency.

### *2.6.2 Knowledge-based trust*

The second type – knowledge-based trust – has various dimensions, the first of which is information. The more information we have about people, the more predictable they are and this contributes to trust (Lewicki & Bunker, 1996, p. 121). Secondly, predictability increases trust (Kuo & Yu, 2009, p. 829). Lewicki and Bunker (1996) argue that even if someone is predictably untrustworthy, we know how they are going to behave. Thirdly, to accurately predict behaviour we have to have repeated interactions to develop an understanding (Sako

in Adabor, 2006, p. 539). Thus, to build this type of trust you need regular communication and interaction with the other person (Robbins et al., 2009; Shapiro, 1992). Lewicki and Bunker (1996, p. 121) emphasise the importance of regular communication:

*... puts a party in constant contact with the other, exchanging information about wants, preferences, and approaches to problems. Without regular communication, one can "lose touch" with the other – not only emotionally but in the ability to think alike and predict the reactions of the other.*

In contrast to deterrence-based trust, this type of trust is not broken if one person commits a transgression. As long as the behaviour can be adequately explained or understood, the person can be forgiven and the relationship can go on.

A combination of deterrence-based trust and knowledge-based trust is also possible and sometimes preferable, as they can reinforce one another. In this case the person is willing to share information that will not be exploited by the other party because the person has a deterrence that he/she is willing to use. This can lead to full disclosure of information by both parties and thus promote more effective problem solving (Shapiro, 1992, p. 371).

### 2.6.3 Identification-based trust

In the case of identification-based trust, the parties allow the other party to act for them or do for them what they could not do for themselves (Lewicki & Bunker, 1996). Employees share values and norms and feel secure in the relationship (Kuo & Yu, 2009, p. 829). Robbins et al. (2009, p. 331) claim that in the modern organisation this type of loyalty and trust has been replaced by knowledge-based trust, as organisations no longer have the dedication they once had to their long-term employees.

Identification-based trust can be strengthened by the following activities:

- Create joint products and/or goals, as this blurs the differences between parties
- Develop a collective identity, as a joint name lets people from different backgrounds work together
- Locate people close to one another, as proximity enhances trust (often top management that is isolated on the top floor is not trusted)
- Develop commonly shared values and a shared sense of interdependence (Shapiro et al., 1992, pp. 372-374)

A consequence of identification-based trust is that in-group members are more trusted than out-group members (Adabor, 2006, p. 539). The question that now needs to be answered is, how do these different bases of trust relate to each other?

#### *2.6.4 Hierarchy of trust*

Lewicki and Bunker already suggested in 1996 that there is a stage-wise development of trust. Calculus-based trust develops first, and when it has reached a stable level, some of these relationships progress to knowledge-based trust. When they in turn reach stability, some of these relationships become identification-based trust (Kuo & Yu, 2009, p. 824; Lewicki & Bunker, 1997, pp. 124-125). It is important to note that Lewicki and Bunker (1997) state that this is only the case in certain relationships. In some circumstances the relationship never moves past calculus-based trust or knowledge-based trust because there is no need to have such a high level of trust (for instance if legislation underpins the relationship or if trust violations were perpetuated by the trustee). It is important to also remember that this is based on the individuals being able to interact with one another and thus being able to collect enough evidence or information on which to base their level of trust. In the case of virtual relationships, an adaptation is necessary as Kuo and Yu (2009) found that all three types of trust developed swiftly in the initial stages, but both calculus-based trust and knowledge-based trust were more important compared to identification-based trust (which was found to be insignificant in comparison).

Because the three bases of trust are organised in a hierarchy, deterrence-based trust is a prerequisite to knowledge-based trust, and both are a prerequisite for identification-based trust. Both the benefits and the costs of moving from deterrence-based trust to identification-based trust increase (Shapiro et al., 1992, p. 374).

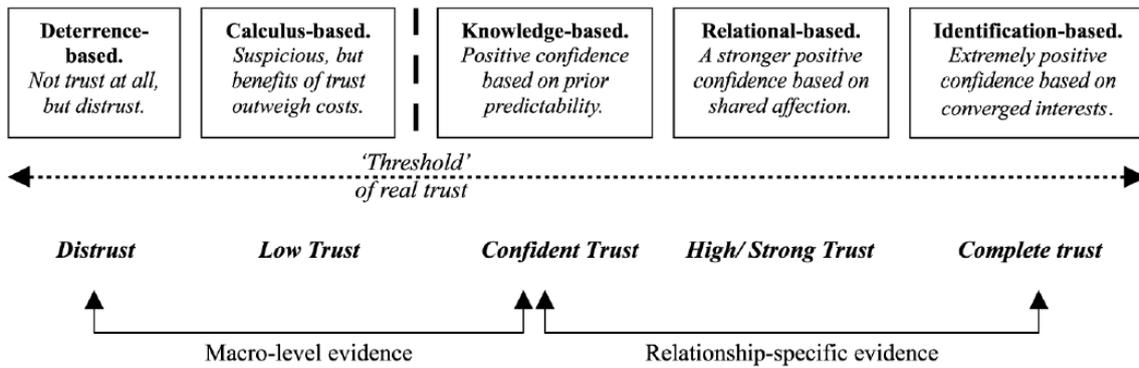
**Table 2.7. Bases of trust and their costs, benefits, and risks**

| Type of trust              | Costs  | Benefits  | Risks  |
|----------------------------|--|---|--|
| Deterrence-based trust     | <ul style="list-style-type: none"><li>• Limited number of options due to reduced number of partners</li><li>• Some monitoring required</li><li>• Harm comes to self if it is necessary to sever multifaceted, long-term relationship</li></ul> | <ul style="list-style-type: none"><li>• Greater incentive for reliability</li><li>• Limited monitoring required</li></ul>   | <ul style="list-style-type: none"><li>• Insufficient deterrence</li><li>• Partner may be short sighted</li></ul>                 |
| Knowledge-based trust      | <ul style="list-style-type: none"><li>• More time for research and communication</li></ul>   | <ul style="list-style-type: none"><li>• Easier alignment with partner</li><li>• Greater capacity to solve problems</li><li>• Greater speed in decision making</li></ul> | <ul style="list-style-type: none"><li>• Partner may make unrecognisable change</li><li>• Information may be inaccurate</li></ul> |
| Identification-based trust | <ul style="list-style-type: none"><li>• Vastly restricted options</li><li>• Loss of freedom</li></ul>  | <ul style="list-style-type: none"><li>• No monitoring necessary</li><li>• Partner can act as your agent</li></ul>   | <ul style="list-style-type: none"><li>• High costs of "divorce"</li></ul>  |

Source: Shapiro et al. (1992, p. 375)

As can be seen from Table 2.7 above, not only the benefits or advantages of moving from deterrence-based trust to knowledge-based trust and ultimately to identification-based trust increase, but also the costs. It is (as with most things in life) a cost-benefit balance that the trustor needs to assess to decide whether the effort is worth the benefit and what the cost of violating the trust relationship may be.

The above ideas are developed further by Dietz and Den Hartog (2006) who refine the hierarchy by developing a continuum that extends from distrust to complete trust (see Figure 2.2). This is sometimes described as a relationship-sensitive trust model as trust varies from an economic-type transaction on the one extreme to unselfish concern for the other parties' welfare on the other extreme (Searle, Weibel et al., 2011, p. 147). According to Dietz and Den Hartog, deterrence-based trust and calculus-based trust do not classify as trust per se, as they represent a lack of information or even distrust. Only when "suspicions recede to be replaced by positive expectations" can we speak of real trust (Dietz & Den Hartog, 2006, p. 563). This is indicated by the threshold line in Figure 2.2.



**Figure 2.2. Degrees of intra-organisational trust**

Source: Dietz & Den Hartog (2006, p. 563)

As more evidence is gathered through experience, the trustee moves knowledge-based trust to identification-based trust. This represents complete trust where the trustee and the trustor share a “common identity” and represent each other’s interests (Dietz & Den Hartog, 2006, p. 564). The above can be linked to McAllister’s (1995) cognitive and affective trust as calculus-based trust and knowledge-based trust represent the cognitive side, while the relational-based and identification-based trust are more affective in nature.

The continuum proposed by Dietz and Den Hartog (2006) does not consider deterrence-and calculus-based trust as real trust bases because they represent rational economic decisions. However, the other authors mentioned above consider them as bases or types of trust, and in the next section this concern will be investigated.

### 2.6.5 The development of trust: rational self-interest or not?

Various authors are of the opinion that social economic exchange theory describes the rational self-interest model of trust; here trusting a person and behaving in a trustworthy fashion are based on self-interest (Chiu, Hsu & Wang, 2006, p. 1884; Hsu, Ju, Yen & Chang, 2006, p. 154; Jones & Bowie, 1998, p. 276).

From an economic perspective, Sako (1998) distinguishes between three types of trust, namely contractual trust, competence trust and goodwill trust. Contractual trust refers to a mutual expectation that oral or written promises are kept. Competence trust refers to a mutual expectation that the other party is capable of fulfilling both technical and managerial promises. Lastly, goodwill trust refers to a mutual expectation of “open commitment to each other” (Sako, 1998, p. 27). An example of goodwill trust that is broken is if one partner does not disclose vital information that is needed by both parties to complete a project

successfully. The question now arises, are these trusting behaviours or mere economic transactions?

Sako (1998, p. 41) maintains that the identification of the type of trust (i.e. contractual trust, competence trust or goodwill trust) that exists in a high-trust relationship depends on the communication and information sharing that takes place between parties. How information is used will determine whether a trusting-learning or a distrusting-monitoring relationship exists.

According to Fichman (2003, p. 140) it is important to realise that the commonly held belief that humans behave according to a “self-interest model” as espoused in the economic theory above is consistently and clearly violated in various cultures. In other words, most individuals rather subscribe to the values of fairness and reciprocity than to adopt behaviour driven purely by self-interest. Fichman (2003) considers fairness and altruism as the pro-social behavioural component of trust. He broadly defines altruism in the biological and social sciences as “an action taken where the cost to the actor who commits the altruistic act exceeds the benefit to that actor” (p. 136). Fichman (2003) also states that in any theory of trust it cannot be assumed “*without some persuasive argument to the contrary* that we are dealing with self-interested actors who only show trusting and/or trustworthy behaviour when it is in the rational self-interest to do so” (Fichman, 2003, p. 140). This fits in with the view that the traditional “Economic Man” is being replaced by the “Psychological Man” who is not only motivated by rational self-interest but also looks at the gain in common good (Frost et al., 2010, p. 128). The model that is used in this study also supports a social psychological view of humanity and not an economic doctrine of self-interest. Fichman (2003) agrees with Kramer (1999) and Dietz and Den Hartog (2006) who reject calculative trust as a type of trust, as he would rather classify this type of behaviour as an economic transaction.

#### 2.6.6 *Affective and cognitive trust in organisational leaders*

With regard to trust in organisational leaders, researchers seem to have rediscovered the importance of the work by McAllister (1995) – who developed a theoretical framework for studying interpersonal trust in organisations (cf. Ng & Chua, 2006; Schaubroeck, Lam & Peng, 2011; Swift & Hwang, 2013; Yang & Mossholder, 2010; Zhu et al., 2013) – and they are once again grappling with the questions surrounding affective and cognitive bases of trust. McAllister (1995) was interested in informal relationships between managers in organisations and the effect of such relationships on organisational outcomes. He emphasised the importance of affective trust to facilitate effective managerial functioning.

However, in 2002 so little research included affective trust that Dirks and Ferrin (2002, p. 616) had to exclude this type of trust from their meta-analysis of trust in leadership.

**Table 2.8. Trust bases in leadership according to McAllister (1995)**

| Primary psychological process  | Type of trust   | Outcomes  |
|--|---|---|
|  | <b>Cognitive Trust</b>  |   |
| Instrumental psychological processes (Tyler & DeGoe, 1996; Yang & Mossholder, 2010, p. 51) or character-based perspective (Dirks & Ferrin, 2002, p. 616) | <ul style="list-style-type: none"> <li>• Focuses on trustees' characteristics such as ability, dependability, and integrity (e.g. ABI from the Mayer et al. framework)</li> <li>• Based on "track record"</li> </ul>  | <ul style="list-style-type: none"> <li>• Task-related exchanges, work requests given and taken between super-visors and subordinates (Yang &amp; Mossholder, 2010, p. 51)</li> <li>• Relationship-oriented leadership (Li, 2008, p. 428)</li> <li>• Can lead to over-dependence on leader, resulting in free riding or social loafing (Frost et al., 2010, p. 127; Zhu et al., 2013)</li> </ul> |
|  | <b>Affective Trust</b>  |   |
| Relational psychological processes (Dirks & Ferrin, 2002, p. 612)  | <ul style="list-style-type: none"> <li>• Derives from personal and emotional bonds and informal relationships; concern for the welfare of others (e.g. McAllister, 1995)</li> <li>• Beyond standard economic contract (Dirks &amp; Ferrin, 2002)</li> </ul> | <ul style="list-style-type: none"> <li>• Socio-emotional benefits (Dirks &amp; Ferrin, 2002, p. 616)</li> <li>• Task-oriented leadership (Li, 2008, p. 428)</li> <li>• Initiate or reciprocate care and consideration (Yang &amp; Mossholder, 2010, p. 51)</li> </ul>   |

Source: Dirks & Ferrin (2002), Ng & Chua (2006), Yang & Mossholder (2010), and Zhu et al. (2013)

The two types of trust in Table 2.8, namely cognitive and affective trust, are based on different psychological processes – instrumental processes in the case of cognitive trust, and relational psychological processes in the case of affective trust (Yang & Mossholder, 2010, p. 51). Each also has different outcomes: in the case of cognitive trust, the outcomes are very practical and transactional procedures, while in the case of affective trust the more emotional aspects are addressed. In an extensive review of the literature in the fields of anthropology, economic games theory and neurology (specifically the study of patients with brain damage), Fichman (2003, p. 143) concludes that it does not matter if it is an evolutionary adaptation or a learned behaviour, but the cognitive component of trust has to be studied, as he was of the opinion that trustors are "cognitively adapted to attend to risks of exploitation and cheating in social contracts".

Before 2006 very little research has been done concerning the more emotional affective trust (Lewicki, Tomlinson & Gillespie, 2006, p. 997; Yang & Mossholder, 2010, p. 52). Lately this gap has been narrowed and even the proponents of organisational cognitive neuroscience (when investigating the evolutionary background for management and workplace behaviour) suggest that emotion-based decision making is probably more natural than purely cognitive-based behaviour (Lee, Senior & Butler, 2012, pp. 927-928) or even emotional manipulation of organisational members or stakeholders (Whitty, 2011, p. 530). Swift and Hwang (2013, p. 20) also found that when it comes to sharing interpersonal knowledge, affective trust is the most important, while “cognitive trust is more important in creating an organizational learning environment”.

Yang and Mossholder (2010, p. 59) found that in a Western context (south-eastern United States of America) affective trust in the supervisor was more important than cognitive trust to predict outcomes such as affective commitment to the organisation, job satisfaction and workplace behaviour. This varied between the different foci in leadership ranks in an organisation as affective trust in the supervisor predicted the accomplishment of work tasks, which reaffirms the importance of interpersonal relations with supervisors to improve employee motivation. To differentiate even more, they found that affective trust significantly predicted affective organisational commitment in both referent groups (supervisors as well as upper management). Overall job satisfaction on the other hand was predicted by affective trust in the supervisor, but by cognitive trust in management (Yang & Mossholder, 2010, p. 59). Considering the scarcity of resources in most organisations, these results can act as a guideline to determine which trust should be built when.

The suggestion by Li (2008) that the more paternalistic leadership styles in the East (China) would have implications for the roles of cognitive and affective trust, seems to be finding some support. When investigating the role of supervisory procedural justice in Taiwan it was found that if a supervisor treats subordinates fairly, cognitive trust in the supervisor mediates task performance and job satisfaction, while affective trust in the supervisor mediates helping behaviour (Yang, Mossholder & Peng, 2009, p. 151). In the case where supervisors let procedural justice prevail, one would expect trustworthiness to increase, because the supervisors' task and relationship behaviour will become more predictable (Yang et al., 2009, p. 144). On the other hand, Song, Cadsby and Bi (2012, p. 397) found that close personal networks or familial networks as represented by *guanxi* in China stimulate affect-based trust.

McAllister (1995) was the first to suggest that cognition-based trust needs to be built before affect-based trust can be developed (Lewicki et al., 2006, p. 996), although in some collective societies such as China this seems not to be the case (Zhu et al., 2013, p. 103). This issue will be discussed in a later section.

#### *2.6.7 Affective and cognitive trust and organisational performance*

Reacting to the announcement by Dirks and Ferrin (2002) that there was insufficient information on how the various dimensions of trust influence transformational leadership (Schaubroeck et al., 2011, p. 864), Zhu et al. (2013) investigated trust not as a one-dimensional construct, but broke it down into the affective and cognitive dimensions of trust. As expected, transformational leadership contributed significantly to both types of trust (see Section 2.6.6). However, what is of interest here is that their contributions to organisational outcomes were surprising, as will become evident in the following paragraphs.

Affective trust plays the major mediating role as it fully mediates the relationship between transformational leadership and affective organisational commitment, organisational citizenship behaviours (OCBs), and job performance (Zhu et al, 2013, p. 94). In contrast, the cognitive dimensions of trust only mediated work performance negatively, and were insignificant in its contribution to organisational commitment and OCBs. The interesting conclusion is that on an interpersonal level it is more important that managers and subordinates develop affective trust than cognitive trust, as affective trust also leads to better co-operation (Ng & Chua, 2006). The fact that cognitive trust decreases work performance is explained by Zhu et al. (2013) as either the effect of “free riding” by subordinates, or on the other hand, overreliance by trustors on the dependability and competence of the leader – to the detriment of work performance. Sarker et al. (2011, p. 284) also warn of the problem of “freeloading”, especially in the online virtual team context, as trust is only built on the basis of electronic communication and not on the basis of behavioural evidence. Free riding is the result of what Frost et al. (2010, pp. 126-127) call a collective irrationality, because each team member is only looking after their own “rational” self-interest and hence the team as a collective loses out on the synergy effect.

Free riding or freeloading occurs when subordinates in large groups get the other group members to accomplish the task, while they themselves only concentrate on their own individual targets (Ng & Chua, 2006, p. 45). If there is high cognitive trust in the leader, this will encourage individual members to concentrate on their own goals as they believe the leader will ensure that the organisational goals are met and their contribution to achieving

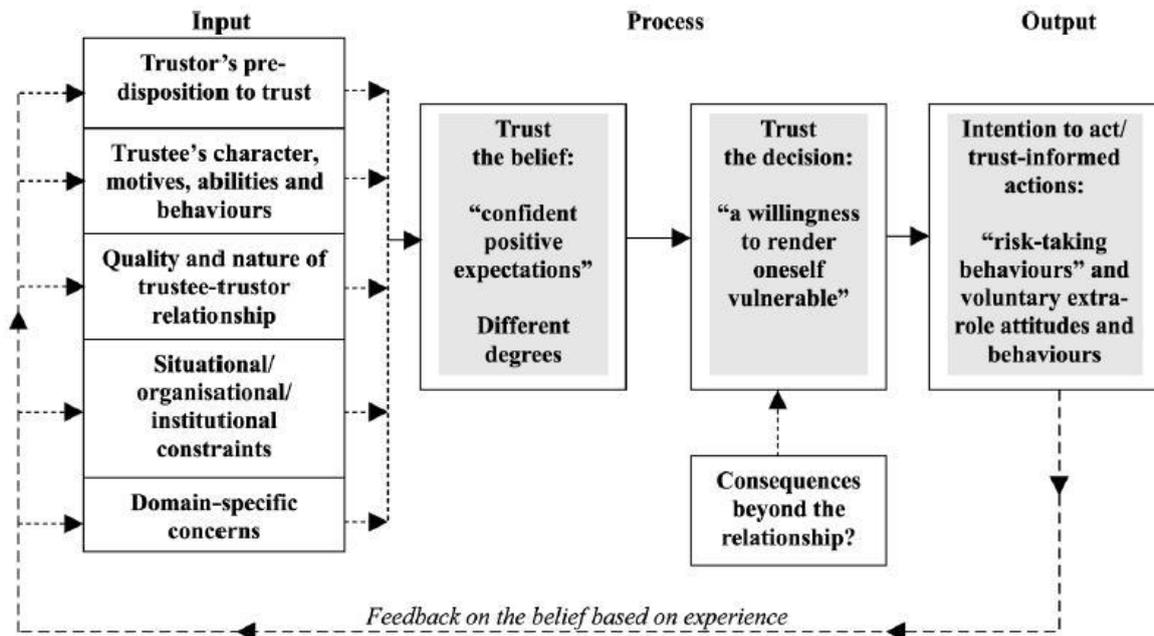
these goals is not critical anymore. In the case of affective trust, Ng and Chua (2006) argue that employees will want to contribute to the common goal as part of their “in-group sharing” (p. 48) and will not keep tally or evidence of their own individual contributions in comparison to other work group members’ contribution to the common goal. So-called social loafing will not take place (Zhu et al., 2013). It should be noted that these findings are not in line with the earlier findings by Schaubroeck et al. (2011) who found that cognitive trust positively mediated the relationship between transformational as well as servant leadership and team work performance. It therefore seems that one needs to differentiate between the individual and team context when considering the mediating effect of the different types of trust on work performance. The fact that these studies were conducted in a collectivist context (i.e. in China) also needs to be kept in mind. In a Western context, team performance was linked indirectly to trust in the leader and leader behaviour. In the case of upper-level managers who exhibit proactive behaviour, trust in the leader plays a contingency role as higher trust is linked to higher sales output of teams that are set more difficult sales goals (Crossley, Cooper & Wernsing, 2013). In a virtual leadership situation it was found that proactive behaviour by the leader, together with high trust in the leader, corresponded with higher team productivity. By definition, pro-active behaviour is exhibited if managers show initiative and take charge, are future focused, embrace change and do not just adapt passively (Crossley et al., 2013).

In an attempt to clarify the relationship between organisational trust and organisational performance, Colquitt, LePine, Piccolo, Zapata and Rich (2012) established that the organisational justice dimensions (procedural, interpersonal, and distributive justice) were antecedents of both cognitive and affective trust. The latter (affective trust) again mediated the relationship between organisational justice and work performance. Affect-based trust also mediated normative commitment (the feeling that one has an obligation to the employer), while cognitive trust (in the sense of professionalism and dedication, Colquitt et al., 2012, p. 7) was mostly linked to the factors associated with uncertainty in the work environment. According to Colquitt et al. (2012) this then explains the importance of trust as the link between organisational justice and work performance. Therefore trust is part of a process. From a systems perspective, however, trust itself is also a process in a bigger process. This trust process itself will be discussed in the next section in more detail.

## **2.7 The trust process**

Using an open systems model (input-throughput-output), Dietz and Den Hartog (2006, p. 563) developed a “multi-dimensional, integrated framework for looking at the process of

intra-organisational trust”. Their model, which is based on previous models by Mayer et al. (1995) and Ross and LaCroix (1996), describes the antecedents of trust as inputs; the components of the trust process as the throughputs and the different trust-informed behavioural outcomes as outputs (see Figure 2.3).



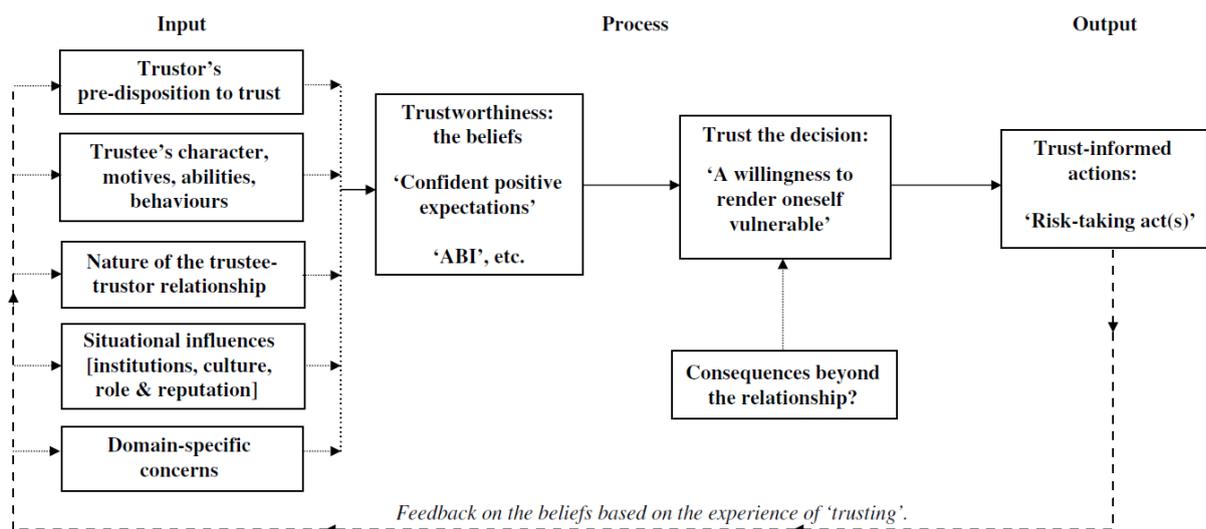
**Figure 2.3. The trust process**  
 Source: Dietz & Den Hartog (2006, p. 564)

Following a classical systems approach of input, throughput (process) and output, Dietz and Den Hartog (2006) incorporate previous literature in a linear process. Although it may seem simplistic, it does imply that a trustee is not simply trusted but rather that trust occurs in a context. They summarise this as “A trusts B to do X (or not to do Y), when Z pertains ...” (Dietz & Den Hartog, 2006, p. 564).

As part of a reply to Bachman (2011) concerning the types of trust, Dietz (2011) makes a very small adaptation to the Dietz and Den Hartog (2006) model in Figure 2.3 to demonstrate the universality of trust. He links this to the question concerning the confusion about what types of trust there are, or even if they are *types of trust* in the truest sense of the word. To overcome this problem, Dietz (2011, p. 216) speculates that we might in reality not have different types of trust, but rather different *types of stages* in trust development or “a single universal sequence of trust” (Dietz, 2011, p. 219; see also Figure 2.4).

In short, one can see the traditional view of trust as consisting of the three dimensions of trustworthiness – in other words the trustee’s perception of the trustor’s level of ability, benevolence and integrity. This then informs the decision to be vulnerable (Dietz, 2011 referring to Rousseau et al.’s classic text). This results in a psychological state or attitude to be trusting, but no behaviour has manifested yet – a person needs to make a choice to take a risk, even if it is just a subjective or perceived risk and not an actual or calculable risk (Li, 2007b, p. 426). Li (2008, p. 414) argues that this “trust-as-choice” (a decision) becomes “trust-as-attitude” (a psychological state) through behaviour. Only this behaviour will determine if trust has really manifested itself. We expose ourselves to risk by taking an action and the consequential feedback will inform our future assessments of the trustworthiness of the other party. On this micro level we can see trust as a psychological phenomenon (Bachmann & Inkpen, 2011, p. 282).

In Dietz’s (2011, p. 216) view, scholars who propose different types of trust make the error of distinguishing between institution-based trust and interaction-based trust, rather than to consider these as different “sources of evidence” on which individuals base their assessment of another’s ABI. We determine trustworthiness either from an interaction with an individual or based on knowledge about an institution (for example we might not know the individual professor, but based on the knowledge of the institution he/she is affiliated to, we decide to trust him/her, without ever having had any interaction with this person).



**Figure 2.4. The trust process according to Dietz**

Source: Dietz (2011, p. 219)

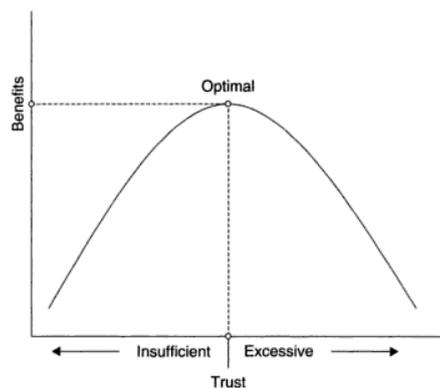
From Figure 2.4 above it becomes clear that variability is built into the input stage. It makes common sense to see the different sources of input not as mutually exclusive, but rather as “and/or (mostly ‘and’)” interacting sources of information (emphasis by Dietz, 2011, p. 219).

By implication, this model includes the personality of the trustor as a moderator of perceived trustworthiness as it categorises the predisposition to trust under the inputs. The latter statement is based on the fact that Yakovleva et al. (2010, p. 84) found that individual differences in the propensity to trust “are reciprocally important in establishing trust” as trust, or rather propensity to trust, is included as a facet of agreeableness (Searle, Weibel et al., 2011; Widiger & Costa, 2012). This last point is of importance in the current study as agreeableness is also included as a dimension in the model.

All the above models seem to indicate to the reader that there are only positive outcomes of trust. In the next section this seemingly one-sided situation will be explored.

### 2.7.1 *The dark side of trust*

As with everything in life, everything has a positive and a negative or a light and a dark side. Interestingly, in the literature this side of trust is very often ignored or mostly negated to a side note. Especially in the case of inter-organisational trust, the potentially detrimental or dysfunctional side of trust is hardly ever discussed (Gao, Janssen & Shi, 2011; Gargiulo & Ertug, 2006; Thorgren & Wincent, 2011). Gargiulo and Ertug (2006, p. 174) are more concerned about the situation where there is too much trust or “excessive” trust. To explain this, they refer to the inverted U function, which implies that at a certain level of trust the dysfunctional side comes to the forefront (see Figure 2.5). From that level of trust the disadvantages exceed the advantages. The problem is that of finding the optimal level of trust.



**Figure 2.5. The relationship between trust and benefits**  
Source: Gargiulo & Ertug (2006, p. 174)

Three behaviours have been singled out as especially dangerous if there is an excessive amount of trust in a relationship:

- Blind faith – it decreases monitoring of the trustee who is free to act with malice as exposure is less likely; the trustor is gullible and the trustee probably has been given access to confidential information, which increases the potential damage.
- Complacency – it replaces commitment and leaves the trustee free to let performance slip.
- Unnecessary obligations – the parties are both burdened with additional responsibilities as they are committed to the trust relationship and feel indebted to one another (Gargiulo & Ertug, 2006, pp. 175-180).

Other negative effects of trust mentioned in the literature on an interpersonal level include the following: “malfeasance<sup>5</sup>” and the fact that “trust may actually increase the potential for opportunistic behavior to occur” (Dirks & Ferrin, 2001, p. 464); risk of betrayal and opportunistic behaviour by the trustee in alliances between buyers and suppliers (Nooteboom, Berger & Noorderhaven, 1997); also a “lack of objectivity and considering of alternatives, inhibited creativity, overconfidence and ignoring of evidence speaking against one’s partners’ trustworthiness” (Thorgren & Wincent, 2011, p. 21). On an intra-organisational level, an excess of trust can lead to not being totally objective when working in teams or starting new business units because of groupthink and not monitoring each other’s performance. On an inter-organisational level, it was found to be the reason why partners carry on supporting alliances that have outlived their usefulness (Thorgren & Wincent, 2011, p. 23). This so-called over-trust can lead to “leniency in judging the trustee, delay in perceiving exploitation, and increased risk-taking” (Goel, Bell & Pierce, 2005, p. 203). In the same way, without empowering leadership behaviour, high trust in the leader can have a negative effect as subordinates do not engage in challenging behaviour or make suggestions for improvement as it denies the “employees’ voice” (Gao et al., 2011, p. 788).

Linking onto this situation where an excess of trust leads to unwanted outcomes, the question now has to be asked: but what about the other extreme – very low trust or distrust? What is its connection to the concepts and models just explained?

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<sup>5</sup> *malfeasance* - intentional conduct that is wrongful or unlawful  
([www.law.cornell.edu/wex/malfeasance](http://www.law.cornell.edu/wex/malfeasance))

### 2.7.2 Trust and distrust

Posten and Mussweiler (2013, p. 1) succinctly state that “[d]istrust is a natural reaction to deception” and as such is even evident in animals when they are searching for food or a mate. Distrust is of importance to organisations as there is a direct cost involved – such as the cost of developing and maintaining control mechanisms – if distrust prevails. Distrust indirectly causes employees to not share information with the organisation as they realise that their unique knowledge is their biggest competitive advantage and the reason the organisation is keeping them in employ (Bews & Rossouw, 2002a, p. 4). Lewicki, McAllister and Bies (1998) propose a model or a “theoretical framework for understanding simultaneous trust and distrust within relationships, grounded in assumptions of multidimensionality and the inherent tensions of relationships”. They posit that trust and distrust are two distinct constructs.

In this approach, trust and distrust are not seen as being opposite ends of the same continuum, but rather as two distinct constructs. Lewicki et al. (1998, p. 439) define trust as “confident positive expectations regarding another’s conduct”, while they regard distrust as “confident negative expectations regarding another’s conduct”.

Lewicki et al. (2006, p. 1002) also refer to their own definition of trust and agree with Luhmann (e.g. 1988 or 2000) that in the case of trust “*[w]e do not have to worry about the other parties’ undesirable behaviour, while in the case of distrust, life is made less complicated, as we expect undesirable behaviour and are ready to manage it*”. They see both trust and distrust as distinct constructs, both ranging from high to low, i.e. high trust opposed to low trust and high or low distrust. These concepts can be depicted graphically as follows (see Figure 2.6):

|   |   |  |   |   |
|---|---|--|---|---|
| <p><b>High Trust</b></p> <p><i>Characterized by:</i></p> <p>Hope</p> <p>Faith</p> <p>Confidence</p> <p>Assurance</p> <p>Initiative</p>  | <ul style="list-style-type: none"> <li>• High value congruence</li> <li>• Interdependence promoted</li> <li>• Opportunities pursued</li> <li>• New initiatives</li> </ul>                   | <ul style="list-style-type: none"> <li>• Trust but verify</li> <li>• Relationships highly segmented and bounded</li> <li>• Opportunities pursued and downside risks/vulnerabilities continually monitored</li> </ul>   |   |   |
|   |   | <table border="1"> <tr> <td style="width: 20px; height: 20px;">2</td> <td style="width: 20px; height: 20px;">4</td> </tr> </table>   | 2   | 4   |
| 2   | 4   |  |   |   |
| <p><b>Low Trust</b></p> <p><i>Characterized by:</i></p> <p>No Hope</p> <p>No Faith</p> <p>No Confidence</p> <p>Passivity</p> <p>Hesitance</p>   | <ul style="list-style-type: none"> <li>• Casual acquaintances</li> <li>• Limited interdependence</li> <li>• Bounded, "arms-length" transactions</li> <li>• Professional courtesy</li> </ul> | <ul style="list-style-type: none"> <li>• Undesirable eventualities expected and feared</li> <li>• Harmful motives assumed</li> <li>• Interdependence managed</li> <li>• Pre-emption. Best offense is a good defence</li> <li>• Paranoia</li> </ul>   |   |   |
|   |   | <table border="1"> <tr> <td style="width: 20px; height: 20px;">1</td> <td style="width: 20px; height: 20px;">3</td> </tr> </table>   | 1   | 3   |
| 1   | 3   |  |   |   |
|   |   | <table border="1"> <tr> <td style="width: 200px; height: 200px; vertical-align: top;"> <p style="text-align: center;"><b>Low Distrust</b></p> <p><i>Characterized by:</i></p> <p>No Fear</p> <p>Absence of Scepticism</p> <p>Absence of Cynicism</p> <p>Low Monitoring</p> <p>No vigilance</p> </td> <td style="width: 200px; height: 200px; vertical-align: top;"> <p style="text-align: center;"><b>High Distrust</b></p> <p><i>Characterized by:</i></p> <p>Fear</p> <p>Scepticism</p> <p>Cynicism</p> <p>Wariness and Watchfulness</p> <p>Vigilance</p> </td> </tr> </table> | <p style="text-align: center;"><b>Low Distrust</b></p> <p><i>Characterized by:</i></p> <p>No Fear</p> <p>Absence of Scepticism</p> <p>Absence of Cynicism</p> <p>Low Monitoring</p> <p>No vigilance</p> | <p style="text-align: center;"><b>High Distrust</b></p> <p><i>Characterized by:</i></p> <p>Fear</p> <p>Scepticism</p> <p>Cynicism</p> <p>Wariness and Watchfulness</p> <p>Vigilance</p> |
| <p style="text-align: center;"><b>Low Distrust</b></p> <p><i>Characterized by:</i></p> <p>No Fear</p> <p>Absence of Scepticism</p> <p>Absence of Cynicism</p> <p>Low Monitoring</p> <p>No vigilance</p> | <p style="text-align: center;"><b>High Distrust</b></p> <p><i>Characterized by:</i></p> <p>Fear</p> <p>Scepticism</p> <p>Cynicism</p> <p>Wariness and Watchfulness</p> <p>Vigilance</p>     |  |   |   |

**Figure 2.6. Integrating trust and distrust: alternative social realities**

Source: Lewicki et al. (2006, p. 1003)

In short, Lewicki et al. (2006, p. 1003) postulate the following in their model:

- Low trust equals “lack of hope, unsure assessment of others behavior, and hesitancy”.
- High distrust equals “fear, scepticism and vigilance”.
- Trust and distrust are independent constructs that range from high to low on their own continuum.
- High trust does not equal low distrust.
- High trust equals “hope, faith and confidence”.
- Low distrust equals an “absence of fear”.

This supports the viewpoint that interpersonal relations are more complex than linear one-dimensional bi-polar relations, in other words, low trust does not equal high distrust and neither does high trust equal low distrust. They are probably separate concepts (Şengün & Wasti, 2011, p. 302) that can even be influenced differently by the mood of the trustor – a positive mood has different effects on trust and distrust, depending on the environmental cues (Lount, 2010).

Lewicki et al. (2006) present the example of a spouse who trusts the partner to be the children's caregiver, but not to drive the new and unfamiliar car. The point is that interpersonal relations to trust or distrust are built as we interact with others to gain a wider and deeper insight into them. One of the surprising advantages concerning distrust is that it leads to reduced stereotyping by individuals, as they tend to be more critical when judging others. A critical evaluation causes the judgement to be based on reality and not on preconceived ideas. In contrast, if we find somebody trustworthy, we are not as critical and might be subject to stereotyping others (Posten & Mussweiler, 2013).

Distrust must also not be confused with a normal decline in trust, although it can evolve from it. This is the case when an "opportunistic actor" (McEvily et al., 2003, p. 93) is initially trusted, but over time it becomes apparent that this person does not really deserve this trust as evidence of a mismatch between trustworthiness and trust mounts. To reach equilibrium, trust will decline to match the new level of perceived trustworthiness. The distrust spiral downwards is also much "faster" than the gradual build-up of trust, as it is a slow process to gather evidence of trustworthy behaviour, but very easy to uncover proof of untrustworthy behaviour by the trustee (Six & Skinner, 2010, p. 112).

Lewicki et al. (2006, p. 1003) consequently state that one should be specific when asking questions about trust or distrust, and should rather ask "trust or distrust to do what?". Cho (2006) for instance found that distrust and trust even have different antecedents and are shaped by different dimensions of trustworthiness – benevolence promotes trust, while ability (Cho (2006) uses the word competence) reduces distrust. Coming from another angle, Lapidot et al. (2007) concur in that they infer from their qualitative critical incident technique that trust and distrust are not opposite poles of the same aspect. They found that the same trustor could rate a leader high on benevolence but low on ability. The trustor might also experience trust-enhancing and trust-eroding behaviour at the same time.

Using narrative analysis, Keyton and Smith (2009) reach the conclusion that distrust is a psychological construct on its own. Similar results were achieved when functional magnetic resonance imaging (fMRI) was used to make physical scans of the brain. Seemingly confirming the fact that trust and distrust are separate concepts, Dimoka (2010, p. 375) specifically states that

*...trust is associated with brain areas linked to anticipating rewards, predicting the behavior of others, and calculating uncertainty. Distrust is associated with brain areas linked to intense negative emotions and fear of loss. These results also show a clear*

*distinction in the brain areas associated with the dimensions of trust and distrust with credibility and dis-credibility being mostly associated with the brain's more cognitive areas, while benevolence and malevolence are mostly associated with the brain's more emotional areas.*

The above presents strong neurological evidence that trust and distrust are distinct constructs and not two extremes of the same scale. The implications of this finding may well have wider repercussions – the question that can now be asked is for instance: are the consequences of trust such as job satisfaction or dissatisfaction distinct constructs or opposites (Benbasat et al., 2010)? Taking this discussion one step further, in the next section the aspect of physiological evidence of trust will be discussed.

### *2.7.3 Physiological evidence of trust*

Benbasat et al. (2010) argue that even in the social sciences, benefits can be derived from 21st century technology concerning physiological measurement. They also argue that this is a much neglected field that can contribute immensely to our understanding of the concept of trust. The field of neuroscience needs to be considered as an important area of interdisciplinary research if the organisational sciences are to advance at the same rate as cognitive sciences (Becker, Cropanzano & Sanfey, 2011, pp. 933-934; Lee, Senior & Butler, 2012, p. 992). Neuroscience in this context concerns measurement of the functioning of the brain to shed light on the underlying functioning of certain psychological and organisational phenomena (Lee et al., 2012). The idea is to investigate the most fundamental process that underlies work behaviour or observed work attitudes, or as Becker et al. (2011, p. 934, p. 955) suggest, the level of analysis needs to be reduced to “the most basic building blocks of behavior” so that organisational theories can be integrated in future.

Interestingly, in the literature on physiological measurement of the brain there seems to be evidence that there is a specialised cognitive component that is responsible for judging the trustworthiness of others, and Fichman (2003, p. 142) concludes that the evidence points to the limbic system and the amygdala. In another study, Dimoka (2010) tried to determine if trust and distrust are perceived as separate constructs. She found that fMRI scans of the brain showed that two different areas are used in the case of trust and distrust respectively. This confirms the theoretical assumptions that trust and distrust are separate entities.

In another interesting development, Holtz (2013) uses evolutionary theory and neuroscientific research to explain trust formation. His explanation is based on the fact that we all

use a split second to make judgements concerning people's trustworthiness when we meet them for the first time. He also argues that this skill was needed to survive in the distant past. Humans use various signals to determine if they can trust somebody or not. These are often based on previous experience, stereotypes and various biological indicators such as age, weight, body language, attractiveness, disability and race (Holtz, 2013, p. 5). In his trust primacy model, Holtz (2013) makes use of the literature relating to rapid evaluation of facial characteristics to determine the trustworthiness of a target.

When confronted with the task to judge the trustworthiness of an unknown person, Engell, Haxby and Todorov (2007) found that the more the perceived untrustworthiness, the more the amygdala of the brain reacted. This supports the theory that the amygdala helps individuals to judge trustworthiness in support of "approach/ avoidance behaviour" (Engell et al., 2007, p. 1515). In a follow-up study, Todorov, Pakrashi and Oosterhof (2009, p. 822) found that it took only between 33 and 100 milliseconds (ms) to make a reliable decision concerning the trustworthiness of faces that they were exposed to. This is just above the subliminal level, meaning trustworthiness (and perhaps other personality attributes) can be sensed nearly instantaneous, but not on a subconscious level. In contrast, Huang and Murnighan (2010, p. 62) examined the non-conscious automatic activation trust in an experimental setup and found that subliminal cues can influence trusting behaviour. It appears that this occurs without conscious awareness (however, not subconsciously). In this case, the experimentation involved "economic return games" and the use of subliminally flashed names of their least and most liked person (p. 64). Huang and Murnighan (2010, p. 68) conclude that "positive relational cues might provide the impetus for a wide array of interpersonal outcomes, ranging from unexpectedly accelerated interactions to mutually rewarding, self-fulfilling trusting prophecies". The implications of this finding is that manager groups with a rapidly changing group composition can make use of social photos and artwork to build trust quickly, based on subliminal references to previous occasions where successful trust relationships were the basis for higher team performance (Huang & Murnighan, 2010, p. 68).

Holtz (2013) and Todorov et al. (2009) found that trustees show more brain activity linked to fear if exposed to stimuli of untrustworthy faces than to neutral or trustworthy faces. Said, Baron and Todorov (2009) therefore refined the experiment and found that both "highly untrustworthy" and "highly trustworthy" faces activate the amygdala in a subject's brain. Said et al. (2009, pp. 525-526) subsequently reported that the amygdala is more sensitive to untrustworthy than trustworthy faces. This supports the previous evolutionary-linked findings

that suggest that humans evolved this ability to instantly judge trustworthiness as part of a survival strategy.

In a related field, Riedl, Hubert and Kenning (2010, p. 397) conducted an fMRI study on the perceived trustworthiness of e-Bay offers, and found that “brain areas that encode trustworthiness differ between men and women”. They also found that women activate more brain areas than men. Benbasat et al. (2010) surmise from the areas activated that this might be evidence that women act upon their emotions more readily than men.

In the preceding section it has been shown that trust research is at the forefront of being part of the suggested new *organisational neuroscience* paradigm. This has three advantages for trust research: firstly, a more fundamental but deeper understanding of organisational behaviour; secondly, a focus on the non-conscious aspects of behaviour (note that this is not the subconscious as commonly referred to in psychology), and lastly, possible answers to unsolved theoretical questions (Becker et al., 2011, pp. 951-952), as was the case with the trust–distrust continuum that was discussed above.

## **2.8 Summary**

As an initial introduction to the state of trust research in the organisational context, the arguments presented in this chapter reaffirmed the need to refrain from approaching trust research from a uni-paradigmatic view, but to rather adopt a pragmatic approach. This is vital, as trust is becoming increasingly important for the survival of organisations in the changing global environment (the latter is also recognised by the growing amount of scientific literature). As an integral part of the social capital of an organisation, trust represents a real asset that needs to be managed to the benefit of all stakeholders. With the virtual world now a reality in most organisational scenarios, trust in some form or other, whether interpersonal or institutional, has become a crucial part of survival and influences how organisations manage their human resources. Trust also influences the efficiency of supervision and leadership.

In the next chapter, the main concepts and components underlying trust are investigated. To ensure clarity, the various definitions of trust are discussed and finally a working definition of trust for use in this study is presented. Models of trust that are of importance to this study are also discussed. Especially the widely accepted model by Mayer et al. (1995) is discussed in detail and the different types of trust that are based on different premises (i.e. deterrence-

based, knowledge-based or identification-based) are then integrated into the chapter. Following from this, two questions are addressed, namely:

- Is there an underlying hierarchy of these trust types?
- Is the development of trust only based on rational self-interest as proposed by many management scientists?

The conclusion in short is that there is an underlying hierarchy in certain contexts, and that most trust is not based solely on rational economic self-interest, but on more humanitarian grounds. The role of affective and cognitive trust in leadership or supervision, as well as in organisational performance is then examined and clarified before proceeding to the trust process.

An aspect that is often neglected in the trust literature, especially in the management field, is what could be called the dark side of trust. Trust does not only have benefits and advantages, as there are also negative aspects linked to trust (as with everything else). An example is the case of blindly trusting management without asking the necessary critical questions or becoming overly dependent on the trustee. The exploitation of the trustor is also possible when advantage is taken of his/her unrealistic propensity to trust. Furthermore, the fact that trust and distrust are not two poles on a continuum is discussed, based both on empirical research and on physiological evidence.

In the next chapter, trust as embedded in the organisational environment and practice will be focused on. The model proposed in this research will also be addressed in more detail as it is entirely practice based.

## Chapter 3: Trust in practice

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The previous chapter dealt with the theoretical background and conceptual manifestation of trust. In this chapter the application of the conceptual aspects of trust in an organisation will be investigated in more detail. Aspects that are of importance here are for instance – how do you build trust? how do you maintain trust? what is the link between trust and different foci, such as subordinates, peers and supervisors or managers and leaders?

In conclusion a detailed description and discussion is presented of the development and refinement of the model designed by Martins, which is used in this study.

### 3.1 Repairing trust relationships

At some stage or other, most relationships go through periods where trust is violated, broken or damaged and thus needs to be repaired. As a background to understanding trust repair interventions, Kramer and Lewicki (2010) list the most common reasons for a breakdown in trust as identified by Fraser in an unpublished doctoral dissertation from 2010. Fraser used interviews and focus groups in workgroups and found that the eight most frequently cited factors that contributed to a breakdown in trust are disrespectful behaviour; communication problems; unmet expectations such as breaking promises or the psychological contract; bad leadership; not taking ownership of mistakes; performance issues; incongruence between behaviour and organisational values or practices; and, lastly, structural issues such as “changes in systems and procedures, lack of structure or too much structure, and misalignment of job duties and authority” (Kramer & Lewicki, 2010, p. 252). As they point out, most of the above can be allocated to the classification of types of trustworthiness, i.e. ABI by Mayer et al. (1995), while factors such as communication and structure are probably more of an organisational nature.

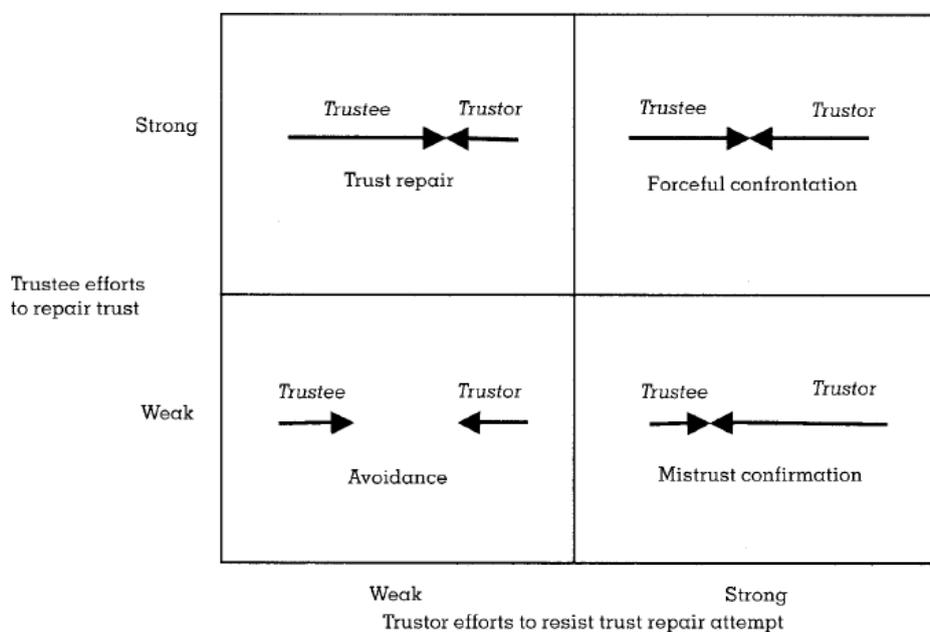
Tomlinson and Mayer (2009, p. 87) define trust repair as “a partial or complete restoration of the willingness to be vulnerable to the other party following a decline in that willingness. In the context of the Mayer et al. model, then, trust repair is a specific case of the development of trust via changes in the process represented in the feedback loop”. Kramer and Lewicki (2010) also base their definition of trust repair on the definitions of Mayer et al. (1995). They refer to the concept of vulnerability and then go on to describe trust repair as the act of convincing a trustor to be willing to be vulnerable in the future after the trustee has taken

advantage of the said vulnerability. They then link this to Dirks, Lewicki and Zaheer (2009, p. 69) who state:

*relationship repair occurs when a transgression causes the positive state(s) that constitute(s) the relationship to disappear and/or negative states to arise, as perceived by one or both parties, and activities by one or both parties substantively return the relationship to a positive state.*

Note that Dirks et al. (2009) refer to relationship repair, of which trust repair is only one aspect. From the above, it becomes apparent that just as researchers cannot agree on the definition of trust, they also cannot agree on what trust repair means. Some adopt a cognitive and others an emotive or behavioural approach towards trust repair (Dirks et al., 2009; Kramer & Lewicki, 2010). Very few focus on emotions or behavioural change (Kramer & Lewicki, 2010).

The question whether trust will be repaired or not, was conceptualised by Kim, Dirks and Cooper (2009) who postulated that this will depend on both the trustors' efforts to resist the repair (as their trust has been violated) and the trustees' attempts to repair the trust relationship (as they lose the benefits associated with being trustworthy). As can be seen in Figure 3.1, they will in all probability only stand a chance of trust repair if the trustee makes a strong effort to repair the trust and the trustor does not resist that attempt.

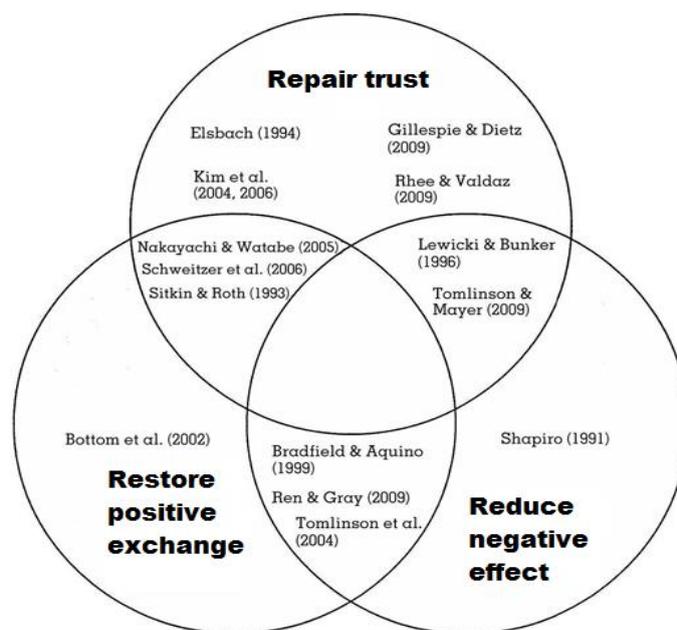


**Figure 3.1. Potential outcomes of negotiation efforts after a trust violation**  
Source: Kim et al. (2009, p. 406)

The value of the model by Kim et al. (2009) lies in the fact that it becomes quite clear that a concerted effort by all the parties concerned is needed to rebuild trust. If the trustee is not serious about reinstating the trust relationship, a trust violation can lead to avoidance and confirmation of the feeling of mistrust. In a worst-case scenario, if both parties feel strongly about it, the breach can lead to a forceful confrontation between them. For example, even in the case of calculative trust that has been violated in an economic exchange, Desmet, De Cremer and van Dijk (2011, p. 84) experimentally established that monetary compensation does not help rebuild the trust if the breach was intentional. Neither overcompensation nor apologies could restore trust if the trustor suspected bad intent on the part of the trustee.

What needs to be repaired, depends on what aspect of the relationship was breached – research has shown that there are three interrelated factors that need to be addressed to repair a relationship, namely damaged trust, negative affect and negative exchanges (Dirks et al., 2009, Kramer & Lewicki, 2010).

In their introduction to a special topic forum on repairing relationships in an inter- and intra-organisational context for the *Academy of Management Review*, Dirks et al. (2009) developed a conceptual framework for this purpose. They provide a map of a representative sample of studies that examined relationship repair with regard to these three outcomes (see Figure 3.2). While it is apparent that some studies examined one or two of the domains, it seems that there is none that directly addresses all three.



**Figure 3.2. Conceptual domain of relationship repair with examples of prior research**  
Source: Dirks et al. (2009, p. 71)

The three theoretical processes that Dirks et al. (2009) propose for trust repair following a transgression are the following: firstly a psychological attribution process must be initiated to deal with the intrapersonal aspects of relationship repair; secondly the social equilibrium needs to be restored to deal with the interpersonal aspects; lastly, the structural process suggests that the implementation of preventative measures should create positive expectations about the future conduct of others (see Table 3.1).

**Table 3.1. Process of relationship repair**

| Attributional   | Social equilibrium   | Structural  |
|---|--|---|
| <p><i>Perspective</i><br/>Transgression leads to loss of trust through attribution process; repair involves cognitive processes by means of which trust is restored.</p>  | <p>Transgression leads to disequilibrium in relationship and social context; repair involves social processes by means of which equilibrium in the relationship is restored.</p> | <p>Transgression leads to a breakdown in positive exchange and increase in negative exchange; repair involves structural processes by which negative exchange is discouraged and positive exchange is encouraged.</p>                               |
| <p><i>Assumption</i><br/>Individual differences of actor (trustworthiness) are the primary determinant of behaviour; therefore perceivers are motivated to draw attributions and targets are motivated to shape those attributions.</p>   | <p>Individuals desire to have equilibrium in norms and social relationships.</p>   | <p>Individuals are motivated by self-interest in relationships; targets engage in transgressions when the incentives of a situation make it profitable to do so and perceivers will help maintain a relationship so long as it is profitable.</p>   |
| <p><i>Implications for repair strategies and tactics</i><br/>Targets will try to shape perceivers' attributions about whether they committed a transgression, whether it reflects on their true nature, or whether they experienced redemption.<br/><b>Examples of tactics:</b> social accounts, apologies, denial, penance</p> | <p>Targets will engage in appropriate social rituals to restore equilibrium in standing and norms.<br/><b>Examples of tactics:</b> penance, punishment, apologies</p>            | <p>Targets will implement structures or use other signals to provide credible assurance of positive exchange and prevent future transgressions.<br/><b>Examples of tactics:</b> legalistic remedies (incentives, monitoring), social structures</p> |

Adapted from Dirks et al. (2009, p. 72).

Moving from the generic relationship repair interventions to the more specific trust repair interventions, Kramer and Lewicki (2010) discuss explanations and apologies as the main ways to make amends for trust violations on the one hand. On the other hand, reparation or compensation are alternative or additional ways to recompense or make up for a violation and restore the relationship of trust. The effectiveness of simple explanations and apologies has not been researched extensively, but as would be expected it depends on how satisfactory or adequate the explanation is whether the trustor will accept it. However, as

Kramer and Lewicki (2010, p. 252) point out, “adding substantive reparations increased the effectiveness of the verbal accounts”.

Although there is anecdotal evidence that apologies are effective if they are not just considered “cheap talk” (Kramer & Lewicki, 2010, p. 255), it is better to apologise than to ignore the trust violation. The apology needs to be sincere and take place sooner rather than later (Dirks & Lewicki, 2009; Tomlinson, Dineen & Lewicki, 2004). The trust violator also has to accept responsibility for the violation and refrain from blaming somebody or something else.

Concerning the context within which trust repair has to take place, it was proposed that in the case of high-stakes relationships trustees are quicker to trust and will be willing to accept the violation more readily as they have both a confirmatory bias and attribute more benevolence to the violating trustor than would normally be the case. In other words, they will be less likely to blame the trustee for the transgression as they have too much to lose if they withdraw their trust or have to admit that they trusted the wrong person (Tomlinson, 2011, p. 144). In this case the trustor also gets the “benefit of the doubt”. Another outcome is that the trustee will avoid cognitive dissonance and the emotional stress linked to this by denying the trust violation. If on the other hand the trustor’s dependence is low and the relationship is important, the trustee will have to put more energy into the repair effort. He/she will not be able to rely on the trustor’s vested interest in maintaining the relationship (Tomlinson, 2011, p. 152).

Taking it up one level, from the dyadic to the organisational, it has to be remembered that trust repair often needs to be approached from the organisational level. Here legalistic and structural interventions can ensure that trust violations do not occur as easily in the future by functioning as a deterrent or even punishment (Kramer & Lewicki, 2010, p. 256). As Kim et al. (2009, p. 403) point out, this method may in fact hinder trust as it does not address the problem of the trustee not being trustworthy. It merely reduces the risk of rendering oneself vulnerable, while Dirks, Kim, Ferrin and Cooper (2011, p. 89) see this situational approach as “perceived prevention”. They argue for the use of a dispositional approach in certain situations and suggest that “perceived repentance” would be more effective at repairing trust (p. 101). Perceived repentance focuses on regret, reform and resolve. In other words: does the violator regret his/her actions? is the violator willing to reform? does he/she show resolve to not transgress in the future? Dirks et al. (2011, p. 88) found that both perceived prevention and perceived repentance are effective, depending on the type of violation. In the case of a

competence-based trust violation, repentance proved to be more effective in repairing trust than when the violation was based on a lapse of integrity.

On an organisational level, it is not always a simple case of an individual's trust being broken, but in the organisational reality it is often an individual who violates the trust of a group of employees. In this regard, Kim, Cooper, Dirks and Ferrin (2013, p. 12) found that repair is much more complex than if it was an individual, seeing that groups are harsher judges than individuals. It was especially difficult if the violator did not offer an effective response – such as apologising in the case of a competence-based violation or denying guilt in the case of an integrity-based trust violation (Kim et al., 2013, p. 11).

Except for apologies and denials offered after the occurrence of trust violations, Ferrin, Kim, Cooper and Dirks (2007) found that reticence as a verbal response to trust violations is as inefficient as apologies, since the acceptance of guilt is absent. By reticence they mean the tendency of organisational representatives or managers not to offer any explanation or statements concerning an act of trust violation. These managers remain silent or else refuse to deny or admit anything (Ferrin et al., 2007, p. 893).

### *3.1.1 Maintaining and enhancing trust*

Consider the failure of Enron, WorldCom and others because of corrupt management and the very public disclosure of financial self-enrichment by corrupt managers (such as Bernie Madoff) during the financial crisis of 2008 (Galagan, 2009, p. 26). Other spectacular failures include Lehman Brothers in the USA and the Royal Bank of Scotland on the European side that had to be taken over by the government. Furthermore, ethical failures at Siemens, the then DaimlerChrysler, Deutsche Post AG and Volkswagen/Porsche broke down the foundations of trust (Dietz, 2011, p. 218). The question that remains is: how do you rebuild trust once it has been betrayed?

Six et al. (2010) emphasise that one of the most important aspects to attend to when trying to build or maintain trust is to send regular unambiguous positive signals that one is to be trusted. It is necessary to perform these actions due to the following:

- “inadvertent slip-ups on the part of the trustee” leading to misunderstandings;
- the trustee did not realise that his/her actions could be seen as negative;
- “misperceptions on the part of the trustor” (for instance because of ambiguity, a noisy environment or wrongful attribution to the trustee and not the system);

- “the asymmetry between positive and negative relational signals”, for instance when the verbal and non-verbal behaviour does not seem to correspond or when in the case of a matching quantity of positive and negative behaviour, the negative outweighs the positive as trustors tend to be loss averse (Six et al., 2010, p. 291).

Even though a great deal has been written about the antecedents and consequences of trust, there is little theoretical research to confirm what actions or underlying processes have been found in practice to build, enhance or maintain trust (Six et al., 2010). Although they used a rather unique psycho-analytic paradigm of relational signalling, the five theoretical factors of trust-building actions that could be confirmed empirically and are listed below are of general value in the organisational context as they also show that one needs to move from task-oriented activities to relationship-oriented activities when maintaining or building trust.

#### **Enact solidarity**

- Show care and concern for the other person
- Recognise the legitimacy of each other’s interests
- Give help and assistance
- Take responsibility (do not pass the blame)
- Show a bias to see the other person’s actions as well intended

#### **Accept influence**

- Initiate and accept changes to your decisions
- Seek the counsel of others
- Accept and value the counsel of others
- Receive help and assistance

#### **Prevent misattributions**

- Be open and direct about task problems
- Be honest and open about your motives
- Disclose information in an accurate and timely fashion

#### **Prevent disappointments**

- Clarify general expectations early on in a new relationship
- Explore specific expectations in detail as the relationship develops
- Surface and settle differences in expectations

- Process and evaluate how effectively you are working together at regular intervals

### **Bolster self-confidence**

- Give positive feedback (or a compliment) in a private meeting
- Give a public compliment
- Give negative feedback in a constructive manner

From a practical point of view, it is interesting to note that many of the items representing the five factors include activities that trustees in a high-trust relationship carry out intuitively and that are familiar in the trust literature. Six et al. (2010) also remark that their work confirms the importance of raising awareness among staff to frequently carry out the above trust building behaviour. Linking this to a more familiar paradigm, empirical research has found that if leaders want to build trust, they need to concentrate on benevolent behaviours and avoid missteps in behaviour that represent integrity and ability, as these carry more weight when it comes to trust erosion (Lapidot et al., 2007).

### *3.1.2 Organisation level trust repair*

As editors of a special edition of the *International Journal of Human Resources Management* on “Trust and HRM in the new millennium”, Zeffane and Connel (2003) came to the worrying conclusion that employees in general lack trust in managers and employers. They blamed “flexible capitalism” (Zeffane & Connel, 2003, p. 8) with its short-term focus and its dearth of loyalty or mutual commitment as one of the reasons for this dilemma. More specifically they found the following:

*In other words, the prevalence of restructuring and contingent labour creates an environment of superficiality, in which workers and businesses are indifferent towards one another and in which trust, respect and mutual goals have no time to develop.*

(Zeffane & Connel, 2003, p. 8)

Considering the positive consequences of high trust and the levels of low trust in general (Edelman, 2010), in the next section means and ways of developing or increasing trust in an organisation will be discussed.

### 3.1.3 *Enhancing trust in organisations – the role of presumptive trust*

*Simply repairing trust, however, is obviously of little enduring importance if that trust cannot be made more secure and resilient. We need to do more than simply provide a “quick fix” with respect to low trust. We also need to create the conditions that are conducive to the enhancement and maintenance of trust.*

(Kramer & Lewicki, 2010, p. 249)

Kramer and Lewicki (2010) argue that the normal features or aspects determining trustworthiness that apply to dyadic trust relationships cannot apply to the organisational environment as it is a less personal and more circuitous and indirect type of trust. Our trust is not targeted at a specific individual; it is a more non-personal and indirect type of trust. However, every individual in the organisation contributes to or detracts from the level of this “collective resource” or “social capital” that an organisation or a group or level in the organisation possesses (Kramer & Lewicki, 2010, p. 269). These authors call this construct presumptive trust, because trust “in other organizational members constitutes a generalized social expectation perceivers confer on the collective as a whole” (Kramer & Lewicki, 2010, p. 259). Presumptive trust is in other words a diffuse expectation and a shared positive stereotype of members of the “in-group” in an organisation. The “in-group” comprises the ones to whom we presume the stereotype applies, and thus we find it easier to consider them trustworthy.

The above links up closely with identification-based trust (Lewicki & Bunker, 1996), which basically predicts that we generally have more positive stereotypes of in-group than of out-group members. However, we also expect these in-group members to “adhere to a principle or norm of generalized reciprocity” that would increase presumptive trust, as it gives some level of “knowledge” of expected behaviour by the trustee (Kramer & Lewicki, 2010, p. 261).

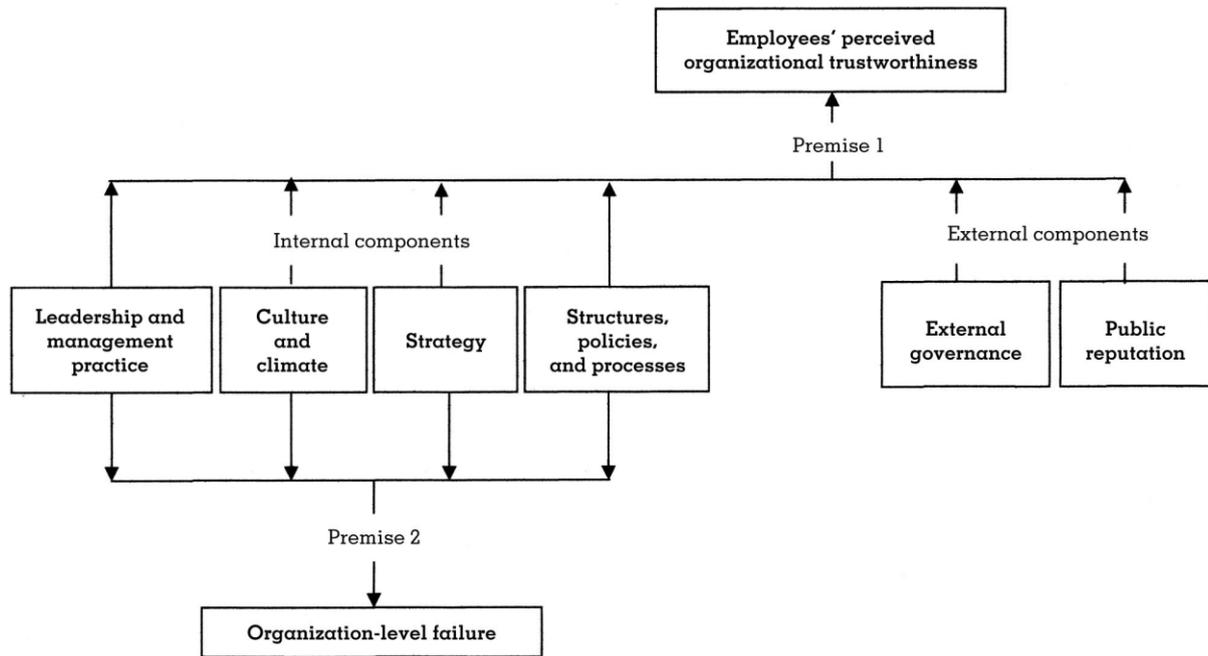
Two more organisational bases of presumptive trust are role-based and rule-based trust. In the case of role-based trust, the trustor tends to trust persons who occupy certain roles (cf. the common saying: “Trust me – I am a doctor”). We are less concerned with the knowledge we have about an individual’s specific abilities, but deduce his/her probable trustworthiness from the role that he/she occupies (Kramer, 1999, p. 578). Hence it serves as a substitute for personal knowledge on which we could base positive expectations (Kramer & Lewicki, 2010). The traditional view that invariably there is conflict or tension between different levels in an organisation is not necessarily accurate when a shared purpose exists to reach

common organisational goals. In fact, this view supports the enhancement of presumptive trust.

Rule-based trust on the other hand posits that having knowledge of which rules the trustee (and trustor in some cases) have to follow “contribute to presumptive trust not only through their influence on individuals’ expectations regarding other members’ behaviors, but also by shaping their expectations regarding their own behavior” (Kramer & Lewicki, 2010, p. 265). This is for instance the case where liberal systems of flexible working hours have been introduced in organisations, and trusted employees subsequently worked significantly more hours (unpaid) than they did before management showed trust and removed the strict control measures (Von der Ohe & Van der Walt, 1988).

The above are ways to solve the information paradox that seems to exist by providing information that we cannot gather objectively as trustors to determine trustworthiness (Six, Nooteboom & Hoogendoorn, 2010, p. 298). One should however not forget the contribution that leaders can make towards presumptive trust, by the nature of their capacity to let employees believe in their own ability to reach goals, i.e. attribute success to themselves as leaders. By attending to the above antecedents of presumptive trust, we can maintain or enhance inter- and intra-organisational trust.

Gillespie and Dietz (2009) also investigated trust repair on an organisational level, in other words after an organisation has broken trust through an organisation-level failure such as incompetence, major avoidable accidents, accounting frauds or exploitation. They use the concept of Lewicki, McAllister and Bies (1998) of *confident positive expectations* that employees have of employers’ intentions and future actions to define organisational trustworthiness in the eyes of the employees. Although it is aimed at the organisational level, the model they propose (see Figure 3.3) is of interest as they argue that “the organization has failed in its responsibility to meet reasonable standards of ability, benevolence, and/or integrity in its conduct toward its stakeholders” (Gillespie & Dietz, 2009, p. 128). It is important to note that employees lose trust in their employer despite the fact that the stakeholders (customers, shareholders, the community, etc.) and not necessarily the employees themselves are harmed by the organisational representatives’ actions or failure to act. Although it is not a dyadic relationship in the strictest sense of the definition that is used in this study, it still seems to be applicable in the context of the premises adopted here.



**Figure 3.3. Organisational system components and their effects on employees' perceptions of organisational trustworthiness and organisation-level failures**  
 Source: Gillespie & Dietz (2009, p. 131)

Interestingly Gillespie and Dietz (2009, p. 128) adapt the three Mayer et al. (1995) dimensions of trustworthiness (ability, benevolence, and integrity) to an organisational level as follows:

- (1) *ability (the organization's collective competencies and characteristics that enable it to function reliably and effectively to meet its goals and responsibilities),*
- (2) *benevolence (organizational action indicating genuine care and concern for the well-being of stakeholders), and*
- (3) *integrity (organizational action that consistently adheres to moral principles and a code of conduct acceptable to employees, such as honesty and fairness).*

Gillespie and Dietz (2009, p. 135) furthermore suggest that the appropriate trust repair intervention should be based on the component of the trust relationship that is threatened, as the different components of the organisation will give an indication of the trustworthiness of the whole organisational system. Table 3.2 can be used to identify the appropriate intervention that should be undertaken, depending on the exact component in which the breach of trust had its origin. The six organisational system components that are relevant are "leadership and management practice; culture and climate; strategy; structures, policies and processes; external governance; and public reputation" (p. 134). In each one of these components certain regulations are suggested that will inhibit or confine unwanted

behaviour. They also suggest certain behaviours that will show that renewed trustworthiness is warranted and hence renew trustworthiness in the organisation.

**Table 3.2. Trust repair interventions for organisational system components**

| Component                          | Distrust regulation:<br>Constrain untrustworthy behaviour  | Trustworthiness demonstration:<br>Signal renewed trustworthiness   |
|------------------------------------|--|--|
| Leadership and management practice | Suspend operations and/or withdraw faulty product(s)<br>Reprimand, discipline or remove culpable parties<br>Investigate practices, conduct and attitudes<br>Ensure enactment of and compliance with reforms; influence other system components to regulate trustworthiness (e.g. change incentives and reporting structures) | Enact transformational leadership: act as a role model, symbolising organisational values and conduct<br>Create a shared, value-driven vision and goals<br>Issue trust-enhancing communications<br>Enhance the trustworthiness of other system components (e.g. procedural fairness, ethical strategic goals and implementation)<br>Commit resources to the trust repair effort (e.g. money, time, manpower) |
| Culture and climate                | Use cultural interventions (e.g. induction, socialisation) to instil values and norms that discourage trust violations<br>Impose sanctions for breaches of trust-related norms<br>Create “cultural artefacts” that act as <i>deterrents</i> (e.g. ethical codes of conduct, public statements)                               | Use cultural interventions to instil values and norms around integrity, honesty, competence, responsibility, reliability and respect<br>Create “cultural artefacts” that symbolise and promote trustworthiness and affirm its priority over competing imperatives (e.g. codes of conduct, commemorative events, legends and stories)   |
| Strategy                           | Shape organisational and unit-level priorities and goals (e.g. primacy of safety and integrity), resource allocations, and the content of policies and procedures<br>Direct behaviour in line with organisational strategies   | Revise strategy to be consistent with espoused trust-based values<br>Reform strategy to show an enduring commitment to treat stakeholders benevolently and with integrity<br>Promote ethical conduct and corporate social responsibility   |
| Structures, policies and processes | Revise decision-making authority and accountability<br>Impose checks, balances and disciplinary procedures<br>Standardise work processes and training to compensate for the lack of skills and/or knowledge<br>Offer coaching and mentoring to assist employees facing ethical dilemmas or difficult decisions               | Revise policies and procedures to ensure that employees perceive them to be fair, effective and just (e.g. transparent and equitable appraisal systems, dispute resolution and whistleblowing procedures)<br>Use recruitment, selection, induction and training procedures to emphasise personal integrity and organisational values that symbolise trustworthiness  |
| External governance                | Comply with external regulatory codes of conduct and monitoring (e.g. professional, industry, consumer)<br>Gain external accreditation, licensing, approval, or audit  | <i>Voluntarily</i> engage with external regulatory bodies<br><i>Seek</i> licensing/accreditation<br>Campaign government for sector-wide regulations  |
| Public reputation                  | Make public statements committing the organisation to uphold reformed strategies, operations and targets<br>Internally publish the diagnosis, evaluations and audits   | Use trust-enhancing communications, marketing and branding<br>Offer public apologies and reparations (where appropriate)<br><i>Voluntarily</i> communicate to the public the diagnosis and evaluations   |

Source: Gillespie & Dietz (2009, p. 135)

However, the above interventions prescribed by Gillespie and Dietz (2009) cannot be implemented in isolation. They have to support each other and build on one another by providing a consistent message to the employees. There needs to be congruence between the various interventions that try to demonstrate ability, integrity and benevolence (Gillespie & Dietz, 2009, p. 136). The last two categories, external governance and public reputation, link back to Zucker's institutional-based trust that also include the increasingly important consumer and environmental interest groups that have a direct influence on the organisation's reputation. Bachmann (2011) reiterates the importance of institutional trust and points out that an institutional focus is probably the only way to repair the damage that was done to the perceived trustworthiness (reputation) of the financial sector during the 2008 financial crisis (which is still enduring in 2013). To only concentrate on the ability, benevolence and integrity of the employees of the organisation, in other words to follow the ABI interpersonal approach, will not suffice. Members of the public probably still trust the individual employees with whom they interacted in these organisations, but they do not trust the financial institutions as such (Bachmann, 2011, p. 209; Bachmann & Inkpen 2011, p. 283).

The inclusion of all of the trust repair interventions for organisational system components by Gillespie and Dietz (2009) in Table 3.2 is warranted as it can be used as a valuable source of information concerning aspects that need to be considered when evaluating the content and naming of the factor structure of the managerial practices that are included in the current study. In the next section the focus will fall on the specific role that information sharing and communication can play to increase trust levels, not only to improve the reputation of the organisation as suggested by Gillespie and Dietz (2009) above, but also in management and leadership (Hiller, DeChurch, Murase & Doty, 2011).

#### *3.1.4 Enhance or increase trust levels by means of information sharing*

According to Ghani and Hussin (2009), a leader can gain trust by sharing information (good or bad) – either in the form of data or technical information. Employees then tend to infer that they have the leader's attention and deduce from this that they are trusted by their leader. On the other hand, Ghani and Hussin (2009) postulate that if a leader does not share information, the employees assume that they are not trusted and that their leaders think they might misuse the information out of ignorance. The answer to this problem would be training in the interpretation and use of information. In her case study, Gill (1996) mentions that the level of trust in management depends on employees' view of management's history and their experiences with the different levels of management. Employees also regard the lack of a

functional information flow as critical, and it “emerged that some employees did not trust line managers to communicate information downwards from senior management or to communicate their ideas back up to senior management” (Gill, 1996, p. 33).

A lack of feedback in a participative approach is also detrimental to trust, as the general complaint by employees that their inputs are not used or that there is no feedback after a consultation process can often be linked to management’s failure to ensure that employees are aware of management’s having in fact used the employees’ inputs (Gill, 1996). The same applies to situations where trust between business partners as entrepreneurs has to be developed, and it was found that personal rapport and particularly the sharing of business information developed trust, which in turn led to business collaboration (Nguyen & Rose, 2009, p. 165).

In a qualitative study conducted in Australia, Whiteley, McCabe and Savery (1998) found that a team of managers and workers valued trust and communication more highly than training, multi-skilling, or even remuneration.

Ghani and Hussin (2009) concur with Whitener, Brodt, Korsgaard and Werner (1998) that to increase trustworthiness, managers need to display certain behaviour to be trusted by their subordinates (especially explaining in detail the reasons for taking certain decisions or actions). Whitener et al. (1998, p. 514) defined “managerial trustworthy behaviour” as behaviour that builds trust. This is managerial behaviour that is consistent, demonstrates integrity, and shows concern. Furthermore, the sharing and delegation of control and openness of communication are important antecedents of trust of managers by employees. Building on this, Cho and Ringquist (2011, pp. 53-54) define the term “trustworthiness of managerial leadership” (TWML), which is the common dimension underlying ABI in managers.

In respect of communication, Whitener et al. (1998) conducted an extensive literature review and identified accurate information, explanations for decisions, and openness as behaviour by trustees (managers) to be important for increased trustworthiness. More specifically, they suggest that accuracy of information flow, accurate and forthcoming communication, a thorough explanation of decisions, timely feedback on decisions, and open communication (in which managers exchange thoughts and ideas freely with employees) lead to higher levels of trust. According to Whitener et al. (1998), the emphasis in communication is on the sharing and exchange of ideas.

In a partial confirmation of the above categorisation of *managerial trustworthy behaviour*, Korsgaard, Brodt and Whitener (2002, p. 317) found that in conflict situations managers are blamed less if communication is open and concern is demonstrated. Norman et al. (2010) empirically established that it is advantageous for a leader to be both positive and open/transparent as it helps to gain followers' trust and increases their (the leaders') perceived effectiveness. As both constructs, i.e. a positive psychological capacity and transparent/open conduct, can be developed easier than traits, Norman et al. (2010) see this as a practical and straightforward method to increase followers' trust in their leaders (and also the leaders' perceived effectiveness).

Ghani and Hussin (2009) expand on the above by listing the following (seemingly common-sense?) behaviours that they felt managers should exhibit to increase trustworthiness:

- Explaining decisions or actions
- Being transparent and sincere when taking decisions
- Ensuring actions are in line with organisational objectives and vision
- Keeping their promises
- Creating a supportive climate
- Abstaining from threats or forceful behaviour

### **3.2 Trust in leadership**

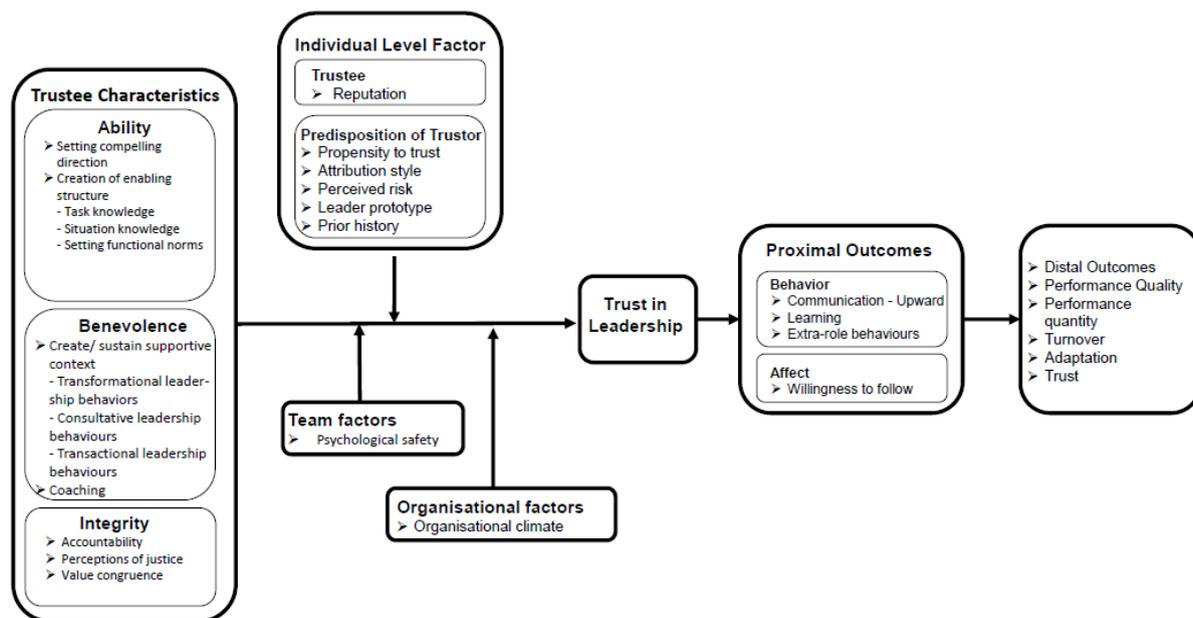
In a report on their seventh WorkUSA® survey conducted in 2002, Watson Wyatt Worldwide Research (2002) found that a majority of U.S. employees not only had very little confidence in their senior managers, but that these levels were also falling. Only 39% of employees trusted their senior leaders. In Europe and the Middle East, the third most important issue after ineffective communication and excessive work pressure is a lack of trust in leadership (Towers Watson, 2012, p. 4). Only 40% of employees have trust in their senior leaders compared to 45% globally, while more than half of employees do not believe the information they receive from senior managers or leaders. In general, trust in organisations has steadily declined in the USA from 2000 to 2005 (Chan, Lam & Lui, 2011, p. 553).

In any organisation the role of leaders is pivotal although the criteria against which the effects are to be measured are not always clear (Hiller et al., 2011, p. 1137). On the one hand, leaders are responsible for developing shared goals and coordinating tasks, which is facilitated by trust (Li, 2008, p. 421). On the other hand, leadership is responsible for creating an environment where trust can flourish between the various role players (Li, 2008,

p. 428). Mayer and Gavin (2005, p. 883) determined empirically “that trust in management allows employees to focus on the tasks that need to be done to add value to their organization” – hence employees should not have to worry about keeping their jobs. In the case of employees who care about helping others and who feel it is important that their work benefits others (prosocially motivated employees), the trustworthiness of their manager plays a mediating role when it comes to work performance (Grant & Sumanth, 2009). However, low integrity or benevolence of a manager could be mediated by these employees’ dispositional propensity to trust. The study by Grant and Sumanth (2009, p. 930, p. 941) shows for the first time that when it comes to work performance, the employee’s personal disposition to trust (trust propensity) can make up or compensate for a lack of trustworthiness of a manager.

Zand (1997, p. 22) sees building trust as one of the three main dimensions of leadership in the knowledge-processing organisation. The other two dimensions, processing knowledge and using power sensitively, interact with trust and themselves. Accordingly, when leaders use relevant knowledge, people will trust them and give them the necessary power to lead. On the other hand, if people trust their leader, they will also disclose their knowledge and accept that the leader may use his/her power. Without timely and well-thought-out information or knowledge with which co-workers, subordinates and superiors will part only if trust exists, the leader cannot take the optimal decisions that are needed for optimal organisational functioning. From this, Zand (1997) postulates that trust, knowledge and power are interconnected and they reinforce one another.

As a point of departure when attempting to develop an integrative model of trust in leadership, Burke, Sims, Lazzara and Salas (2007) review the literature and explore the question as to how trust in leadership can be conceptualised. Interestingly, they provide more than a page of definitions, and come to the same conclusion as Sendjaya and Pekerti (2010), namely that the definition as proposed by Rousseau et al. (1998) is the most appropriate in this context. In fact, Sendjaya and Pekerti (2010) fall back on the Mayer et al. (1995) definition when it comes to the operational side of their research, since they adopt Atkinson and Butcher’s (2003) approach when studying trust in the direct leader (as opposed to trust in the organisation, which will be discussed in the next section). Burke et al. (2007) propose an integrated multi-level framework for understanding trust in leadership. Their model of trust in leadership is shown in Figure 3.4.



**Figure 3.4. An integrated multi-level framework for understanding trust in leadership by Burke et al. (2007)**

Source: Burke et al. (2007, p. 613)

This model is of interest in the current study as some of the antecedents of trust (such as the trustee characteristics of ability, benevolence and integrity (ABI) with all their detailed aspects spelled out by Burke et al. (2007)) can be used to recode the current model. Burke et al. (2007) also refine the Mayer et al. (1995) model by introducing individual, team and organisational factors and a detail breakdown of the outcomes of trust.

In this context it is also important that Atkinson and Butcher (2003) point out that one needs to take cognisance of the reality of organisational life and not ignore the impact of politics on the formation of trust between managers and their subordinates. Kovač and Jesenko (2010) found that democratic leaders enjoy a higher level of trust among their subordinates, compared to authoritarian leaders or leaders who are perceived as feeble, indecisive and uncooperative.

In another study that considers trust in leadership as a moderator that influences work performance, Crossley et al. (2013) found that higher work performance was the result of proactive managers setting more challenging goals. Supervisors that trusted their managers interpreted the challenging goals as motivating and not as selfish, exploitative behaviour on the part of the senior manager (Crossley et al., 2013, p. 543). This holds for a virtual leadership, where, as is very common today, supervisors and senior managers are not co-located (p. 547). In Malaysia, Hassan and Ahmed (2011) found that authentic leadership

contributed to employees' trust in their leader. In conjunction, they found that interpersonal trust was also indicative of their work attitudes or behaviour (work engagement).

### *3.2.1 Trust in leadership/ supervisor or trust in the organisation?*

The following question flows from the above: how do you differentiate between trust in your supervisor and trust in the organisation, as these roles are intertwined? Tan and Tan (2000) confirm that trust in your supervisor is a type of interpersonal trust (defined according to Mayer et al. as trust in a person over whose behaviour you have no control) different from trust in the organisation (defined according to Gambetta as the belief that the organisation will behave in a favourable or at least not in a detrimental way) which was linked to global indicators such as perceived organisational support and justice. This is important as one might trust your direct supervisor or leader, and thus the organisation. Nevertheless, an employee can in certain circumstances still trust the leader, but not the organisation itself (Sendjaya & Pekerti, 2010).

It would be simplistic to see institutional and interpersonal trust as separate entities with no interaction or overlap, despite the fact that often they are treated as such for simplicity's sake. Mishra and Mishra (2013) plead for an integration of the two, as it reflects reality much better (as shown in their case study). Interpersonal and institutional influences have an effect on or shape trust in leadership and hence, by implication, in the organisation. They see an overlap between interpersonal trustworthiness and trusting behaviours that comprises of reliability, openness, competence and compassion (their version of ABI) on the one hand and institutional trust-building mechanisms on the other (Mishra & Mishra, 2013, p. 60). In their case these consisted of ground-level interventions where an open-door policy, sharing of parking and dining facilities, and disposing of suits and ties were implemented.

### *3.2.2 The spiral process of trust in the leader*

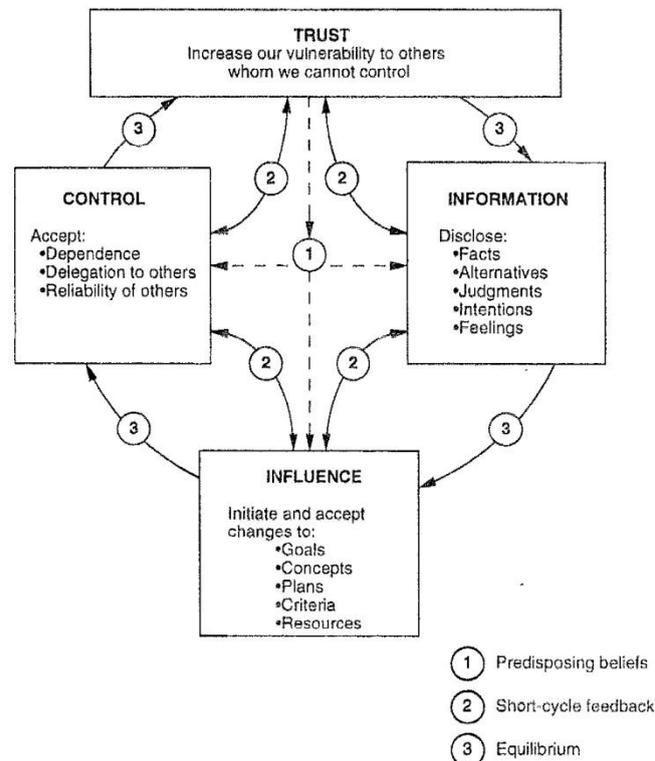
Trust is considered a core for effective leadership (Cho & Park, 2011, p. 4). Information, influence and control are the three elements of leader behaviour that indicate trust or mistrust, according to Zand (1997, p. 91). If leaders communicate information, share their influence and exercise control, they are communicating trust to their followers.

Zand (1997, p. 93) conceptualises trust and its interaction with the three elements of information, influence and control as a complex and interactive process, as follows:

*Trust spirals in corkscrew fashion as leaders act out their trust through information,*

*influence, and control and interpret others' behaviour in terms of these elements. Trust moves up or down the spiral depending on how leaders disclose information, exercise and receive mutual influence, and delegate and exercise control.*

Zand (1997) calls this his "spiral model of trust" and represents it diagrammatically as follows:



**Figure 3.5. A spiral model of trust**

Source: Zand (1997, p. 93)

In Figure 3.5 the elements of trust and the phases of the trust spiral, namely predisposing beliefs, short-cycle feedback, and equilibrium are shown. These phases and their interaction will be described in the following sections.

Predisposing beliefs are the beliefs that leaders have of how trusting they can be and how trustworthy other people are. In the early stages of a relationship, these beliefs "regulate how much information they reveal, how receptive they are to others' interests and goals, and how much control they will try to exercise" (Zand, 1997, p. 94). The same beliefs also influence the interpretation of others' behaviour. If for instance a person would claim not to have certain information, as employees tend to hoard information (Brock, Zmud, Kim & Lee, 2005, p. 87-88), two outcomes are possible. If the predisposing belief is one of trust, the person is believed; if however the predisposing belief is one of mistrust, the reaction would be one of scepticism or a feeling that there is intent to mislead.

Short-cycle feedback confirms or disconfirms the predisposing beliefs, as the person builds up information and data on the other person (Zand, 1997, p. 94):

*If another person gives comprehensive, timely information and responds receptively to influence by adjusting goals, methods, and criteria, for example, our trust increases. If he expresses commitment to fulfilling his part of what is to be done, that adds to our trust.*

Equilibrium is reached when the short-cycle feedback becomes repetitive and trust settles into a narrow band of low, medium, or high trust. In this way trust creates reciprocity (McNeish & Mann, 2010, p. 25), but if reciprocity is not returned, a downwards spiral of distrust can commence (Dietz, Gillespie & Chao, 2010, pp. 11-12).

This trust can evolve either in a beneficial (upward) or downward spiral, often depending on what the initial predisposing belief was. Such belief is crucial as it forms the basis of a “self-fulfilling prophecy” of reciprocal behaviour expectations based on confirmatory feedback (Six & Skinner, 2010; Zand, 1972). The importance of this initial start to a trust relationship is very eloquently put by Ferrin, Bligh and Kohles (2008, p. 175):

*Folk wisdom suggests that “it takes two to tango.” Our results suggest that trust perceptions and cooperation are intricately related in a complex dance that spirals over time and is fundamentally affected by partners’ initial moves.*

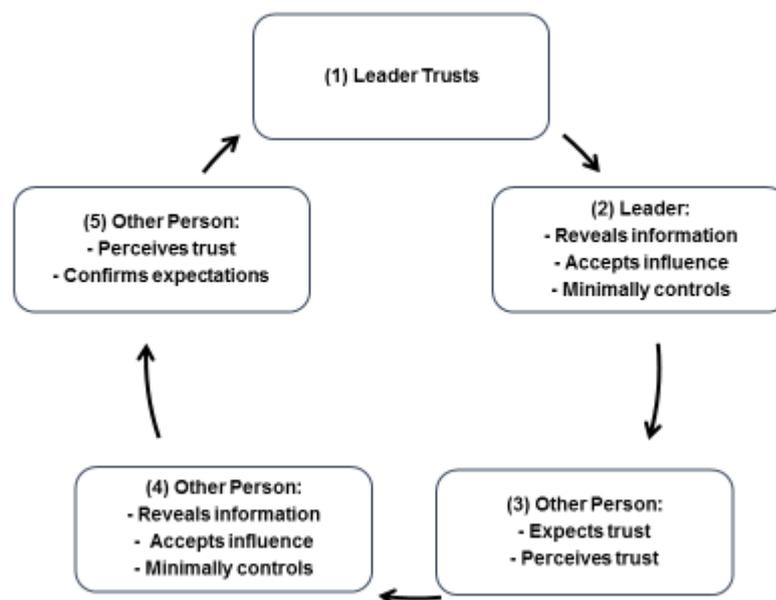
Information sharing plays a vital role in this process because in the case of an upward spiral "they reveal timely, accurate, relevant, comprehensive information from the outset" (Zand, 1997, p. 94). This leads to a reinforcing short-cycle feedback that culminates in equilibrium. The system dynamics between trust and distrust are based on this confirmatory feedback (Six & Skinner, 2010, p. 112). This principle was applied by Lee et al. (2010) who found that if a leader shares information and builds the team’s expertise, the team members will be more willing to share information (both receiving and giving) for improved team performance. Leaders need to show that they are willing to rely on the team (i.e. make themselves vulnerable) and willing to disclose information. As this enhances team trust (not trust in the leader), training should focus on team trust (not leader trust) if increased information sharing is the goal. They suggest that a very productive method to achieve this would be to make use of shared or distributed leadership (Lee et al., 2010, p. 15).

If, however, information is concealed as a result of a mistrusting predisposing belief, the mistrusting responses will lead to a short-cycle feedback that spirals down until an

equilibrium is reached where both parties mistrust each other more than before (Zand, 1997, p. 95). This could also occur at an escalating pace as it has been found that as soon as the relationship moves into unfamiliar or new situations, the parties test each other's ability to conform at an ever-increasing rate (Sweeny, 2010, p. S82).

Zand (1997) points out that trust is but one element of good leadership and that trust is not a substitute for knowledge and thinking. His spiral model shows how trust can influence "how well leaders access and use knowledge and thinking" (Zand, 1997, p. 95). To develop his model further, Zand (1997) makes use of the so-called trust and mistrust cycle. These cycles are very much self-explanatory, but Zand (1997, pp. 95-96) explains the trust cycle (see Figure 3.6) as follows:

*When the leader trusts (1), he reveals information, accepts influence, and minimally controls the other person (2). The other trusting person, expecting trust, perceives the leader's initial behavior as trusting and concludes that she was right to expect the leader to be trustworthy (3). She therefore feels justified in showing trust and reveals information, accepts influence, and exercises self-control (4). The leader, seeing the other's responses as trusting, feels confidence in his initial expectation that the other person would be trustworthy (5). He then feels justified in demonstrating more trust than he did at the beginning (1).*

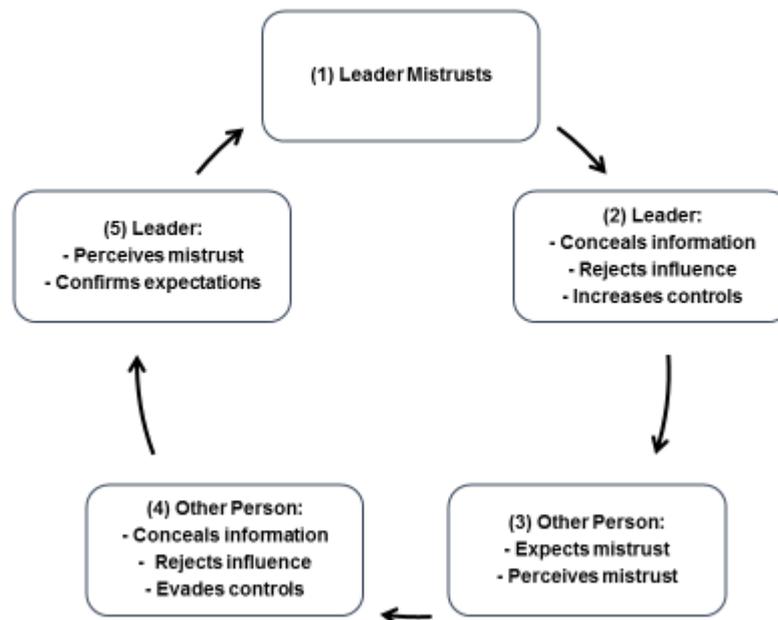


**Figure 3.6. The trust cycle**  
Source: Zand (1997, p. 95)

This cycle repeats itself until equilibrium is reached with an open flow of reliable information and shared mutual influence that increases problem-solving effectiveness and satisfaction with their work and their relationship (Dietz, Gillespie & Chao, 2010, pp. 11-12; Zand, 1997, p. 96).

In the case of the mistrust cycle depicted in Figure 3.7, Zand (1997, p. 96) describes the process as follows:

*[L]eaders withhold information, resist influence, impose controls, and blame the other for problems, Their mistrusting behaviour confirms the mistrusting expectations and intentions of the other person, and the two of them quickly cycle around the loop and rapidly increase their mutual mistrust.*



**Figure 3.7. The mistrust cycle**  
Source: Zand (1997, p. 96)

This destructive cycle leads to demands of compliance and threats of penalties. Controls are imposed by one party, which the other party tries to evade. When this cycle reaches equilibrium, the level of trust will be noticeably lower than it was at the beginning (Zand, 1997, p. 97). The mistrust cycle could be seen to consist of cycles of a trustor’s vulnerability being reciprocated with non-cooperative behaviour (Sweeny, 2010, p. S73).

In practice, groups or individuals "can enter into a downward spiral of distrust when trust is repaid with what is perceived as betrayal or exploitation" (Fukuyama, 1995, p. 226). This led

to the downfall of the automobile and steel industries in the United States of America in the first half of the 20th century. The result of that specific distrust spiral was a labour management relations system that depended on legal formalities to function. The focus was often on detailed job classification systems with wages tied to these and seniority – not to productivity. In reaction to this, the unions ensured that workers stuck to their specific jobs and insisted on seniority-based and not skills-based promotions, as the latter would imply that they trusted management to judge individual abilities. This reciprocity often manifests itself in a way that many managers fail to understand when trying to gain their employees' trust. As Fukuyama (1995, p. 227) succinctly summarises the whole dilemma,

*[I]f the worker was not to be trusted to exercise judgment or take on new responsibilities, then management would not be trusted to assign workers new duties or to judge their skills and abilities.*

Management encouraged this "job control focus of labour contracts", because it ensured that workers did not infringe on what they believed were managerial privileges (Fukuyama, 1995, p. 227). This spiral was only broken by the financial crisis in 2008 and the resulting government bailouts, although the trust of employees and the public was not enhanced by the fact that the auto industry executives of the three major North American car makers used their private executive jets to commute to Washington to plead for a bail-out while dismissing workers and closing car dealerships (Uslaner, 2010, p. 120). Similarly, the financial sector is dependent on trust, since the trustors need to be willing to expose themselves to risk by letting the financial institutions invest their money. In fact, the financial crisis has had a much greater impact than expected once the distrust spiral started (Fukuyama, 2008).

Table 3.3 constitutes an attempt to summarise the preceding section, which is preliminary based on the work of Zand (1992; 1997). From this summary, it becomes clear that communication and information sharing are core to the trust and distrust spiral (Cho & Park, 2011, p. 8) as they are workplace behaviours that lead to improved performance (Dirks & Ferrin, 2001, 452).

**Table 3.3. Summary of the concepts of the Zand Model**

|   | <b>Leaders' trust</b>  | <b>Leaders' mistrust</b>   |
|---|--|--|
| <p><b>Information</b></p> <p>The flow of accurate, timely information, critical to a productive relationship.</p>   | <p>Leaders</p> <ul style="list-style-type: none"> <li>- show trust by disclosing information;</li> <li>- increase vulnerability to others by revealing information about goals, alternatives, and intentions;</li> <li>- increase vulnerability to others by disclosing problems or discussing their assessment of others.</li> </ul> <p>Result:</p> <ul style="list-style-type: none"> <li>- Others can use this information to block or undermine the leader's plans.</li> </ul>   | <p>Leaders</p> <ul style="list-style-type: none"> <li>- conceal and distort relevant information;</li> <li>- withhold facts, disguise ideas, and suppress conclusions;</li> <li>- hide opinions and feelings that would increase their exposure to others.</li> </ul> <p>Result:</p> <ul style="list-style-type: none"> <li>- Provide others with incomplete, untimely information</li> <li>- Draw an inaccurate picture of underlying problems.</li> </ul>  |
| <p><b>Influence</b></p> <p>The sources of information and how that information alters behaviour.</p>  | <p>Leaders</p> <ul style="list-style-type: none"> <li>- show trust by allowing others to affect their decisions;</li> <li>- may be seen as weak by accepting advice from superiors, subordinates, or peers.</li> </ul> <p>Result:</p> <ul style="list-style-type: none"> <li>- Can be misled because others are misinformed or have poor ideas.</li> <li>- Can be demoted or fired because competitive or vindictive advisers deliberately misdirect them.</li> </ul>  | <p>Leaders</p> <ul style="list-style-type: none"> <li>- resist others' attempts to influence their decisions;</li> <li>- suspect others' goals;</li> <li>- reject their views and deflect their suggestions;</li> <li>- deny or ignore others' evaluation of results.</li> </ul> <p>Result:</p> <ul style="list-style-type: none"> <li>- Reject the influence of those they mistrust but want others to accept their views and follow their influence.</li> </ul>                                      |
| <p><b>Control</b></p> <p>The regulation and limitation of another person's behaviour depends on what others will do in the future when the leaders are not present.</p> | <p>Leaders</p> <ul style="list-style-type: none"> <li>- show trust when they depend on others;</li> <li>- increase exposure by delegating tasks such as gathering information or analysing problems;</li> <li>- increase their vulnerability and decrease their control when others make decisions or implement plans.</li> </ul> <p>Result:</p> <ul style="list-style-type: none"> <li>- Others may gather incorrect information, misdiagnose a problem, make a poor decision, hinder implementation and undermine the leader's plans.</li> <li>- The leader's reputation may be damaged and he/she may be demoted, transferred or forced to resign.</li> </ul> | <p>Leaders</p> <ul style="list-style-type: none"> <li>- minimise their dependence on others;</li> <li>- believe that other people will not perform their tasks or honour the spirit of their agreements;</li> <li>- try to impose controls on those they mistrust.</li> </ul> <p>Result:</p> <ul style="list-style-type: none"> <li>- Leaders are alarmed when the other person attempts to evade controls.</li> <li>- Leaders strongly resist others' attempts to control their behaviour.</li> </ul> |

Source: Zand (1997, pp. 92-93)

### **3.3 Co-worker trust – using different referents as foci**

In an organisational context it is important to determine who the referent or relevant trustor is, because trust is target specific and different foci may have different antecedents and outcomes (Yang & Mossholder, 2010). The review title by Fulmer and Gelfand (2012, p. 1167) represents this context very eloquently and concisely: “At what level (and in whom) we trust: Trust across multiple organizational levels”.

It is essential to differentiate between trust on the different levels of analysis (collective levels of trust) and trust in leaders, teams and organisations (the different referents). The levels of analysis can for instance be seen as the average levels of trust within a team or organisation in somebody or something (Fulmer & Gelfand, 2012, p. 1170). The study by Cyster (2005) that compared trust levels between different business units in an organisation is a good example of this. According to Reynolds (1997, p. 11), there are four relationships that have to be investigated if all the benefits (such as lower costs and better results) are to be gained by using trust:

- Vertical relationships between managers and staff
- Lateral relationships within and between teams and departments
- Relationships with suppliers and other business partners
- Relationships with partners

In this study, the focus is on the interpersonal vertical and not so much the horizontal or lateral relationships within an organisation. The distinction between the different referent foci is important, as employees as trustors at different levels have different expectations from different referent trustees. This makes it very likely that there will also be different antecedents and consequences of trust linked to these different trustees (Fulmer & Gelfand, 2012, p. 1171). In the case of the vertical relationships, trust researchers differentiate between trust in one’s supervisor and trust in management. The first is direct and constrained, while the latter is more general and normally refers to an “identifiable upper-level collective” on a strategic level, who decides on policy and procedure (Yang & Mossholder, 2010, p. 52). Direct supervisors normally only influence the day-to-day activities. Lateral relationships have become crucial as the use of teams has become more prevalent, and as a result, co-operation based on interdependence gained in importance for organisational functioning. For this interdependent co-operation to materialise it was necessary that a trusting relationship exists wherein team members share information and strive towards team goals (Cho & Park, 2011, p. 4).

Concerning the first point mentioned above, there is a difference between various levels of management when it comes to the vertical relationships between managers and staff as co-workers. The direct manager had a greater effect on subordinates' ability to focus on value-adding activities than the top management team had, as they had greater exposure to the former in a non-co-located organisation (Mayer, & Gavin, 2005, p. 884). In general, this confirmed that trust had a bigger role to play than direct work performance when it came to increased organisational citizenship behaviours (OCBs). To better clarify the distinction between supervisor and senior management, Kannan-Narasimhan and Lawrence (2012, pp. 174-175) empirically present evidence that only trust in the direct supervisor and not trust in senior management influenced the occurrence of OCBs that encompass helping behaviour, while only trust in senior management predicted organisational commitment.

Dirks and Ferrin (2002) also compared the effect of trust in a direct leader as opposed to trust in organisational leadership (a vexing question in institutional trust research). In this meta-analysis they determined that for variables measuring aspects such as performance, altruism, intent to quit and job satisfaction, trust in the direct leader had a bigger effect, while trust in organisational leadership was the most important in respect of organisational commitment (Cho & Park, 2011, p. 15; Dirks & Ferrin, 2002, p. 623). On this level of organisational leadership, the main determinants of trust are how much autonomy management grants employees and how clearly they set their goals (Cho & Park, 2011, p. 14). Not withholding vital information is also crucial for employees (Chughtai & Buckley, 2008, p. 55). Based on the fact that studies such as that of Özer, Zheng and Chen (2011) found that trustors are worried that they will stand to become more vulnerable and lose the advantages linked to being able to trust another (in this case linked to supplier information), Fulmer and Gelfand (2012, p. 1176) suggest that a trusting relationship can be encouraged on the part of the trustee by creating a positive perception (or reputation).

Also in respect of different referent groups or foci, the meta analysis by Colquitt et al. (2007, p. 917) found little evidence of differences between leaders and co-workers as referents. Interestingly, Lau and Liden (2008) found that employees trusted co-workers more if the employees themselves were also trusted by the team leader or supervisor. Lapidot et al. (2007, p. 27) suggest that leaders' antecedents to trustworthiness need to also include "personal example" and "openness and flexibility", although they could as well be included under integrity (with an allusion to benevolence). When it comes to the different foci of trust, it seems that they need to be seen as interlinked and having a significant relationship between them. For instance, Kannan-Narasimhan and Lawrence (2012, p. 174) reconfirm the importance of trust in the supervisor, as it directly influences the trust that is accorded

senior management. Bagraim and Hine (2007, p. 47) found that trust in co-workers and trust in supervisors co-vary, which led them to postulate that there might be other factors in the surroundings that lead to high trust, such as the organisation's culture.

In one of the latest studies to consider the relative importance of the various antecedents of trust on different foci, Knoll and Gill (2011, p. 323) found that for upward relationships with **supervisors**, benevolence and integrity were the most important, explaining 43% and 38% respectively of the variance explained. That ability made no unique additional contribution to trust in the supervisor. Concerning the supervisor's trust relationships with subordinates, ability was the only significant predictor of trust ( $p=0,00$ ) in a regression model (Knoll & Gill, 2011, p. 326). In the case of lateral relationships (i.e. with peers), all three (ABI) were equally important. Knoll and Gill (2011) conclude that as far as trust relationships are concerned, subordinates' and co-workers' abilities or competence is judged important, while for managers this is not the case. On the other hand, if a subordinate does not trust the manager and the manager attempts to "empower" or "delegate" to a trusted subordinate so as to build trust, the subordinate may perceive this as "dumping their work" on them (Brower et al., 2009, p. 341). Regarding high-status individuals (which could be senior managers), it was found that they tend to have higher initial trust than others of a lesser status (Lount & Pettit, 2012). This is attributed to the fact that the higher-status individual (the trustor) ascribes higher benevolence to the trustee, since they as high-status individuals tend to hold positive expectations of others' motives towards them (p. 21). This willingness to trust seems to be a function of the trustor's own status as a relatively privileged individual.

In an extension of the research by Colquitt and Rodell (2011) and Colquitt et al. (2012), Zapata, Olsen and Martins (2013) examine employee trustworthiness, social exchange and ultimately justice. According to them, trustworthy employees influence the treatment they receive from supervisors as supervisors feel obliged to reciprocate the employees' perceived benevolence and integrity towards them. This they do by being more trusting and just towards these employees as a type of social exchange, since trustworthy subordinates are a valuable resource to them (Zapata et al., 2013, p. 4). Benevolence (*affect-based trust*) is more target specific and will also by its nature elicit more feelings of being obliged to the subordinate. Cognitive trust as represented by the ability and integrity dimensions of trustworthiness does not have such a strong influence.

In contrast – when investigating the relationship between the trustworthiness of the supervisor and the aforementioned organisational justice dimensions, Colquitt and Rodell (2011, p. 1199) found that a combination of benevolence and integrity are both antecedents

and consequences of justice perceptions. High trustworthiness (specifically benevolence and integrity) leads to higher perceptions of organisational fairness. High interpersonal justice, on the other hand, increases feelings of benevolence attributed to the supervisor. With regard to ability, no great effect was reported, except that (surprisingly and contra all expectations) the higher the supervisors perceived ability, the lower they rated distributive justice. Colquitt and Rodell (2011, pp. 1200-1201) offer various possible explanations for this: firstly, more competent supervisors might be better able to judge the “real value” of employees’ inputs and not the inputs that they think they gave; secondly, higher standards might be set for more able supervisors concerning the allocation of rewards, and lastly, the more able supervisor in all probability earns more than others and in comparison causes the subordinates to judge the supervisors compensation as excessive.

Tan and Lim (2009) tested the Mayer et al. (1995) model by focusing specifically on **co-workers** and the organisation. As mentioned previously, Tan and Lim (2009) found that the trust that employees have in co-workers influences the trust they have in other foci – especially their trust in the organisation. In the case of trust in co-workers as referent group, ability did not significantly relate to co-worker trust. Only the two trustworthiness dimensions of integrity and benevolence showed a positive and significant relationship – “benevolence ( $\beta = .23$ ,  $p. < .01$ ) and integrity ( $\beta = .20$ ,  $p. < .05$ )” (Tan & Lim, 2009, p. 57). Ability in all probability does not feature as an antecedent in their study, as their sample consisted purely of Chinese Singaporean co-workers and from a Confucian viewpoint, these workers may not regard ability as important in relationships (Tan & Lim, 2009, p. 60). On another level, this might also be an artefact of the industry represented in the sample as the jobs in question were of a low complexity, and ability was hence not important. Similarly, interpersonal citizenship behaviour, which refers to behaviour linked to helping or supporting a co-worker or peer, is linked to co-worker trust and results in helping behaviour in return (Halbesleben & Wheeler, 2012, p. 16). A spiral of reciprocation and give-and-take OCB behaviour results, from which all parties gain advantage.

Also focusing on trust in co-workers, Colquitt et al. (2011) wanted to know if there was a difference between trust in co-workers for different tasks. They found that firefighters made such a distinction and when it came to typical tasks, they based their trust on both cognitive and affective sources (benevolence). In contrast, when it came to the critical emergency and life-threatening tasks, they tended to use integrity (calculative and cognitive) to determine trustworthiness to a much greater degree. As was the case with organisational justice, ability again seemed to play a minor role when it came to determining trustworthiness – this although the researcher expected this (Colquitt et al., 2011, p. 1011).

Because there is very little research on trust in other referent groups such as peers and subordinates, Fulmer and Gelfand (2012, p. 1214) suggest that these be grouped together as a generalised “interpersonal referents” group until more research is available. (The same applies to customers and external stakeholders.) In one of the few studies that consider trust in peers, Dunn, Ruedy and Schweitzer (2012) take this a step further and find that when employees make social comparisons, trust is harmed. More specifically, in the case of upward social comparisons (i.e. comparing oneself with somebody who performs better than oneself) affective trust is harmed. These comparisons are normally perceived as threatening to one’s self-image and therefore they elicit defensive or coping behaviour. They also expect less benevolence from the referent higher-performing co-worker. The implication with the biggest impact though is the fact that (contrary to what most theories predict) too much perceived ability revealed by the trustee in the case of peers can lead to decreased (affective) trust. This can also have an indirect effect on team performance, as one individual who outperforms the others might become socially isolated by other team members, because the trust relationship is “damaged” by the lower trustworthiness of the trustee (Dunn et al., 2012, p. 12). If, on the other hand, an employee compares him-/herself to a co-worker who performs worse than him/her (i.e. a downward social comparison), then cognitive trust is damaged because the employee will consider the co-worker’s performance as inferior and exaggerate his/her own ability.

After considering the information above and adding relevant additional information, in Table 3.4 an attempt is made to systemise and summarise the relationship between the trustor and trustee (in the context of the different foci and by referring to the various definitions and foci involved in this process).

On the left, the trustor comes with a trust propensity, which involves a measure of risk that depends on the context. The context depends on how vulnerable the trustor is, how much conflict is inherent in the situation and in which stage of trust formation they are. On the right-hand side of Table 3.4, the trustee is shown to have a certain level of perceived trustworthiness based on the various levels of ability, benevolence and integrity. Each has a different contribution to make in the different relationships between a trustor and his/her supervisor, subordinates and peers and in respect of the types of jobs in which they are more important.

From Table 3.4 it is also clear that ability is more important in subordinate relationships and in a manufacturing environment, while benevolence is most important in the case of

professional peer relationships in service jobs. In collective societies such as Turkey and China (discussed in more detail in a later section concerning the South African situation), benevolence plays the biggest role to determine if a leader or supervisor is perceived as trustworthy or not. Integrity seems to be the key component when it comes to the perceived trustworthiness of leaders or supervisors and it is not very important for manufacturing jobs. A lack in perceived ability and integrity will lead to trust erosion in the case of trust in supervisors and leaders.

**Table 3.4. Conceptual model of organisational foci of interpersonal trust**

| Trustor  | Trust  | Trustee (being trusted)   |   |   |   |  |
|--|--|---|---|---|---|--|
| Propensity to trust  |  | Trustworthiness   | Supervisor / Leader   | Subordinates  | Peers   | Type of job  |
| A dispositional willingness to rely on others (Colquitt et al., 2007)<br>Not related to trust in subordinates (Knoll & Gill, 2011)     | "A psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al., 1998, p. 395) | f(ABI)<br><br><i>Trustworthiness</i> (the ability, benevolence, and integrity of a trustee) (Colquitt et al., 2007)<br><br>Perceived ABI influence trust antecedents of trustworthiness   | Has power – allocates resources (Colquitt et al., 2007; Knoll & Gill, 2011; Lapidot et al., 2007; Mayer et al., 1995; Werbel & Henriques, 2009).<br>Skewed power and status (Yang & Mossholder, 2010)<br>Based on reciprocity (Cho & Park, 2011)  | Need them to complete tasks (Knoll & Gill, 2011)<br>Reciprocity is critical factor in Turkey and China (Wasti et al., 2011)<br>Mutual trust important for OCB (Brower et al., 2009)   | Important as self-managed work-teams become more common – improves information sharing and mutual support (Chughtai & Buckley, 2008, p. 53; Dirks & Skarlicki, 2004, p. 33) |  |
| Involves <i>risk</i> by being willing to be <b>vulnerable to trustee</b> with no control over the latter                               | The intention to accept vulnerability to a trustee based on positive expectations of his/her actions. (Colquitt et al., 2007)  | <b>A</b><br>"Perceived ability is the trustor's perception that a trustee has the skills, competencies, and characteristics to have influence in the domain of interest." (Knoll & Gill, 2011, p. 314)<br>"... that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain" (Mayer et al., 1995, p. 717). | Negative influence – plays a role in trust erosion (Lapidot et al., 2007)<br>Competence (Werbel & Henriques, 2009, p. 792)  | Highest weight (Knoll & Gill, 2011, p. 326)<br>Capacity/work-related skills (Wasti et al., 2011, p. 15)<br>Most important in high-risk situations, e.g. combat (Sweeny, 2010, p. S84).                                      | If ability is perceived as too high; affective trust declines during upward social comparison (Dunn et al., 2012)   | "...more significant predictor of trust in manufacturing jobs than in managerial jobs" (Colquitt et al., 2007, p. 921)               |
| <b>Context:</b><br>The more vulnerable the more sensitive to trust-eroding behaviour (Lapidot et al., 2007, p. 27)                     | <b>Consequence of trust:</b><br>Higher job satisfaction (Cho & Park, 2011; Dirks & Ferrin, 2002; Knoll & Gill, 2011)   | <b>B</b><br>"Perceived benevolence is the perception that the trustee will act in the best interests of the trustor." (Knoll & Gill, 2011, p. 314)<br>"... the extent to which the trustee is believed to want to do good to the trustor, aside from an egocentric profit motive" (Mayer et al., 1995, p. 718).   | High weight (Knoll & Gill, 2011, p. 326)<br>Important for trust building (Lapidot et al., 2007)<br>Initially attributes high benevolence to lower status individual (Lount & Pettit, 2012)<br>Most important in China and Turkey (Wasti et al., 2011, p. 12)  | High benevolence leads to feelings of obligation in supervisor which result in "increased respect, propriety, truthfulness, and justification (i.e., interpersonal and informational justice)" (Zapata et al., 2013, p. 9). | Most important for professional trust relations in Turkey (Wasti et al., 2011, p. 14)<br>Important for Chinese (Tan & Lim, 2009, p. 60)                                     | "... more significant predictor of trust in manufacturing and service jobs than in managerial jobs." (Colquitt et al., 2007, p. 921) |
| In conflict situations managers are blamed less if communication is open and concern is demonstrated (Korsgaard et al., 2002, p. 317). | Trust encourages risk taking and job performance, citizenship behaviour, counter-productive behaviour) (Colquitt et al., 2007)   | <b>I</b><br>"Perceived integrity is the trustor's perception that a trustee adheres to an acceptable set of ethical principles." (Knoll & Gill, 2011, p. 314)<br>"... the perception that the trustee adheres to a set of principles that the trustor finds acceptable" (Mayer et al., 1995, p. 719).   | High weight (Werbel & Henriques, 2009, p. 792; Knoll & Gill, 2011, 326)<br>Highest in South Africa (Engelbrecht & Cloete, 2000)<br>Negative influence – plays a role in trust erosion (Lapidot et al., 2007)<br>Important if there is a power difference – "issues of fairness, consistency, promise fulfilment"(Colquitt et al., 2007, p. 918)<br>Source of fairness perceptions/ organisational justice (Colquitt & Rodell, 2011) |   | Important in Chinese sample (Tan & Lim, 2009, p. 60)<br>Critical tasks load on integrity (Colquitt et al., 2011)  | "...more significant predictor of trust in managerial and service jobs than in manufacturing jobs"(Colquitt et al., 2007, p. 921)    |
| Initial stage of trust formation (Mc-Knight, Cummings, & Chervany, 1998)   | Enhances commitment (Byrne et al., 2011; Cho & Park, 2011)   |   |   |   |   |  |

### 3.3.1 Trust and teams

Trust in the different individual foci was discussed above, but one other organisational reality that needs to be included is that of teams. Because of the synergy effect, where the output of the team is greater than the output of each team member if they had worked separately, team work is the most common type of work relationship in organisations. This is true for both manual as well as knowledge type of work (Frost et al., 2010, p. 126). Costa and Anderson (2011, p. 123) define trust in a team context as follows:

*Trust between team members can be conceptualized as a latent construct based on the individual's own propensity to trust others and on the perceived trustworthiness of the other team members, which then leads to behaviours of cooperation and monitoring between team members.*

A communally oriented or teamwork approach to production will only show benefits if it is implemented in the right spirit. Fukuyama (1995, p. 262) gives the example of General Motors that tried to implement team work and just-in-time production (JIT) unilaterally, without reciprocal benefits for the workers. The labour unions interpreted this as a movement away from strict job classifications and consequently as a threat to their existence, as they were giving away hard-won work rules without gaining any job security for their members. Furthermore, General Motors proceeded with installing robots as a means to retrench workers while rewarding management with a bonus during this process. In contrast – as pointed out by Fukuyama (1995, p. 263) – the Ford Motor Company was able to implement lean production because "it was able to generate a significantly greater sense of trust among its workers that it would live up to its end of the bargain". On this point, Mayer et al. (1995, p. 710) recommend that when using self-directed teams, "trust must take the place of supervision because direct observation of employees becomes impractical".

It has empirically been shown that co-worker trust enhances group cohesion (as expected), but trust in the supervisor of a team encourages innovative behaviour, while affective commitment is predicted by organisational trust (Lehmann-Willenbrock & Kauffeld, 2010, p. 3). Furthermore, trustworthiness is positively associated with task performance, team satisfaction and cooperation (Costa, 2003, p. 618; Costa, Roe & Taillieu, 2001, p. 225). This is especially the case where the organisation was undergoing structural and leadership changes (Cho & Ringquist, 2011). Lee et al. (2010, pp. 5-6) summarised the results of previous studies concerning trust in a team and between team members, since the use of project teams is becoming more and more widespread. They found that trust between team members increases knowledge sharing and emotional openness; it promotes high quality

and creative solutions to problems, and it decreases dependence on the leader as the team members rely more on each other. Similarly, Chung and Jackson (2011, pp. 65-66) confirmed the importance of co-worker trust for knowledge workers. They reported that team members who are trusted create more new knowledge, especially if task completion depends on other team members (high task interdependence).

Because of the prevalence of temporary contract teams in organisations, Wildman et al. (2012, p. 137) noted the importance of investigating individual-level trust “toward one’s team”. These so-called ‘swift starting action teams’ (STATs) normally consist of experts in high-risk ventures who do not have the normal timeframes within which to develop and nurture trust, as they have to function at a high level from inception. Examples are aircraft crews, surgical teams, SWAT teams and also short-term project teams (Wildman et al., 2012). This links to swift trust formation in temporary systems (Meyerson, Weick & Kramer, 1996, p. 167) and is one of the reasons why Cogliser, Gardner, Gavin and Broberg (2012, p. 758) consider the underlying qualities of agreeableness as a personality dimension as so important – not only in traditional, but especially in virtual teams. Seeing that socially oriented behaviours by leaders are related to higher team trustworthiness and influence team processes in this way, Cogliser et al. (2012, p. 776) suggest that these behaviours might be necessary to “convince members that their teammates are trustworthy”.

STATs develop a framework that predicts that the normal trustworthy cues will not be used. Use will rather be made of the innate propensity to trust of the team members, surface-level cues or information such as gender, age or nationality, and own previous experience and reputation gathered through their social or professional networks or gossip (so-called “imported information”, which also includes stereotypes) (Wildman et al., 2012). On the topic of gossip in teams, Ellwardt, Wittek and Wielers (2012) confirmed empirically that high interpersonal trust between employees encourages negative gossip about less trusted managers who are experienced as unfriendly.

Although not directly investigating interpersonal trust, but rather intra-team trust, De Jong and Elfring (2010, p. 536) see trust as “shared generalized perceptions of trust that team members have in their fellow teammates”. In respect of individual-level perceptions, De Jong and Elfring (2010), found that in contrast with short-term teams, trust indeed has an impact on performance in the case of ongoing teams. This implies that supervisors or managers need to manage interpersonal relationships to improve trust among team members (De Jong & Elfring, 2010, p. 545). According to them, this should be an important input variable leading to high performance output in a team.

Another field where trust research has bloomed is that of virtual teams – a concept that developed because of rapidly developing technology that made working in a virtual environment possible, global competitiveness, and environmental concerns about unnecessary commuting. The problems that need to be investigated here concern the differences between interpersonal trust formation in a face-to-face context on the one hand and in a virtual context on the other hand. Research has to determine how trustworthiness is ascertained in a virtual context where reputation is often less known, where the sanction of future interaction is limited or unknown (in the case of project teams) (Rusman et al., 2010, p. 835) and where knowledge coordination and various communication problems are exacerbated (Kanawattanachai & Yoo, 2007; Rusman et al., 2010). Kuo and Yu (2009) found that high levels of initial trust in virtual team members improved future communication and cohesiveness.

In a virtual environment, initial (or swift) trust develops first based on the characteristics of the team members, seeing that information on their behaviour is not available. As soon as this behavioural information (perceived ABI) becomes available, knowledge-based trust is formed on the basis of team members' trustworthiness (Robert, Dennis & Hung, 2009, pp. 242-243)

The fact that there is no physical interaction in virtual teams is not the only stumbling block, as differences in national cultures can also impair trust formation (Zolin, Hinds, Fruchter & Levitt, 2004). Considering cultural diversity, Zolin et al. (2004, p. 20) bluntly state that in their longitudinal study they can only report that in virtual teams “cultural diversity was associated with less perceived trustworthiness” – something that they cannot explain. They speculate that the understanding or interpretation of signs of ABI itself is heavily culturally laden. As virtual teams have less information on which to base their assessment of others' trustworthiness, they make use of “stereotypes or other categorical cognitive schemata” (Rusman et al., 2010, p. 847). These can then lead to incorrect assessments of trustworthiness as the assessment is role based and not personality based.

Because of the trend to use virtual teams in the global knowledge industry driven by technological innovation, Vanhala, Puumalainen and Blomqvist (2011, p. 486) argue that it is necessary to also look at what they call “impersonal trust”, as interpersonal trust has become too limited in the virtual environment. Impersonal trust as an element of organisational trust is nothing more than the institutional trust referred to earlier. Despite the new name, it has become more important, as not all organisational relationships are based on lateral or

vertical interpersonal dyads in modern organisations. In a global and virtual environment it has become very difficult to build interpersonal trust, as more often than not employees have no shared past or future and technical experts act as temporary supervisors (Vanhala et al., 2011, p. 486). All of these conditions counteract the establishment of strong trust relationships.

At the root of all the virtual team functioning, one needs to remember that for all this to be possible, one needs to trust the technology that supports such virtual functioning. Users would need to trust their electronic devices to transmit sensitive work or personal information or to transact online. Other activities that also need high levels of physical security for users to trust them would be e-voting, online banking and gaming, to name but a few (Mason, 2005).

### *3.3.2 Interpersonal trust in the organisational context – a social network*

Historically, the focus of trust research was on the dyad between the trustor and trustee. However, when examining interpersonal trust in organisations, it is important to not only consider the dyads between trustor and co-workers, trustor and supervisors/managers, or trustor and subordinates (the commonly known 360-degree evaluation). The reality of organisational functioning is more complex. In an organisation, everybody fulfils all of these roles interchangeably – sometimes the trustor becomes the trustee and vice versa. A supervisor can also be a subordinate (depending on the context and the role). All these relationships then interact and are inter dependent. To complicate matters, trustors also take third-party input into consideration when determining the trustworthiness of others. Interpersonal trust in an organisational context can be seen as imbedded in a complex social network (Ferrin, Dirks & Shah, 2003).

In this context, Knoll and Gill (2011) tested the integrative model of trust by Mayer et al. (1995) and found that it was generalisable with reference to workplace relationships and trust formation between different referent groups or foci (i.e. in upward, downward and lateral workplace trust relationships or a so-called 360-degree perspective). According to the model suggested by Ferrin et al. (2003), the building blocks of trust in an organisation are, firstly, behaviours that let us deduce trustworthiness; secondly, communication channels that enhance information flow, and lastly, trust itself. The first aspect – interpersonal behaviour – thus consists of organisational citizenship behaviours (OCBs), communication between dyad members and the level of mutual trust. OCBs signal to the trustor that the trustee is to the

trusted. If this behaviour is altruistic, voluntary and co-operative, then it is called interpersonal organisational citizenship behaviour (Ferrin et al., 2006, p. 872).

Ferrin et al. (2003) then find that trust is also influenced by the following:

- Social information – from third parties in the organisation (reputation)
- Trust by association – if somebody is trusted by a trustworthy trustee then we tend to trust them also – especially if many highly trustworthy trustors are associated with the target person
- Trust transferability – third-party information to supply information (see the previous discussion of this concept by McEvily et al., 2003)
- Network closure – trust is enhanced by the number of co-workers or third parties who communicate with both the trustor and the trustee; in other words the communication circle is closed and untrustworthy behaviour will be found out
- Structural equivalence<sup>6</sup> – if the trustor and trustee have similar clusters of associates and relationships, then this will enhance trust

The above not only points to the importance of communication networks and information flow (or sharing) for trust building and enhancement, but also to its functioning. This is confirmed by Shah, Dirks and Chervany (2006, p. 303) who find that “intragroup relationships facilitate the ability of group members to **share ideas, information, and knowledge** cooperatively and to integrate them together to arrive at an optimal solution” (emphasis added).

In contrast, Chow and Chan (2008) found that trust had no direct influence on managers’ willingness to share information within their organisation, while shared goals and social networks did contribute significantly. These findings might point to a possible direction that needs to be investigated concerning communication, to explain the fact that Martins (2002) found that information sharing made the lowest contribution to the prediction of trust.

### **3.4 The Martins (2000) model for managing trust**

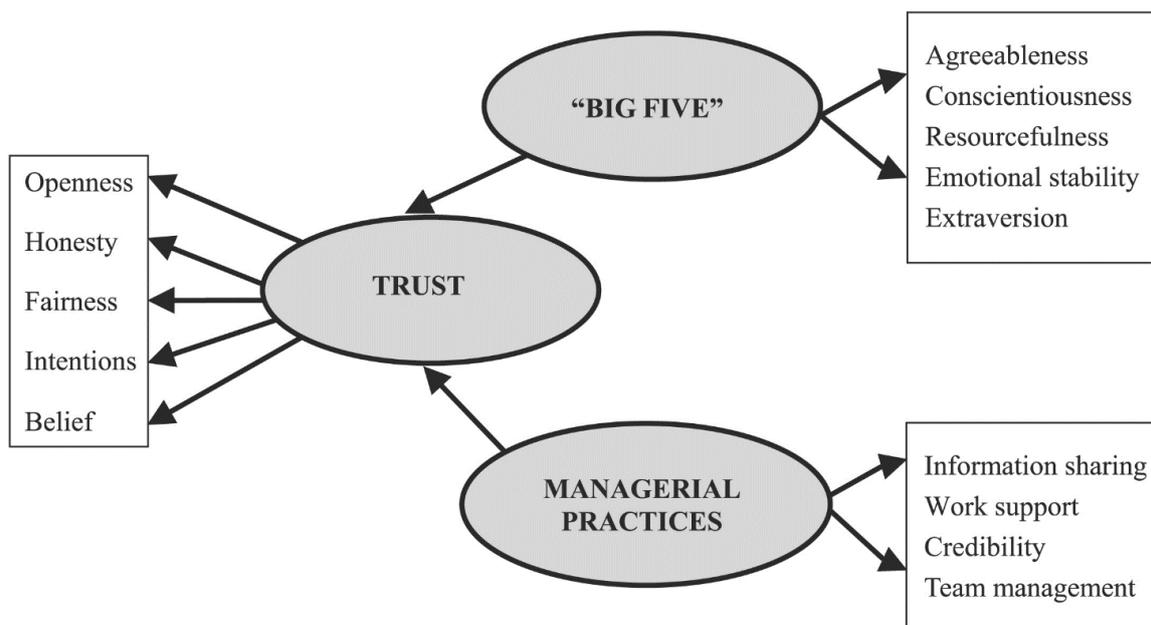
During 1995/6 the Trust Audit Project was initiated wherein the state of trust in 17 companies was assessed. This was the beginning of various publications by Martins, who headed the project, and various other researchers. The model was developed over the years – from

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<sup>6</sup> “... extent to which an employee and coworker are similar in terms of the formal and informal relationships they have with others within the organization and are also similar in terms of the relationships they do not have with others within the organization” (Ferrin et al., 2006, p. 873).

when the questionnaire was developed and validated for the first time (Martins et al., 1997) and the initial model was first tested (Martins, 2000) to the first international publication (Martins 2002). The model was subsequently applied in various projects and publications (von der Ohe, Martins & Roode, 2004; von der Ohe & Martins, 2010; Martins & von der Ohe, 2011). This led to the assumption that trust in organisations is built on certain managerial practices and personality characteristics, and that these are the antecedents of interpersonal trust in an organisational setting (Martins, 2002). In the next section, the five-factor model of personality and managerial practices will be discussed. Thereafter, the model that combines these with trust will be discussed in detail, as this is the model that constitutes the foundation of the current study.

The initial model presented in Figure 3.8 was developed following factor-and-path analysis and not only gave satisfactory results (Martins et al., 1997; Martins 2000; 2002), but also encouraged further investigation and refinement.



**Figure 3.8. Conceptual model of the manifestation of trust in organisations**  
 Source: Martins (2002, p. 756)

In the following sections the separate dimensions or factors of this model will be discussed in more detail, including the definitions used during the development of the model.

### 3.4.1 *Personality as antecedent of trust*

In the original research report by the Centre for Industrial and Organisational Psychology it was stated that “investigation of the antecedents of trust (or mistrust), led to the assumption that trust within companies is probably created by personal factors and managerial practices” (Martins et al., 1997, pp. 3-4). They wondered whether the Big Five personality factors were antecedents of interpersonal trust between subordinates and their supervisors. These Big Five personality factors, namely extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience were found to be valid predictors of work performance (Barrick & Mount, 1991, p. 1; Barrick & Mount, 1993). Goldberg (1990) gave one of the most detailed discussions of this taxonomy of personality. He then reported on three studies to confirm the generalisability of this taxonomy by firstly analysing the set of different trait terms, then investigating synonym clusters and lastly examining trait-derived clusters of adjectives. These adjectives or synonym clusters were then released for inclusion in other studies such as the current one.

In the context of the first trust audit, personality factors were considered for investigation as antecedents of trust, because the literature at that stage considered them as valid predictors of work-related behaviour (Martins et al., 1997). This has been a strongly contested aspect in the organisational psychology literature, as various meta-analyses came to different conclusions because of methodological technicalities (Ones, Viswesvaran & Dilchert, 2005, p. 399). In a meta-analysis of meta-analyses Barrick, Mount and Judge (2001) found that only conscientiousness was a valid predictor of overall work performance, while a review by five previous editors of the two most prestigious journals in the field (*Journal of Applied Psychology* and *Personnel Psychology*) suggested that because of their low predictive validity, self-report personality measures should no longer be used for selection decisions (Morgeson et al., 2007).

Having gone nearly full circle, the latest thinking is that if the self-report measure items are representative of work-related behaviours, they are more valid predictors of work performance because of the “frame-of-reference” effect that contextualises the measure (Shaffer & Postlethwaite, 2012, p. 447). It is also believed that observer ratings of personality traits are even better predictors of overall job performance than self-report measures (Oh, Wang & Mount, 2011). This latter fact is of interest to trust scholars, as trustworthiness is often linked to reputation and observer ratings are based on previous behaviour, i.e. reputation (Barrick et al., 2001, p. 25; Oh et al., 2011, p. 764). Of relevance to the current study is the fact that the personality characteristics are not self-report items but judgements

by the subordinate about the person they report to. The respondents were requested to indicate on a 9-point Likert-type scale the degree to which their direct supervisor exhibited these characteristics in the workplace. The descriptors, in the form of adjectives describing personality traits, anchored each extreme point.

Two theoretical aspects are of importance here:

- Firstly, this is not a self-report but an observer rating, which is more accurate because behavioural aspects are more accurately assessed by observers than by the self (Barrick et al., 2001, p. 25). This is especially true for the Big Five traits as they are strongly behaviour based. In the meta-analysis mentioned above, Oh et al. (2011) found supporting evidence for this as even Emotional Stability – the trait with the lowest increase in validity – showed a 30% improvement in validity for observer ratings compared to self-rating when it comes to predicting work performance. Another advantage of observer ratings is that multiple raters can be used to get more valid ratings of the same supervisor or leader.
- Secondly, these items were put into the context of the workplace, which increases their predictive validity. Contextualised personality measures give a better reflection of personality as we play social roles that fit the situation according to the person–situation interaction theory (Shaffer & Postlethwaite, 2012, p. 449). The example given is of an employee who is very neat, sorted and ordered at work, but leaves everything lying around at home.

The meta-analysis of 90 studies by Shaffer and Postlethwaite (2012, p. 465) found that the validity coefficients for contextualised measures were at least double the size of the non-contextualised measures for all of the Big Five traits, except conscientiousness. The latter is explained by the fact that, per definition, most of the items measuring conscientiousness are contextualised in the environment of the respondents.

The personality factors that were included in the Martins' model are the commonly known five-factor model (FFM) or "Big Five" personality factors of agreeableness, conscientiousness, resourcefulness or openness to experience, emotional stability and extraversion. This model is the most accepted model of general personality structure (see Widiger & Costa, 2012 for a review and von der Ohe, Martins & Roode, 2004 for a discussion of the lexical paradigm and conceptual development of the FFM in this context). Of importance in the South African context is the fact that cross-cultural generalisability has been found to hold (Widiger & Costa, 2012, p. 1473).

#### 3.4.1.1 *Extraversion*

Martins (2000, p. 29) defines extraversion as “sociability, friendliness, talkativeness and activity, with the opposite pole being introversion”. On the opposite pole, introverts are described as quiet, shy and reserved (Martins, 2002, p. 759). Barrick et al. (2001, p. 11) add “dominance, ambition, positive emotionality and excitement-seeking” in the case of extroverts.

#### 3.4.1.2 *Agreeableness*

Martins (2000, p. 29) describes agreeableness as “being liked, courteous, good-natured, cooperative, forgiving, and soft-hearted” with the opposite being disagreeable or *cold, rude, unkind and independent* (Martins, 2002, p. 758). Agreeableness is also referred to as conformity (von der Ohe, Martins & Roode, 2004, p. 10). Barrick et al. (2001, p. 11) add trustfulness and affability. According to Widiger and Costa (2012, p. 1472), the facets of agreeableness are “Trust, Straightforwardness, Altruism, Compliance, Modesty, and Tender-mindedness”. Because of this link to trust and compassion the dimension of agreeableness has been found to be the best Big Five trait predictor for transformational leadership (Judge & Bono, 2000, p. 760).

#### 3.4.1.3 *Conscientiousness*

Martins (2000, p. 29) defines conscientiousness as “persistence, determination, hardworking, as well as dependable, thorough and responsible, with the opposite pole being lazy”. According to Barrick et al. (2001, p. 11) conscientiousness is associated with “dependability, achievement striving, and planfulness”.

Martins (2002, p. 758) adds organised and trustworthy in his description, with deceitful, irresponsible and careless as opposites. In most studies the item concerning “deceitful – trustworthy” is found under the agreeableness dimension (see below). However, it is possible that this item loaded on another facet, as the FFM is not orthogonal (Ones et al., 2005, p. 391). Another explanation might be found in the fact that the “deceitful” stimulus of the item might have led the respondents to associate this item with “dishonest, fraudulent or lying”, which would load under “control and regulation of behaviour”, an integral part of conscientiousness (Widiger & Costa, 2012, p. 1477)

#### 3.4.1.4 *Emotional stability*

Martins (2000, p. 29) describes emotional stability as “the absence of anxiety, depression, anger, worry and insecurity. The opposite pole would be neuroticism.” According to Judge and Bono (2000, p. 756), neuroticism also contains additional facets such as self-

consciousness, impulsiveness and vulnerability. Vulnerability again links straight back to the definitions of trust.

### 3.4.1.5 Resourcefulness (openness to experience/intellect)

Martins (2000, p. 29) defines resourcefulness (openness to experience) as “imaginativeness, creativeness, broad-mindedness and intelligence with the opposite pole being close-mindedness” or unimaginativeness and conventionality (Martins, 2002, p. 759). Some authors include culture, intelligence and imagination in this domain (von der Ohe et al., 2004), while others consider unconventionality as core to this smallest and least stable of the domains (Widiger & Costa, 2012, p. 1477). It is the only domain to substantially correlate with intelligence (Judge & Bono, 2000, p. 752).

Having considered all five of these factors, the question arises which of the specific item stimuli were used in a study, as this determines where the emphasis is placed during measurement. Table 3.5 gives the detailed combination of items as used in the current study. For each item the respondent had to rate him-/herself on a Likert scale to indicate on which side of the continuum he/she lay. After refinement and validation, 35 questions were included to cover these factors.

**Table 3.5. Item content for the Big Five in Martins**

| <b>Agreeableness</b>        | <b>Conscientiousness</b>          |
|-----------------------------|-----------------------------------|
| cold-hearted – warm-hearted | irresponsible – responsible       |
| unfriendly – friendly       | disorganised – organised          |
| rude – tactful              | sloppy – neat                     |
| insensitive – sympathetic   | lazy – hardworking                |
| hostile – peaceful          | dishonest – honest                |
| mean – gentle               | careless – careful                |
| opposing – cooperative      | deceitful – trustworthy           |
| angry – happy               |                                   |
| <b>Extraversion</b>         | <b>Resourcefulness</b>            |
| quiet – talkative           | dull – intelligent                |
| withdrawn – sociable        | unimaginative – creative          |
| unassertive – assertive     | conventional – innovative         |
| reserved – outgoing         | indifferent – curious             |
| gloomy – cheerful           | believing – questioning           |
| shy – bold                  | simple – complex                  |
| passive – active            | prefers routine – prefers variety |

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**Emotional stability**

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nervous – relaxed

moody – stable

insecure – confident

touchy – even-tempered

agitated – calm

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Source: Martins (2002, p. 759)

The two largest personality domains to be extracted in the lexical – extraversion and agreeableness – concern the interpersonal relations between persons (Widiger & Costa, 2012, p. 1476), and include *trust propensity* (Mayer et al., 1995). The latter is generally recognised as an agreeableness subfactor in the original Costa and McCrea model (Searle, Weibel et al., 2011, p. 149).

### 3.4.2 *Linking personality and trust on a conceptual level*

Rotter seems to be the first of the modern researchers who linked propensity to trust to personality (Searle, Weibel et al., 2011, p. 149). Rotter (1967; 1980) investigated the relationship between trust, trustworthiness and gullibility. Gullibility in this case was defined as “naïve and easily fooled” (1980, p. 4). He confirms the long-held belief that persons tend to like persons who are like themselves personality-wise. However, interestingly, most persons liked high trustors and saw them as “as being happier, more ethical, and more attractive to the opposite sex, as having had a happier childhood, and as more desirable as a close friend than the low-trust target” (Rotter, 1980, p. 3). Arrogant persons were also rated as less trustworthy by both low and high trustors, but more so by the high trustors. High trustors were furthermore seen as more co-operative and trustworthy (Rotter, 1967, p. 652) and less dependent on others in so far as decision making and seeking advice was concerned (p. 663). This again links to certain personality characteristics that will be investigated.

In an organisational context, this disposition to trust is important as it implies that the trustor’s experience (or the trustee’s reputation) is not the only aspect that determines trust in this context (Searle, Den Hartog et al., 2011). Von der Ohe, Martins and Roode (2004) subsequently investigated the conceptual link between the elements of the five-factor model of personality and the behaviour linked to various elements of trust.

**Table 3.6. Linking the FFM personality dimensions to trust**

| Personality dimension | Behaviour per dimension   | Elements of trust                                    |
|-----------------------|---|--|
| Conscientiousness     | Persistence, determination, hard-working nature, dependability, thoroughness and responsibility | Integrity, authenticity, predictability, consistency |
| Agreeableness         | Being liked, courteous, good-natured, cooperative, forgiving and soft-hearted                   | Benevolence, demonstrating concern, loyalty          |
| Emotional stability   | The absence of anxiety, depression, anger, worry and insecurity                                 | Inspiring  |
| Resourcefulness       | Imaginativeness, creativeness, broadmindedness and intelligence                                 | Competent, achieving results                         |
| Extraversion          | Sociability, friendliness, talkativeness and activity   |  |

Adapted from Von der Ohe, Martins and Roode (2004, p. 14).

When considering the behaviours described in Table 3. that link personality and trust, Widiger and Costa (2012, p. 1478) make the important observation that balance is very important when we study personality. A person too high or too low on for instance agreeableness will move from being well adapted to being maladapted. In the case of trusting behaviour, a trustee can be high in trust (positive) or be gullible (maladaptive) on the one hand, and sceptical (positive low trust) or paranoid because of an extreme lack of trust. Rotter (1980, p. 5) reports that low trustors perceive high trustors as “plain dumb”, despite the fact that there is no correlation with any indicator of intelligence (such as SAT scores). However, Rotter points to anecdotal evidence that, on the contrary, these low trustors were the ones fooled by confidence tricksters, although there seems to be no empirical evidence of this.

In the next section, managerial practices will be discussed, considering that they represent the ‘other side’ of behaviour in the dyadic trust relationship in any organisation. Intuitively, one expects the behaviour of managers or leaders to influence trust.

### *3.4.3 Managerial practices as antecedents of trust*

While the propensity to trust and a trusting disposition are coupled to personality and as such to individual differences, there are contextual factors that enable individuals to trust

others in an organisation. Searle, Weibel et al. (2011) identified these contextual factors as leadership, HR practices, justice and control. Other factors are status and reputation.

In the first systematic review and meta-analysis of the antecedents of trust, Dirks and Ferrin (2002, p. 622) not only referred to leadership styles, but mentioned the term “management practices” itself. They identified the following managerial practices that help to increase trust in leadership:

- Ensuring fair procedures, outcomes and interactional processes
- Providing organisational support
- Ensuring expectations are fulfilled
- Using participative decision making

Making use of a transactional and transformational leadership style will also increase trust in management. Interestingly, Dirks and Ferrin (2002, p. 622) suggest that it is important for research to concentrate not only on follower perceptions, but rather to focus on objective behavioural measurement and actual managerial practices. Fortunately, the model that is under review in this study investigates managerial practices, as are discussed in this section.

To identify the managerial practices that were expected to influence a trust relationship in an organisational setting, more than a hundred interviews were conducted. The aim was to determine what managers and supervisors could do to enhance trust. The themes that were identified were then captured as items in a managerial practices questionnaire (see Chapter 4 for a discussion of these items and statistical properties).

The managerial practices identified were information sharing, work support, credibility and team management (Martins et al., 1997, p. 4). They covered a number of aspects (Martins, 2002; Martins & von der Ohe, 2011) and their standardised descriptions are as follows:

- **Credibility.** This includes a willingness to listen, to consider proposals, to allow others the freedom to express feelings, to tolerate mistakes and to ensure that employees enjoy prestige and credibility in the organisation.
- **Team management.** This dimension refers to effective management to accomplish team and individual goals and to handle conflict in groups.
- **Information sharing.** This indicates a willingness to give individual feedback on performance and to reveal company-related information honestly.
- **Work support.** This deals with the willingness to support employees when necessary and provide job-related information to accomplish objectives.

Bews and Martins (2002, p. 14) found that the following six antecedents of perceived trustworthiness (or in their terminology – “facilitators of trustworthiness”) could predict trust:

- Benevolence
- Competency
- Integrity
- Personality characteristics
- A history of interactions
- Openness

The first three antecedents are the well-known ABI (Mayer et al., 1995), while personality refers to the “Big Five” of agreeableness, conscientiousness, emotional stability, extraversion and resourcefulness (as used by Martins, 2000). Bews and Martins (2002) also suggest that the previous experience that a trustor has had with the trustee will influence perceived trustworthiness – this is normally implied as the source of knowledge for ABI. Lastly Bews and Martins (2002) suggest that a balanced openness with regard to information sharing is important. The balance is important as too much information can be just as harmful as too little. This finding was confirmed by the fact that openness was the weakest predictor of trustworthiness, compared to benevolence, which had the highest predictive powers. The question remains though whether openness is not part of benevolence (see for instance Engelbrecht and Cloete, 2000, p. 25).

In the South African context it was found that ABI together explain more than 85% of the variance in trust; 86% in the case of upwards trust of subordinate to supervisor (Engelbrecht & Cloete, 2000, p. 26) and 87,2% in the case of the study by Bews and Martins (2002, p. 18). Bews and Martins (2002, p. 18) also re-affirmed the Martins (2000) model and found a positive relationship between agreeableness and conscientiousness as personality factors, and interpersonal trust.

In a follow-up study (Von der Ohe, Martins & Roode, 2004) found that credibility (as a managerial practice) and again agreeableness and conscientiousness (as personality factors) contributed most to the trust relationship. As will be seen further on, the number of dimensions were increased in later studies as more information was needed, especially for practical reasons. Participating organisations increasingly requested additional information as part of the organisational consultation process.

#### 3.4.4 *The trust relationship*

The final section concerned the trust relationship itself. This was measured by the following five questions:

- I have an open, trusting relationship with the person I report to.
- The person I report to openly and honestly reveals important work-related facts to me.
- The person I report to is fair in judging my performances.
- The person I report to demonstrates good intentions and motives towards me.
- I can believe what the person I report to says.

As can be seen from the questions, they only deal with interpersonal trust aspects between trustors as employees and their immediate supervisor. The trust relationship dimension reflects the relationship with the immediate supervisor in terms of openness, honesty, fairness and intention to motivate employees (Martins, 2002). Dirks and Ferrin (2002, p. 616) suggested that for the sake of conceptual and theoretical clarity, the items used to determine trust need to be classified as either relational (socio-emotional) linked to affective trust, or as character-based associated with cognitive trust. This distinction will have to be considered when evaluating the model, as this may have an indirect influence on the outcomes that will be found to be significant (Dirks & Ferrin, 2002, p. 617). There is also a possibility that certain managerial practices may increase certain types of trust. Consequently it is important to ensure that the correct type of trust is measured and not another type of trust. To overcome this, many studies use a mixture of both to get an indication of “overall trust” (Dirks & Ferrin, 2002, p. 616).

#### 3.4.5 *Scale reliability and validity, including organisational trust and change dimensions*

At a later stage, two more dimensions were added to the questionnaire (Von der Ohe & Martins, 2010). Firstly, a section that measured organisational trust. This new dimension focused on a 360-degree view of organisational trust as it specifically looked at the trust relationship between top management, the immediate manager and colleagues and lower-level employees. Secondly, a section was introduced that tried to measure participants' satisfaction with changes that had occurred in their organisations (Von der Ohe & Martins, 2010; Martins & Von der Ohe, 2011).

**Table 3.7. Statistical properties of the scales in the Martins model**

| Construct                                 | n  | Cronbach's<br>alpha<br>2002 | Mean<br>2008 | Standard<br>deviation<br>2008 | Cronbach's<br>alpha<br>2008 | Cronbach's<br>alpha<br>2009 | Cronbach's<br>alpha<br>2013 |
|---|----|-----------------------------|--------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Conscientious-<br>ness                    | 8  | 0,929                       | -            | -                             | -                           | -                           | 0.954                       |
| Agreeableness                             | 8  | 0,947                       | -            | -                             | -                           | -                           | 0.980                       |
| Emotional<br>stability                    | 5  | 0,870                       | -            | -                             | -                           | -                           | 0.952                       |
| Resourceful-<br>ness                      | 7  | 0,871                       | -            | -                             | -                           | -                           | 0.852                       |
| Extraversion                              | 7  | 0,887                       | -            | -                             | -                           | -                           | 0.940                       |
| Trust<br>relationship                     | 5  | 0,908                       | 3.610        | 1.007                         | 0.929                       | 0.920                       | 0.941                       |
| Team<br>management                        | 9  | 0,888                       | 3.479        | 1.980                         | 0.925                       | 0.923                       | 0.947                       |
| Work support                              | 3  | 0,824                       | 3.412        | 1.102                         | 0.900                       | 0.890                       | 0.945                       |
| Information<br>sharing                    | 4  | 0,841                       | 3.126        | 1.060                         | 0.851                       | 0.860                       | 0.602                       |
| Credibility                               | 13 | 0,939                       | 3.303        | 1.015                         | 0.962                       | 0.961                       | 0.944                       |
| Organisational/<br>Interpersonal<br>trust | 9  | -                           | 3.216        | 0.806                         | 0.876                       | 0.864                       | 0.874                       |
| Change                                    | 11 | -                           | 3.078        | 0.863                         | 0.900                       | 0.883                       | 0.940                       |

1997 = Martins et al. (1997) (n= 475)

2002 = Martins (2000); Martins (2002); Von der Ohe, Martins & Roode (2004) (n=6528)

2008 = Von der Ohe & Martins (2010); Martins & Von der Ohe (2011) (n=307)

2009 = Martins & Von der Ohe (2011) (n=484)

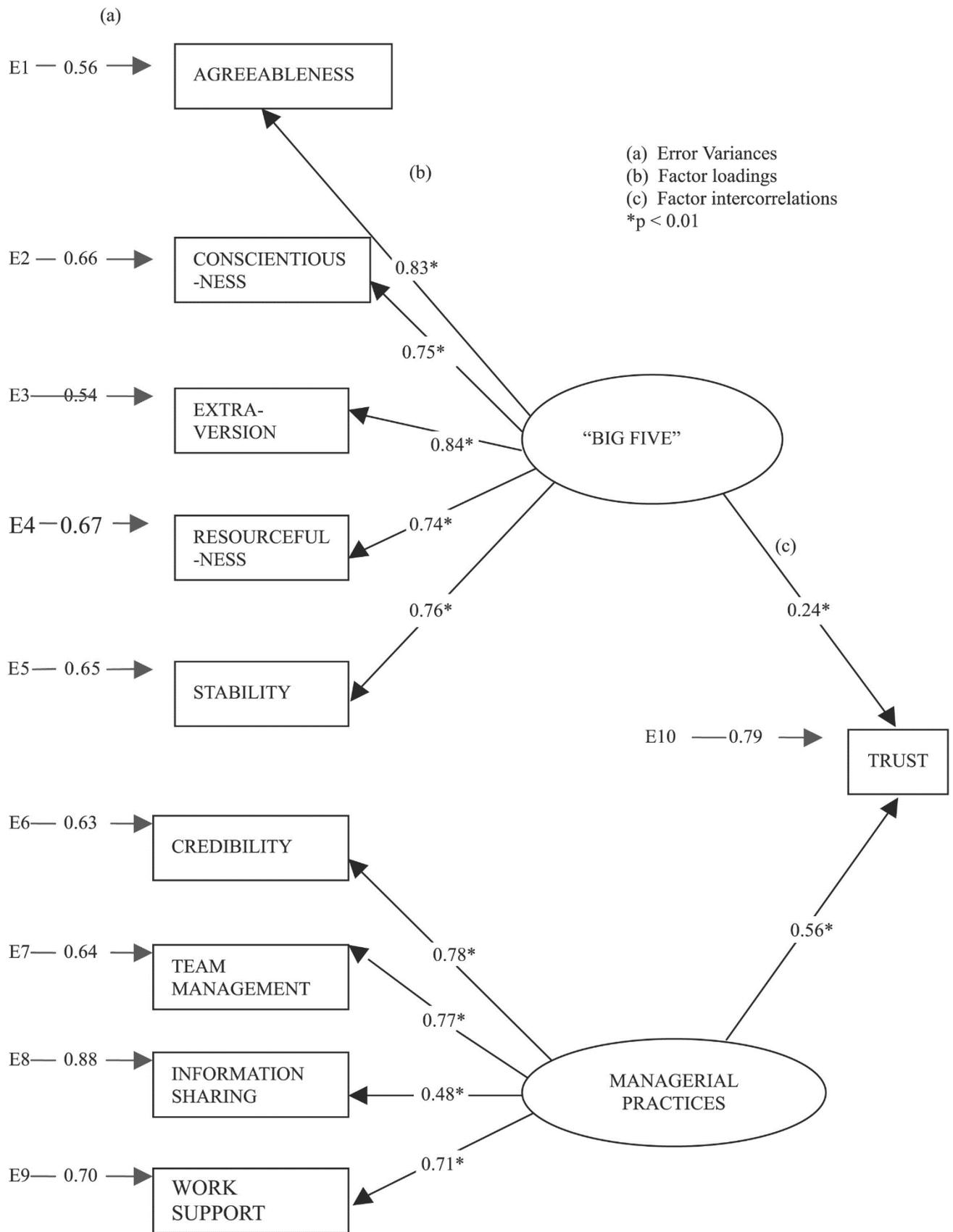
2013 = Van der Berg & Martins (2013) (n= 203)

n= number of items in scale

In Table 3.7 the statistical properties of all the scales in the model are reported. What is clear from this table is that the internal consistency or reliabilities (Cronbach's alpha) are high and also stable over time. The exception is the information sharing scale that dropped to 0,60 in 2013. Van den Berg and Martins (2013) also did not find a correlation between information sharing and the other managerial practices included in the model. The fact that this scale measures a very specific type of information sharing related to work performance might explain the low internal variability as the 2013 sample consisted of sales representatives who do not depend on feedback from their supervisor or others to improve performance. Their performance is more dependent on their own and extra-organisational factors and not so much their internal performance feedback. The fact that these items showed no real

internal consistency also had an effect on the final model composition. The limitations mentioned should not be seen as a repudiation of the model, but it does mean the model has to be re-evaluated in the current study – as will be done in Chapter 4.

Using the data from 6 528 employees from 22 organisations, Martins (2002) applied structured equation modelling techniques (SEM) to validate the above model. The revised model is given in Figure 3.9. What emerges from this revised model is that there is a correlation between the Big Five and trust, and between managerial practices and trust. Agreeableness is the biggest contributor to the Big Five (44% of the variance), while information sharing only contributes 12%. This seems to agree with the findings in other studies (Mooradian, Renzl & Matzler, 2006) and will be discussed in more detail below.



**Figure 3.9. Empirical evaluation of the trust relationship model**  
 Source: Martins (2002, p. 765)

Furthermore, the model shows that there is a strong relationship between the Big Five and managerial practices itself, and with trust. The relationship between the personality aspects and trust is not strong yet significant, while the relationship between the managerial practices and trust is much stronger and positive (p. 763). The high relationship between managerial practices and the Big Five suggests that mediation or moderation needs to be investigated based on sound theoretical and conceptual leadership research literature – not only the trust literature.

Van der Berg and Martins (2013) re-evaluated the Martins (2000) model and took into consideration the SEM modification indices. According to this analysis, which excluded information sharing and included the two added dimensions of change and interpersonal trust, the above model still showed good model fit. In longitudinal studies using the Martins 2000 model, it was found that during times of change trust levels were sustained over time. However, this could not be construed as proof of the stability of the construct (von der Ohe & Martins, 2010) and of the highest levels of trust being exhibited in the relationship between peers or immediate supervisors. The larger the vertical distance between managers and employees, the lower was the trust level (Martins & von der Ohe, 2011, p. 305). (These findings will be discussed in more detail in chapter 4.)

What needs to be questioned though is why the original model did not support the dimensions on personality aspects and why the information-sharing dimension could only explain 12% of the variance – contra to what the theoretical and empirical literature predicted. Martins (2002, p. 766) suggested additional items that should be used to strengthen the information-sharing dimension, as it only measured two aspects of information sharing in a managerial context, namely “individual feedback performance and the revealing of company-related information (two questions each)”. Considering this type of item content, there might be a connection to Khan and Maalik (2011, pp. 1045-1046) who also found no significant relationship between employee feedback and trust in a Pakistani banking sample. Supporting this weak link, Dirks and Ferrin (2001, p. 452) found that of the ten studies they examined, only six reported a significant main effect for increased information sharing as a result of trust in leaders or co-workers.

The question concerning information sharing that needs to be asked is the following: if it is not directly associated with managerial practices (Martins 2002, p. 763), what does it relate to and what does it really measure? Since the items grouped under information sharing refer to performance feedback, this might not point to a problem with information sharing in the organisation but rather a problem with the supervisor. How does it link to the 360-degree

evaluation and the literature on the role of the supervisor (manager relationship)? He et al. (2009, p. 529) referred to Andrews and Delahey who found

*that the value of information is dependent on the credibility of the information source, and that the more equivocal the knowledge to be transferred, the more reliance is placed on evaluating the knowledge source, rather than the knowledge itself.*

#### 3.4.6 Personality, knowledge sharing and trust

Does trust lead to openness to share knowledge, or do we need openness to trust, or both? The question that needs to be clarified is one of antecedents and outcomes. The Martins model incorporated personality traits from the beginning (Martins et al., 1997). Before discussing the latter, some other attempts to link these concepts will be discussed.

In the knowledge management literature researchers grapple with the problem that knowledge sharing seems to be influenced by employees' 'predisposition to share information' (the researcher's own term), which they link to personality traits. The trust literature also acknowledges that the propensity to trust is a trait that is determined by inter alia personality traits. The link between the two literatures then seems to be by way of personality traits that play a role in both. This might also clarify the place of trust in the knowledge-sharing process as it has been relatively well established that interpersonal trust (especially in the work environment) influences levels of knowledge sharing. For instance, Abrams, Cross, Lesser and Levin (2003) believe in a person's competence or benevolence; Levin and Cross (2004) support competence-based and benevolence-based trust; McEvily et al. (2003) believe that increased openness facilitates cooperation; and Mooradian et al. (2006) support agreeableness and propensity to trust. Matzler, Renzl, Müller, Herting and Mooradian (2008) concentrated only on the relationship between personality and knowledge sharing, but by linking them to the above findings, the link to the trust literature can be made.

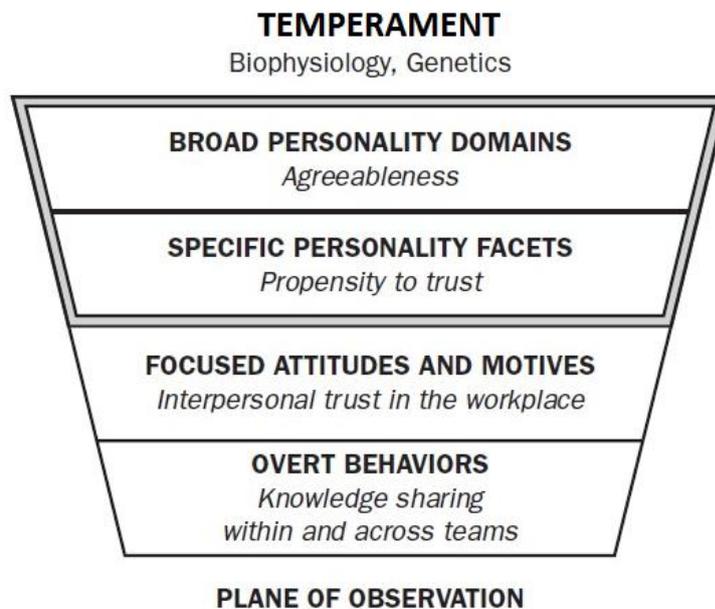
An aspect that gets overlooked in most of the organisational psychology literature is the fact that the propensity to trust is also a

*generalized and enduring predisposition that is neither focused on specific others nor dependent on specific contexts, and which may be related to lifetime experiences but also to temperament, and thereby to genetics and bio-physiological structure.*

(Mooradian et al., 2006, p. 525)

This would then classify the propensity to trust as trait trust. Trait trust is not to be confused with state trust or situational trust, which Chughtai and Buckley (2008, p. 50) define as "one person's assessment of the trustworthiness of a specific other individual".

One of the overt behavioural outcomes of interpersonal trust is knowledge sharing (Mooradian, 2006, p. 533), while the propensity to trust is seen as trait trust and as a facet of agreeableness in the Costa and McCrae framework (Mooradian et al., 2006, p. 527). The link with state trust (interpersonal trust) is illustrated in Figure 3.10.



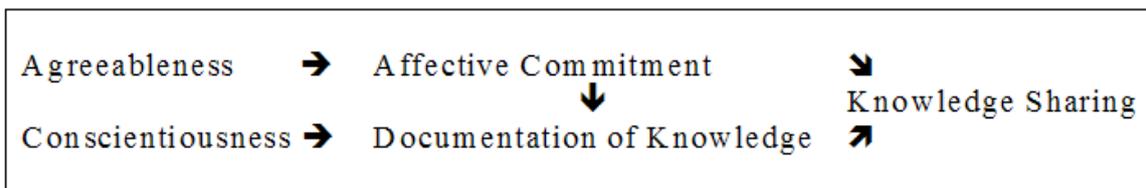
**Figure 3.10. General hierarchical model of personality, interpersonal trust and knowledge sharing**

Source: Mooradian, Renzl & Matzler (2006, p. 529)

The most important consideration in this model is that no causality is implied and propensity to trust is not a consequence of agreeableness. It is a “facet or component of agreeableness. It is part of the broader domain of agreeableness” (Mooradian et al., 2006, p. 528). The above conceptual model is empirically supported by a Structural Equation Model (SEM). In a following study, Matzler et al. (2008) empirically related not only agreeableness, but also conscientiousness and openness as personality traits to knowledge sharing. Although they do not include trust (or vulnerability) in their study, linking it with the Mooradian et al. (2006) study, the link can in future be made to how conscientiousness and openness as personality domains not only influence knowledge sharing and interpersonal trust, but also the other domains of personality.

On a practical level, personality selection instruments could be used to identify persons to fill positions that are crucial for efficient knowledge sharing, or to coach those that fill these positions if it becomes apparent that they are hindering knowledge sharing because of their

personality composition (Matzler et al., 2008; Mooradian et al., 2006). Persons high in agreeableness, openness and conscientiousness would be crucial team members when it comes to knowledge sharing. Additionally, employees who are high in conscientiousness, through the link with OCBs, could be counted on to maintain knowledge management systems (Matzler et al., 2008, pp. 309-310). Matzler, Renzl, Mooradian, von Krogh and Müller (2011) refined this model by concentrating on the relationship between conscientiousness and agreeableness and affective commitment and “documentation of knowledge” as components of knowledge sharing. Documentation of knowledge is seen as representing “extra-role behaviours” (p. 305), and as such could be seen as OCBs. Affective commitment (influenced by agreeableness) influenced both knowledge sharing itself and the “documentation of knowledge”. The latter, being influenced by conscientiousness (compare Matzler et al., 2008), plays a large role in knowledge sharing in the organisation. Figure 3.11 is a simplification of an empirical model that should make these relationships clearer.



**Figure 3.11. Effect of agreeableness and conscientiousness on knowledge sharing**  
Based on Matzler et al. (2011, p. 305)

In the next section the other side of the model will be discussed, in other words how managerial practices link to knowledge sharing and interpersonal trust.

### 3.4.7 Managerial practices, knowledge sharing and trust

Following much the same procedure that Martins et al. (1997) adopted, Abrams et al. (2003, p. 65) conducted 40 semi-structured interviews in twenty organisations to determine managerial behaviours and practices that enhance interpersonal trust in a knowledge-sharing context. They identified five trustworthy behaviours that build trust:

- Act with discretion
- Be consistent between word and deed
- Ensure frequent and rich communication
- Engage in collaborative communication
- Ensure that decisions are fair and transparent

They also identified two organisational and relational factors each, and one individual factor. The organisational factors that improved interpersonal trust were to establish and ensure a shared vision and language and to hold people accountable for trust. The relational factors were to create personal connections and to give away something of value. The individual factor that contributed to enhanced interpersonal trust was self-efficacy (disclose your expertise and limitations). Each one of these was linked directly to a highly practical managerial action or behaviour that could be used as a trust builder (Abrams et al., 2003, p. 67). The actions could also be used as a base from which to develop additional items if it would become necessary to improve the current questionnaire. An example could be “The manager I report to does not divulge personal information shared in confidence”.

Wang, Noe and Wang (2011) made an effort to link knowledge sharing, the Big Five and accountability-inducing managerial practices (evaluation and/or rewarding knowledge-sharing contributions). They found that, if not only evaluated on the quality of their knowledge-sharing contribution, but also incentivised, their contribution was greater than if they were only evaluated and not rewarded. This was to be expected, but they also found that if employees were not held accountable (or rewarded), they hardly shared any knowledge at all (Wang et al., 2011, p. 21). Concerning the interaction between accountability and incentives on the one hand and personality traits on the other, they found that for employees low on conscientiousness and higher on neuroticism, rewards and evaluation had the biggest effect. As in other studies, highly conscientious or extrovert individuals shared information, even if they were not evaluated or rewarded. Again concerning the link between trust and knowledge sharing, Wang and Noe (2010, p. 121) noted in their review that others have found that benevolence is not related to knowledge sharing and that less knowledge was shared with team members high in ability. This might help explain certain of the seemingly anomalous results that Martins and colleagues encountered.

#### 3.4.8 Information sharing

The underlying paradox concerning trust and information was noted by Pagden already in 1988. He argued that

*(i) if there is no information at all concerning the other agent, from experience or reputation, there is no basis for trust, but if there were full information, yielding certainty about the other's conduct, one would no longer speak of trust.*

(Six et al., 2010, pp. 304-305)

As far back as the 1950s, Simmel was of the opinion that if we had complete knowledge or absolute ignorance of the referent party, we would not be able to trust (Möllering, 2013, p. 55). A certain level of uncertainty or lack of information is therefore necessary to develop or maintain trust. Mayer and Davis (1999, p. 124) refer to their own still relatively new conceptualisation (that is to say Mayer et al., 1995), and explain that as this definition of trust refers to the willingness to be vulnerable and consequently to engage in risk-taking, one can identify these risky behaviours as outcomes of trust. The outcomes are for instance cooperation and sharing sensitive information.

As becomes clear from the preceding paragraph, to only stay within the trustworthiness dimensions of ABI is sometimes very limiting as it only considers the information that we have of the trustee, while from an information-sharing viewpoint it might be more interesting to investigate how trustors treat incomplete or inconclusive information (Möllering, 2013, p. 54). Information sharing consequently gains in importance to determine trustworthiness. To recapitulate the brief introduction in Chapter 1, Shaw (1997, p. 13) makes the following remark:

*A high level of trust allows people to say what is on their minds and not feel that it will come back to hurt them. A sufficient level of trust ensures that the lines of communication are open and that no one is hiding information or wasting time trying to decide the political implications of his or her views.*

#### 3.4.8.1 Information sharing or knowledge sharing

For the purposes of this study, knowledge sharing or information sharing will use the knowledge management literature as a guideline, seeing that knowledge sharing is an activity central to knowledge management (Amayah, 2011). In their review for the *Human Resource Management Review*, Wang and Noe (2010, p. 117) state that there is no agreement on the difference between knowledge and information and that the terms are often used interchangeably as there is not much practical value in distinguishing between them in most research. This approach will be followed in the following sections, as it is often not possible to distinguish from an outsider's perspective when an employee might consider something as 'just information' or as 'knowledge gained'. In the case of the items used in the current study that address the sharing of data about the trustors' performance, these items could be categorised as 'information sharing'.

*Information sharing is a mechanism that enables employees to be accounted for to achieve their goals and achieve the goals at a higher level.*

(Blanchard et al., 2001, in Ghani & Hussin, 2009, p. 123)

To overcome the problem of low information sharing, organisations often set up knowledge management systems but are then disappointed with their investment in such systems, as employees tend not to use them optimally (He, Fang & Wei, 2009, p. 526). They attribute this situation to low trust on a general level in the organisation itself, which is not due to a lack of interpersonal dyadic trust, but rather a collective level of trust that is lacking. This is especially true in big organisations where employees hardly know each other on an interpersonal level. Rousseau et al. (1998, p. 402) make the interesting observation that trust is a necessary precondition for employees to self-organise.

In the context of the use of corporate KMS (Knowledge Management Systems), He et al. (2009) found that trust plays a crucial but indirect role when it comes to knowledge-seeking behaviour, as trust influences the perceived usefulness of the knowledge. Linked to this, Goman (1991, p. 72) states that formal communication such as annual meetings, reports, and others are what the organisation says is important, while informal communication is what the people in the organisation do to indicate issues of importance. She then states that congruence between informal and formal communication is a prerequisite for communicating for loyalty. She states that if formal communication is used correctly, trust increases, but if there is a lack of congruence between the amount of official information compared to informal communication, this shows workers the gap and from this follows distrust. Horton and Reid (1991, p. 182) add that communication with low believability “will fall on deaf ears” and is one of the biggest reasons for employees to distrust top executives. More than half of the managers did not believe top management and complained that top executives were not open with them but often misled them about what was actually happening in the organisation.

#### *3.4.8.2 Knowledge sharing and trust in organisations*

When it comes to communication or knowledge sharing and the role of trust and its influence on work performance, there has not been much clarity (Dirks & Ferrin, 2001). Concerning the question if communication is an antecedent or consequence of trust, or both, Zeffane, Tipu and Ryan (2011, p. 78) found that although their data does not lend itself to structural equation modelling, it seems that good communication is mostly an antecedent of trust (p. 82) although trust also enhances future communication to a lesser degree.

According to McNeish and Mann (2010), trust is viewed as one of many antecedents of knowledge sharing; in other words, for information sharing to happen, trust has to exist. Lee et al. (2010, p. 5) propose that "... by building the team's knowledge and expertise, leaders engender the trust of their team". To clarify these seemingly contradictory statements, one can see trust as an alternative to monitoring or verifying information when it is not possible to confirm if the information is correct, and trust can thus function as both an antecedent and a consequence of knowledge sharing (McNeish & Mann, 2010, p. 21).

Whitener et al. (1998) previously followed a slightly different tactic when investigating antecedents to managerial trustworthy behaviour (Burke et al., 2007, p. 610). They summarised their work as follows:

*Five categories of behavior capture the variety of factors that influence employees' perceptions of managerial trustworthiness: 1. behavioral consistency, 2. behavioral integrity, 3. sharing and delegation of control, 4. communication (e.g., accuracy, explanations, and openness), and 5. demonstration of concern.*

(Whitener et al., 1998, p. 516)

Two of these categories can be linked to information sharing and communication. The fourth category is obvious as it is by definition concerned with information sharing and communication. The not-so-obvious category is behavioural integrity.

If managers "follow through on their promises and commitments", researchers refer to behavioural integrity (behavioral integrity theory; Simons in Tomlinson & Mayer, 2009, p. 94). Behavioural integrity is a major part of ethical management behaviour. It is also described as a perceived pattern of 'word-deed-alignment' and occurs when a supervisor or manager behaves in a consistent manner -- thus reducing the risk for the trustor and making it easier to trust them (Fulmer & Gelfand, 2012, p. 1184; Kalshoven, den Hartog & De Hoogh, 2011, pp. 53-54; Simons, 2002, p. 18; Whitener et al., 1998, p. 516). It is, in other words, the embodiment of the colloquial saying "walks her talk" and "talking her walk" (Simons, 2002, p. 19). With regard to team members' trust in each other, Palanski, Kahai and Yammarino (2011) found that depending on how transparent members were in communicating with each other, increased behavioural integrity (as mediator) resulted in higher team trust and team performance. Transparency here refers to the "amount of information shared and amount of explanation for decisions made" (Palanski et al., 2011, p. 204). According to the latter, the more information is shared, the higher the possibility of enhanced behavioural integrity to take root in a team. If no or little information is shared, then it is difficult for the other team members to determine behavioural integrity. However, Palanski et al. (2012) warn that,

although very seldom the case, this is not a one-sided affair, as high transparency can lead to sufficient information of such a nature that team members perceive their co-team members as not acting with behavioural integrity.

Sarker et al. (2011) tried to answer the question whether trust mediates, moderates or adds to the relationship between communication (or information sharing) and work performance in virtual teams. Their results supported a mediation model, in other words: communication leads to trust; trust leads to performance. This supports Becerra and Gupta (2003) who found that the frequency of communication moderated the impact of other antecedents on perceived trustworthiness between senior level managers, as well as Zolin et al. (2004, p. 6) who mentioned that a lack of information will increase perceived risk, which will necessitate even higher perceived trustworthiness to make trust possible.

If a team has high trust, then the leader is able to use their abilities to the full extent. A team that is comfortable with direct and honest communication is more likely to consider various alternatives and come to better and more timely decisions. Conversely, a high-trust culture is also needed if negative information is to be shared. According to Shaw (1997), distrust builds a barrier to sharing negative or painful information as it often results in an unwillingness to communicate negative information for fear of the consequence:

*...clearly, filtering or editing information because of distrust ultimately undermines the ability of an organization to adapt.*

(Shaw, 1997, p. 15)

Information sharing can be perceived as involving some risk to an individual as opponents could use the information to take advantage of an individual's vulnerability in a negotiation (Butler, 1999). According to Butler (1999), Zand's (1972) model of the dynamics of trust specifies causal effects of initial trust expectations on subsequent information sharing between two people. As information sharing tends to reinforce the initial trust between negotiators, and the consequent trust further enhances the information sharing (Lee et al., 2010, p. 5), Butler (1999, pp. 219-220) argues that the result is

*... a mutually reinforcing dynamic spiral of trust and information sharing within the dyad. When the initial expectation is one of mistrust, the spiral deteriorates into decreased information sharing and reduced trust.*

Whitney (1994, p. 22) sees untrustworthy information as one of the five inter-related causes of mistrust. Incomplete, biased or wrong information produces defensive mechanisms in people who have to act upon it, which then drives the cycle of mistrust. Useful information

that is offered without fear of ill-feelings or reprisal, on the other hand, will help problems to surface and solutions to be found "that otherwise would be submerged in a melange of political activities and bureaucratic nonsense" (Whitney, 1994, p. 95).

In this practical application of Zand's model (1972; 1997), Butler (1999, pp. 220-222) conducted a study to examine the correlations of trust and information shared (quantity) with a negotiation's efficiency and effectiveness. His initial hypotheses were that

- initial trust expectations would result in information sharing;
- this information sharing would mediate the relationship between individuals' expectations of trust and a climate of trust;
- both the information sharing and the climate of trust between subjects (negotiators) would be related to the so-called logrolling negotiation process (or win-win situation), and
- both the climate of trust and the extent of information sharing that exists between negotiators would be associated with the efficiency of logrolling.

Butler (1999) found that information sharing followed from initial trust expectations, but information quantity shared did not fully mediate the relationship between expectations and the climate of trust. The implications of this are that "... expectations directly caused both information exchange and a trusting climate, and some of the effect of expectations on climate operated through information" (Butler, 1999, p. 229). He goes on to argue that negotiators should, as a point of departure, ensure they can trust each other and only then should they share as much information as possible. This again underlines the importance of initial trust expectations. According to Butler (1999, p. 233), openness and receptivity could be expected to relate to information exchange. Other conditions include competence, consistency, discretion, loyalty, honesty, and integrity.

Mishra and Spreitzer (1998) investigate how survivors respond to the downsizing of organisations by investigating the role of trust, empowerment, justice and work redesign. They argue that trust (and justice) influence the primary appraisal of the downsizing and thus facilitate more constructive responses by the survivors, because they reduce the extent to which organisational downsizing is evaluated as a threat. In respect of information sharing, Mishra and Spreitzer (1998) state that one of the aspects that may violate the trust relationship between management and survivors when downsizing occurs, occurs when important information is withheld. Top managers should rather share information openly, as this reduces uncertainty for the survivors. They furthermore argue that a lower level of

ambiguity and uncertainty allows individuals to work together more easily to deal with a stressful encounter such as downsizing.

In the case of organisational downsizing, Mishra and Spreitzer (1998) emphasise the importance of information sharing as one of the major components of trust, together with management's ability or willingness to keep their promises. They (1998, p. 575) contend that

*... a survivor who initially has low levels of trust in top management may find the downsizing implemented in a way that enhances his or her trust in management (e.g., top management keeps its promises or **shares sensitive information**). Thus, because initial levels of trust may change during the course of the downsizing, we suggest that subsequent levels of trust also may have an influence on survivor responses. (added emphasis)*

As they point out, it is ironic that at the stage when an organisation needs trust the most, it is destroyed by downsizing, which again underscores the importance of sharing information during crisis times.

Whitney (1994, p. 63) suggests that managers treat employees with respect, in other words that they trust their judgement by sharing the necessary information. He elaborates on this by reiterating the importance of communication, explaining the organisation's mission and vision, and each employee's role in the attainment of the goals (Whitney, 1994, p. 65). However, this is often easier said than done as organisations are "paranoid when it comes to sharing information. Either that or they believe that employees and managers are not competent to understand the information that is available – which, of course, is a self-fulfilling prophecy" (Whitney, 1994, p. 73).

Following a detailed look at the impact of information sharing and communication on organisational trust relationships, as well as the inherent problems caused by information sharing and communication, in the next section an attempt will be made to describe the results that have emerged from South African trust research in some detail.

### **3.5 South African trust-related research**

In South Africa, research on trust was formalised with a conference that was hosted by the Department of Industrial Psychology at the University of South Africa on 30 October 1997 and the consequent publication of a special edition of the *Journal of Industrial Psychology* in

2002 (Bews, Martins & Von der Ohe, 2002). Most of the research on trust in South Africa has been conducted by Martins and colleagues of the Department of Industrial and Organisational Psychology of the University of South Africa and their students.

Over the last few years, two South African studies (Bagraim & Hime, 2007; Monji & Ortlepp, 2011) used the 12-item Organisational Trust Inventory (OTI) by Nyhan and Marlowe (1997) or parts thereof. Schlechter and Strauss (2008) made use of the Workplace Trust Survey (WTS) in their study of leaders' emotional intelligence. In their relatively small convenience sample, Monji and Ortlepp (2011) found a weak but significant negative relationship between organisational trust and an employee's intention to leave, but a strong significant positive relationship with job satisfaction. Bagraim and Hime (2007) on the other hand found in their more representative sample that trust in the supervisor was characterised by relatively high levels of ABI (higher than for co-workers) and that this was associated with a high affective commitment to the supervisor. Conversely, trust in co-workers and an affective commitment for co-workers were moderately low (though significant).

When studying intra-organisational trust in the South African context, it is important to remember the interaction between various cultures and nationalities. In the foreword to the book *Organizational Trust: A Cultural Perspective* by Saunders, Skinner, Dietz, Gillespie and Lewicki (2010), it is reiterated that although trust is studied so widely, it still is hard to pin down what it is, how it is developed and sustained – even more so from a cross-cultural viewpoint (Cooper & Pearce, 2010). This is especially difficult in an organisational context where individuals from different cultures bring with them their own expectations and ideas about whom to trust when and why. It is difficult enough to understand how individuals in different cultures build, maintain and repair trust, without having to consider how this occurs between different cultures. The question here is: how do signals (of trustworthiness) get used and interpreted when used by individuals from different cultures? In the following sections, cross-cultural trust will be investigated.

Wasti and Tan (2010) point out that the Mayer et al. model has often been applied outside the culture in which it was developed (North America). The following question arises: is there a difference between how we understand the antecedents and development of subordinates' trust in their supervisors in a collectivist culture? To address this issue, Wasti and Tan (2010) investigate "culture-specific workways" in China and Turkey – two collectivist and high-context cultures. Workways are "the pattern of workplace beliefs, mental models and practices about what is true, good and efficient within the domain of work" (Wasti & Tan, 2010, p. 311).

They propose that both professional and personal life domains must be taken into account in collectivist countries, in contrast to the USA where personal and socio-emotional concerns are not as important for the formation of a trusting relationship.

One of the most important aspects that emerged from the Wasti and Tan (2010) study is that the Mayer et al. (1995) ability-benevolence-integrity framework is generalisable to collectivist cultures in transition such as Turkey and China. This might indicate that the ABI framework is also applicable to the South African context, as the majority of the South African population is considered a collectivist culture (Eaton & Louw, 2000; Urban, 2006). The white subculture on the other hand is probably influenced by the Relational Protestant Ideology, which “*refers to a deep-seated sentiment that affective and relational concerns ought to be put aside at work in order to direct one’s attention to the task at hand*” (Wasti & Tan, 2010, p. 313). Wasti et al. (2011, p. 17) see this as an explanation of why even the items that are supposed to elicit affect-based trust are always phrased in an organisational context, while this would not really make sense in a collectivist culture. Another point to consider in this case is that Eaton and Louw (2000, p. 216) suggested that Eastern collectivism (as is mostly prevalent in trust research) differs from African collectivism. *Ubuntu* – although not collectivism in the Japanese sense – is still far removed from individualism on the individualism–collectivist continuum (Urban, 2006, p. 174).

In a follow-up study on the foci of trust, Wasti, Tan and Erdil (2011) again investigated workplace trust in specific antecedents of trustworthiness in horizontal as well as vertical relationships (supervisor, peer and subordinate trust). Their speculation that in more collectivist countries the affective and relational components will predominate was confirmed to a degree. They found that perceived ABI was just as important an indicator of trustworthiness for employees in collectivist countries as in Western countries, except that benevolence was by far the most important antecedent. Unlike in Western research, they found that personal generosity by trustees indirectly leads to cognitive trust, because of personal attachment to the leader (trustee). Interestingly, they confirmed another antecedent – reciprocity, which occurs when a manager, as a trustee, responds to a subordinate’s signs of trust by displaying trusting behaviour such as delegating, disclosing and empowering the employee. By engaging in such behaviour, the manager shows his/her willingness to be vulnerable to the employee. This then forms a base for a new round of trust building.

In another collectivist sample, Chua, Morris and Ingram (2009) found that family-based collectivism, based on family-like relationship networks in business, counted more for

Chinese managers than for Western managers when it came to developing trust relationships. Cognitive-based trust and affect-based trust are found to be intertwined and it is not regarded inappropriate or corrupt to use interpersonal relationships to achieve business goals. The latter is contrary to the Western notion of “ethical” behaviour – so far so that Wasti et al. (2011, p. 506, Note 5) refer to the fact that Americans will reduce affective connections with a trustee if they receive a contract from an associate, in order for them to seem to be impartial.

The question here is: does this also apply to cultures such as black South Africans? From own experience, the spill-over effect to the personal domain can be confirmed. Wasti et al. (2011, p. 17) mention that a professional relationship spill-over to the personal domain can be confirmed as colleagues would travel to far-flung areas to attend funerals of persons whom they had never met, just because they are related to a peer. One would also need to take cognisance of finer differences between cultures (or subcultures in South Africa) as Wasti et al. (2011, p. 18) even found differences between the nature of the benevolence manifested between two vertical collectivist cultures.

Another aspect of Hofstede’s cultural dimensions that is closely linked to this is power distance (Hofstede & Bond, 1988, p. 10). In a study conducted in Pakistan, it was found that a high-power distance had a negative effect on the trustworthiness of managers, especially when managers do not allow employees autonomy as they “are afraid of giving autonomy to the employees. They fear that employees might involve themselves in unwarranted activities and might not follow the rules and regulations of safe practices” (Khan & Maalik, 2011, p. 1039).

In South Africa with a score of 49 for power distance, which is very close to Pakistan’s score of 55, one could expect the results of the study by Khan and Maalik (2011) to also apply.

### ***Power distance***

*This dimension deals with the fact that all individuals in societies are not equal – it expresses the attitude of the culture towards these inequalities amongst us.*

*Power distance is defined as **the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally.***

*South Africa scores 49 on this dimension which means that people to a larger extent accept a hierarchical order in which everybody has a place and which needs no further justification. Hierarchy in an organization is seen as reflecting inherent inequalities, centralization is popular, subordinates expect to be told what to do and the ideal boss is a benevolent autocrat.*

(<http://geert-hofstede.com/south-africa.html>)

Interestingly, Khan and Maalik (2011) found very little evidence of “feedback” that has any effect on the trustworthiness of managers if the effect of a high-power distance was taken into account. Considering that the items that they used cover very much the same item content (i.e. performance feedback) as used by Martins (2000; 2002), one might conclude that this may be an artefact of culture.

In their comparison of Indian and American managers (MBA students), Gunia, Brett, Nandkeolyar and Kamdar (2011, p. 779) found that Indian negotiators trusted less than Americans, although both considered the dimensions of trust as consisting of ability, benevolence and integrity. Gunia et al. (2011, p. 775) base their study on the premises of Yamagishi and Gelfand (see footnote 2 in Gunia et al., 2011, p. 776), namely that in certain highly structured cultures with clearly defined social norms (tight cultures) such as Japan, institutional trust is sufficiently strong to make interpersonal trust superfluous or redundant. In “loose” cultures (mostly Western), individuals need to make use of interpersonal trust in lieu of outside structures. This might be the reason for the important role that swift trust plays when it comes to social functioning in the West.

From a totally different paradigm, Fukuyama (1995, p. 230) states that Taylorism (manufacturing based on scientific management principles such as time and motion studies) could also be culture bound as social trust levels differ between cultures. This would mean that in certain low-trust cultures, a Taylorite approach could increase factory discipline. High-trust cultures on the other hand would be more productive when following a human relations approach, with responsibility and skills dispersed among the workforce. In the South African context it could be interesting to discover what the dominant culture of trust is, because if it is traditionally high-trust, then the Taylorite approach followed in many traditional industries would not be the ideal approach to follow.

In conclusion it might be said that, considering that the majority of workers apply the philosophy of uBuntu to group relations, a better approach in South Africa might be the

German communal approach, as investigated by Fukuyama (1995).

### **3.6 Summary**

In Chapter 3 the focus was on trust in the reality of an organisational context. The three main topics that were presented in this chapter concerned firstly how to maintain, enhance and repair a trust relationship; secondly the aspects linked to trust and different role players in the organisation (e.g. leadership and other foci such as supervisors, peers, co-workers and teams); and thirdly, the model by Martins that was used in this study.

On the topic of trust in leadership, it is important to make a distinction between trust in the leadership of an organisation and trust in the direct supervisor or trust in the organisation itself (institutional trust). This distinction was also important when considering how to repair trust, as the focus is not so much on the ability, benevolence and integrity of the individual leader or manager, but rather on the systems and reputation of the organisation. To this end, the spiral process of trust in the leader as developed by Zand is introduced as a very practical conceptualisation of a complex process. The reality of interpersonal trust in co-workers on all levels of the hierarchy and trust in teams highlighted the complexity of the reality of interpersonal trust in a social network embedded in an organisational context. In this context, a trustor can become trustee or a subordinate a supervisor, and vice versa.

The last important part of the chapter was taken up by a discussion of Martins model for managing trust. One of its unique features, namely that personality is an antecedent of trust, is placed into context and also the fact that certain managerial practices are considered antecedents of trust. Further detailed attention is given to knowledge or information sharing in this context as the latter seemed to be problematic in the empirical literature. The discussion is then brought into a South African context, especially from the point of view of differences in cultural aspects of trust. Special attention is given to the differences between cultures that vary according to the dimensions of Hofstede.

In Chapter 4, the methodology, research design and data analysis will be discussed. The measurement instruments and other technical aspects will also be discussed in detail.

## Chapter 4: Empirical Research Design and Methodology

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*Trust is indeed a family of related constructs. However, even in a family, each member needs to have a different name so that we don't mistake one family member for another.*

(Ferrin, Bligh & Kohles, 2008, p. 174)

As mentioned in the previous chapters, the Martins (2000) model and the Trust Relationship Audit (Martins & Von der Ohe, 2005) have been used widely in the South African context and has even been published internationally (Martins, 2002). However, the model by Mayer et al. (1995) is the most widely accepted model of trust, and there have been calls that all trust research and instruments should at least refer to the Mayer et al. terminology. For instance, considering the plethora of definitions and the resultant confusion that this causes, Ferrin, Bligh and Kohles (2008, p. 174) suggest that the Mayer et al. (1995) terminology be accepted as a standard, as it is overwhelmingly the most used and their definition is conceptually the same as the definition by Rousseau et al. (1998). They subsequently suggest that even if the terminology is not used, researchers should at least report how their study relates to the Mayer et al. conceptualisation. In the present study an attempt will be made to link the items and terminology of the Martins (2000) model to the Mayer et al. (1995) model to bring this model into the mainstream terminology of trust research, yet still keep its unique practice-based foundation and values. In order to re-evaluate the current Trust Relationship Audit and bring it into the mainframe of the current literature, the items of the Trust Relationship Audit (managerial practices as well as personality dimensions) will be re-classified and then re-coded as far as possible into the generally accepted dimensions of trustworthiness (ability, benevolence and integrity). A confirmatory factor analysis and SEM will be run to determine the correctness of the new model. The items as given in Mayer and Davis (1999, p. 136) will function as a guideline for where to start the classification of the Trust Relationship Audit item pool. Since other studies have also used these items in an adapted form, they will be included in the guidelines. For instance, Palanski et al. (2011, pp. 206-207) adapted this scale for use with a team as a referent trustee and not a manager, as is normally the case.

As was mentioned in Chapter 1, rather than creating another measure for trust and adding to the huge number of trust measures available, this study can in an indirect way be considered

a replication and an attempt to consolidate the measurement field, taking the background of a different culture into consideration (McEvily & Tortoriello, 2011). There is, of course, the possibility that additional antecedents of trust besides ability, benevolence and integrity might surface in the analysis. The possibility is strong that these might have an emotional or affective component, as even Schoorman et al. (2007, p. 349) concede that their model is very cognitive driven and that emotions might have an influence:

*[W]hile emotions are being experienced, they may lead the trustor to update prior perceptions of the trustworthiness dimensions and trust such that even after the emotions dissipate, the effect on the cognitive evaluations remains.*

Another possible additional component of trustworthiness or antecedent of trust that has been identified in the literature is predictability or reliability (Dietz & Den Hartog, 2006, p. 560). Although this antecedent is not mentioned in the Mayer et al. (1995) conceptualisation, the consistency and reliability of the trustee is included in a minority of trust measures (Dietz & Den Hartog, 2006, p. 568) and might surface as a separate component in the current study.

According to Colquitt et al. (2007), one of the most used measures of propensity to trust would be the scale by Rotter (1967). The items that Rotter mentions on page 654 are included in the guidelines. Although they are perhaps too general to be considered in an organisational context, they can be used as a stimulus towards identifying items in the Trust Relationship Audit.

In conclusion, it can be said that – as was the case in the study by Denison, Janovics, Young and Cho (2006) – the psychometric properties of the newly constituted scales will be investigated for their reliability (and validity) concerning the ABI model of trustworthiness. The Cronbach's alphas will also be calculated to determine the level of internal consistency. Following this, the next step is to conduct a confirmatory factor analysis (CFA) to

*examine the pattern of relationships between the observed variables and latent traits that make up the hierarchical structure of the model and determine the extent to which the parameters implied by the model reproduced the obtained covariance matrix.*

(Denison et al., 2006, p. 12)

The above might even result in a short-form of the Trust Relationship Audit that has acceptable psychometric properties and that can then be used in conjunction with other measures as part of a bigger investigation.

## 4.1 Statistical modus operandi

The main techniques that are used in this study will be discussed in the following sections. The basics of descriptive statistics and the techniques for determining the internal consistency and factor structure of the instrument to determine reliability will not be discussed in detail, but rather the not-so-obvious implications of these techniques that are of particular importance to this study.

### 4.1.1 *Sample size*

As the current sample consists of more than 200 respondents (even for the smallest subsamples), but in most cases have more than 1000 respondents (see Chapter 5 where the details concerning the samples are discussed), the normal reservations that apply when analysing data and undertaking statistical modelling fall away. Although the full CFA model might have a very high number of estimated parameters that it could yield, care will have to be taken that the “sample-size-to-estimated-parameters ratio” does not fall below the 5:1 ratio that is traditionally considered acceptable (Mayer & Gavin, 2005, p. 880, footnote 3). To determine the sampling adequacy and the factorability, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett’s Test of Sphericity will be conducted. Where appropriate, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO in SPSS; MSA in the literature) and the Bartlett’s Test of Sphericity were computed to determine whether factor analysis is an appropriate analysis method. The closer the KMO is to 1, the more likely it is that an acceptable factor structure will be found. Values above 0,70 are considered good (Field, 2006, p. 735), while values above 0,50 are regarded as acceptable (Hair et al., 2010, p. 132). Bartlett’s Test of Sphericity on the other hand investigates “whether a variance-covariance matrix is proportional to an identity matrix ... (i.e. the dependent variables are not correlated)” – although its practical utility is sometimes doubted since non-significant values are hardly ever found (Field, 2006, p. 724).

### 4.1.2 *Descriptive statistics*

In all studies the descriptive statistics are reported to give the reader an idea of the “composition” of the dataset. This reporting of vital basic background information is critical for later inclusion in meta-analytical studies and for the possible replication and re-analysis of the data to ensure correctness of interpretation and procedure (von der Ohe, 1990).

Means, standard deviations, Cronbach's alpha coefficients and correlations among the study variables will be reported as part of Phase 1 of the results in Chapter 5.

#### *4.1.3 Likert scales or Likert items*

One of the most discussed aspects concerning Likert scales is whether they can be considered as ordinal or interval measurement. According to Brown (2011), this confusion mainly arises from the fact that authors routinely refer incorrectly to a single Likert-type item as a Likert scale. A scale consists of various items and as such can be considered as interval measurement (Brown, 2011, p. 11).

#### *4.1.4 Cronbach's alpha*

Reliability is one of the classic psychometric indicators of the usefulness of a measure. Cortina (1993, p. 98) quotes the classic definition that Nunnally gave in 1967 where reliability is defined as "the extent to which [measurements] are repeatable and [...] any random influence which tends to make measurements different from occasion to occasion is a source of measurement error". If we make use of the same instrument, for instance the Trust Relationship Audit, more than once, does it give the same results? Hence reliability is a question of the repeatability of a measure and to what the researcher ascribes the error variance. If such variance can be ascribed to the passing of time, then test-retest reliability would be of interest, or if the internal consistency of the items was important, then coefficient alpha would be of concern (Cortina, 1993, p. 98).

Interestingly – in referring to the work of Kaiser, Cortina (1993, p. 99) remarks that if there is a suspicion that more than one factor is present, then standardised alpha is not to be used – "if all item intercorrelations were equal to the average item intercorrelation" as in this case, the eigenvalue of the first factor is the same as the standardised alpha. Conversely, if one wants to determine if the items all measure one factor, a high alpha could indicate this first-factor saturation or uni-dimensionality. It could also simply be an indication that very little variance can be attributed to the individual items despite their loading on different factors (Cortina, 1993, p. 100). According to Cortina this confusion can be clarified if the difference between internal consistency and homogeneity is kept in mind. The latter links to uni-dimensionality, while internal consistency refers to interrelatedness (Cortina, 1993, p. 100). Cortina consequently suggests that item-specific variance should rather be investigated.

A further aspect that is important in the case of the interpretation of Cronbach's alpha is the number of items that are included in the calculation (Cortina, 1993, pp. 101-102). He points out that "if a scale has enough items (i.e., more than 20), then it can have an alpha of greater than .70 even when the correlation among items is very small" and this would erroneously imply high intercorrelation (Garamendi, Pesudovs, Stevens & Elliott, 2006, p. 1381). A traditionally acceptable "high" alpha such as 0,70 can occur even if the scale is multi-dimensional and has a low intercorrelation between items (Cortina, 1993, p. 103). Considering the many caveats, the question that invariably comes to mind is: when is alpha useful?

The researcher needs to take the above limitations into consideration, especially concerning the number of items included in a scale (Mayer & Davis, 1999, p. 128; Schoorman et al., 2007, p. 348; Shaffer & Postlethwaite, 2012, p. 461). However, the main use for Cronbach's alpha is to determine if there is any item-specific variance or uniqueness in the case of a unidimensional test or scale (Cortina, 1993, p. 103). To ensure that the statistic is interpreted correctly, it is best to use a factor analytic technique (such as principal components analysis or PCA) to confirm unidimensionality. "If this analysis suggests the existence of only one factor, then alpha can be used to conclude that the set of items is unidimensional" (Cortina, 1993, p. 103). In other words, neither a PCA nor a high alpha is sufficient to come to a valid conclusion – both are needed. A researcher hence needs to determine both empirically as well as theoretically on a conceptual level if a scale is unidimensional as a sign of reliability (Hair, Anderson, Tatham & Black, 1995, p. 622).

A Rasch analysis can be applied as yet another method to improve the reliability of measures. Garamendi et al. (2006, p. 1375) used a Rasch analysis to improve their measure and optimised the analysis through the removal of items that did not add anything. By applying this technique, they also improved the internal consistency (unidimensionality) of the instrument under review.

#### *4.1.5 Effect size*

As is the case with the Cronbach alpha statistic, the so-called tests of significance (such as a t-test) need to be interpreted with care, seeing that a statistically significant effect can be attributed to two main considerations: firstly, a significant effect is actually caused by the intervention or, secondly, the significance is purely an artefact of the large sample size. In the current study the latter consideration has to be taken seriously, because the sample used in most of the analyses is very large. Coe (2002) advises that this problem may be

overcome by reporting both the effect size and the associated confidence interval. Other aspects that can spuriously influence the effect size and that need to be taken into consideration (if applicable) are the following: the pooled standard deviation estimate is used; restrictions of range are taken into consideration; the distribution is normally distributed; the underlying reliability of the scale is known and taken into consideration. In this case, it is often preferable to use the “unstandardised’ mean difference (i.e. the raw difference between the two groups, together with a confidence interval)” (Coe, 2002, section 8).

#### 4.1.6 *Negatively worded items*

In various measures, items are often worded negatively and then reverse-scored to avoid acquiescence (or agreement) response bias. Negatively scored items also exhibit various methodological problems because of “careless responses, insufficient cognitive ability, impaired response accuracy, and the actual measurement of a different construct” (Magazine et al., in Dietz & Den Hartog, 2006, p. 566). In survey research it has been found that negatively worded or negative formulations tend to have lower data quality (Blasius & Thiessen, 2012, p. 88). Furthermore, in some studies the polarity of the items was found to be the main distinguishing attribute between factors – in other words, the one factor comprises negatively worded items and the other factor comprises positively worded factors. This factor structure can be attributed to careless responses or to the cognitive ability of the respondents, seeing that negatively worded items are more difficult to interpret (Blasius & Thiessen, 2012, pp. 81-82). This links to the unique South African situation of eleven officially recognised languages and the fact that most respondents tried to answer the English version of the audit, despite it being their second or third language. This might be because English is generally accepted as the lingua franca of the organisational environment. In research by Steenkamp and Burgess published in 2002, negatively worded items had to be deleted as they showed factor loadings according to “aggregate levels of education for whites, so-called coloureds, and blacks” (Blasius & Thiessen, 2012, p. 83).

In the collection of the data for the current research by means of the Trust Relationship Audit, the above problems were avoided as far as possible, thus heeding the warning by Schlechter and Strauss (2008, p. 51). Firstly, numerous translations of the instrument were undertaken over time (into different official languages such as Afrikaans, Tswana and Zulu) and this often led to problems in the back-translation phase. Secondly, Afrikaans as a language makes use of the “double negative”. For instance, the hypothetical statement “Ek vertrou nie my bestuurder nie”, literally translated as “I do *not* trust my manager *not*”,

becomes very confusing when stated in the negative. Of course there also is the question whether the different translations of the word 'trust' represent the same concepts and consequently measure the same construct in different cultures (Bachmann, 2012, p. 131).

As stated above, negatively worded items are problematic from a statistical and methodological perspective, but also conceptually from a trust perspective. This leads to another reason why reverse or negative items should be avoided. In a survey of perceived trust attributes of others it is not always clear if these negative items measure the same construct (Dietz & Den Hartog, 2006, p. 566). As was also stated previously, most researchers do not see trust and distrust as opposite poles but rather as different constructs. Lewicki and Brinsfield (2012, pp. 33-34) ask the hypothetical question about the opposite scale anchor of "high trust" – is it *low trust*, *no trust* or *distrust*? Secondly, they emphasise that high trust is not always positive – it can for instance lead to complacency. Finally, high trust as a concept is oversimplified as trust always occurs in a complex context (Lewicki & Brinsfield, 2012, p. 34). For instance, we may trust A concerning situation X, but not concerning situation Z. It is important to state the context within the work situation that applies (Dietz & Den Hartog, 2006, p. 569).

#### 4.1.7 Web-survey implications

For certain subpopulations of the sample included in the current research, the trust data was collected by using web-survey methodology (see Von der Ohe & Martins, 2010). The respondents here mostly consisted of postgraduate students in the Department of Industrial and Organisational Psychology who all studied via open and distance learning. The other subpopulation of respondents consisted of readers of a popular human resources magazine who were invited to take part in the survey (the exact composition of these groups is discussed in detail in a later section where the sample is described). Non e-mail-based custom online web-survey tools were employed and hosted on a recognised, legitimate and trustworthy domain as suggested by best practice (Baatard & Cowan, 2012, pp. 102-103). This also ensured greater anonymity, as well as relative freedom from multiple responses and other manipulations.

Concerning web-survey implications, Baatard and Cowan (2012) found that as technology improves and more persons have access to the Internet, web surveys will replace other methods of data collection increasingly, especially as they require less effort by the respondents. Furthermore, "digital natives" are highly accustomed to the methodology

seeing that they routinely complete fun quizzes and questionnaires online as a part of their social networking (for instance on Facebook).

#### *4.1.8 Measurement errors*

An important aspect to remember is the tendency by respondents to give socially desirable responses and the fact that tendencies for acquiescence have been found to be linked to demographics. Younger and more well-off respondents were less likely to exhibit deferential and submissive behaviour than were older and underprivileged respondents (Blasius & Thiessen, 2012, p. 17). In South Africa this finding could perhaps be linked to older workers being members of the “previously disadvantaged groups”. It might be especially relevant in respect of the segment of the sample that was included from the industrial sector at a non-professional, non-technical or managerial level. It is not possible to investigate this effect without investigating the various demographic subgroupings in a detailed analysis (which falls outside the scope of this investigation). However, measurement error must be kept in mind as a possible explanation when unexpected results are obtained.

#### *4.1.9 Control variables*

Atinc, Simmering and Kroll (2012, p. 57), who investigated 812 studies in the field of management, found that control variables are often used just because other studies used the exact same variable. Control variables are supposed to help researchers rule out alternative explanations and increase statistical power (Becker, 2005, p. 274), but the belief in the worth of control variables has been so overestimated that they achieved the dubious honour of being labelled a “methodological urban myth” (Spector & Brannick, 2011, p. 288). Control variables can be designed into the research process (only use females or males if gender is the control variable), or alternatively provision can be made for introducing control variables during the statistical analysis (Becker, 2005, pp. 275-276) by making use of dummy coding.

In the case of micro organisational studies, Atinc et al. (2012) for instance found that sex and age were often included as control variables for no apparent reason. Even if the reasons were in fact provided, the authors of the studies under review did not explain what the expected theoretical relationship between control and dependent variables would be (Atinc, et al., 2012, p. 70). It is furthermore argued that most studies do not follow the twelve recommendations by Becker (2005). To include control variables in a research study, a solid theoretical foundation should underpin the decision as to which variables should be

included. This should also be linked to meta-analyses or be very detailed concerning what was found, how the conceptual control variable is expected to influence the finding and the direction of the relationship (Atinc et al., 2012, p. 71; Becker, 2005, p. 285). The way the conceptual control variable is measured by one or more measured control variables needs to be reported (Becker, 2005, p. 285) and if the results are included in the alternative hypotheses (as they should be), they should be reported and not ignored (as is often the case) (Spector & Brannick, 2011, p. 297). Lastly, it is recommended that the amount of variance that is attributed to the control variable be reported, as many studies were found where the control variable explained nearly as much (if not more) variance than the predictor variable.

From the study by Colquitt et al. (2011, p. 1007) it emerges that agreeableness (propensity to trust), age and gender (women and older persons are more trusting), and conscientiousness (high stress) should be investigated as characteristics of the trustor. The fact that agreeableness has been used as a control variable for “propensity to trust” (Colquitt et al., 2011, p. 1007) because persons high in agreeableness would be higher on propensity to trust, would indicate that some of the items used to determine the perceived agreeableness of the trustee will have high intercorrelations with trust itself. Yakovleva et al. (2010) confirmed the relationship between propensity to trust and trustworthiness (this is especially true for integrity and benevolence). They again pointed to the importance of investigating propensity to trust as a control variable from the side of the characteristics of the trustor, as no data in this regard exists in the current secondary database.

As a closing caveat, Carlson and Wu (2012, p. 413, p. 414) suggest that perhaps the inclusion of control variables is overdone. In the studies that they investigated, the control variable had very little impact on the resultant interpretation and accordingly they suggest the following principle: “When in doubt, leave them out.” Carlson and Wu also suggest that if a control variable does not at least correlate with other variables at the  $r = 0,10$  or greater level, the control variable can be safely excluded from the analysis (Carlson & Wu, 2012, p. 432). There seems to be agreement that the problems experienced with control variables is an artefact of the way that reviewers and editors of scientific journals expect control variables to be included in an “isomorphic” manner (Atinc et al., 2012, pp. 71-72; Becker, 2005, p. 286-287; Carlson & Wu, 2012, pp. 432-433). As the propensity to trust is not included in the current study (which focuses only on the perceived characteristics of the trustee), a control variable will not be included either.

## 4.2 Survey methodology

The next sections will address the general criticism against the proponents of positivism (deserved or not), namely that they develop “conceptual frameworks and empirical results which explicitly or tacitly claim universal validity” concerning the knowledge about trust (Bachmann, 2012, p. 131).

One of the secondary aims of the development of the Trust Relationship Audit was to create an instrument that would have practical value and support the organisational consultation process. Consequently, to turn the argument by Bachmann (2012, p. 131) around – this research method is not an attempt at “simplifications rooted in a positivist epistemology” that are “naïve and inappropriate”. Considering the call for a context sensitive methodology by the proponents of a constructivist approach, the value of a survey-based instrument lies in the fact that from a socio-political perspective, the researchers involved in the development of the Trust Relationship Audit experienced the “need to be consulted – my view must also be heard” from members of the organisation. This is especially relevant in the South African context after 1994, where individuals are (rightfully) very aware of their individual democratic right “to be heard”. No explanation by a well-meaning researcher of sampling methodology, either quantitative (for instance the virtues of probability sampling) or qualitative (representativeness of purposive sampling), will convince these organisational members otherwise. This is especially crucial as trust research in an organisational context is normally very sensitive and “resource constraints” in qualitative research necessitate the use of non-probability sampling methods such as progressive theory-driven sampling/purposive sampling (Lyon, 2012, pp. 85-87) – which could lead to certain organisational members feeling overlooked or discriminated against. To overcome these problems in all the cases where the Trust Relationship Audit was used in an organisational consulting process, no sampling procedure was used and the survey was in all cases open to everybody. This went so far that in cases where employees were functionally illiterate, trained shop stewards, academic assistants or postgraduate students were used to explain the items in a group context to the respondents. This was necessary, as these respondents also wanted to feel empowered to be able to complete the survey, just the same as everybody else. The respondents were at times included in focus groups to ascertain that their understanding of the items was clear in the context of the organisation in which they were functioning. In this case, organisational culture was being primary and even supplying the “language”. In some cases the survey was even made available online or via e-mail to ensure that respondents who wanted to take part were not excluded for logistical reasons (distance or time).

A further benefit of using survey-based instruments is that the results point the consulting psychologist in the direction of appropriate interventions (relevance). The fact that in the current research this South African instrument is being 'equated – set equal – converted' to the most accepted global (but still predominantly Western) model (discussed in detail in Chapter 2) without losing some of the items developed in the local context (although the creators were schooled in the Western paradigm), will make this research comparable and will open up a path for all the previous research undertaken with the Trust Relationship Audit to be integrated in the base of science (Kuhn, 1970). This would contribute to the rigour of the research on which the instrument is based. Four advantages of the survey method specifically as far as trust research is concerned are discussed by Gillespie (2012, p. 177). He mentions that, firstly due to the psychological nature of trust, confidential survey questions are an appropriate method to measure the trustor's "perceptions and intentions" in reference to the specific trustee. Secondly, surveys make replications possible to compare results and build on them, and thirdly (and possibly the most important), the psychometric properties such as construct validity can be determined to ensure that only valid and reliable instruments are used. Lastly, it has been found that "behavioral estimation using survey items is highly predictive of actual behaviour" (McEvily & Tortoriello, 2011, p. 39).

The researcher attempts to avoid the pitfall of "positivist universalism" by anchoring in the reality of the individual employee in an organisation. At the same time, it tries to escape the trap of "constructivist relativism" (Bachmann, 2012, p. 131) and rather follows a critical realism paradigm that accepts that there is a real world that is independent of our "perceptions and theories" (ontological realism). All models that we construct are by their nature our own and hence simplified representations of a complex reality (epistemological constructivism) (Maxwell, 2013, p. 43).

A major problem in survey- or questionnaire-based research is the problem that respondents can elect not to answer a question – whether on purpose or by accident. This problem can be limited in online surveys by forcing them to return to blank items, whereas in the case of paper and pencil the invigilator will need to check the answers one by one. The question remains: why did they pass over the item or omit to supply an answer?

The next problem concerns the respondent who has no experience or opinion concerning the aspect addressed in the item. For this, the so-called non-substantive response (NSR) category is normally included in items. One of the ways to handle these non-substantive responses such as *don't know*, *can't choose* or *no answer* is to categorise them as missing values (Blasius & Thiessen, 2012, p. 34).

The problem of missing values in data reduction techniques is that these missing values might represent a pattern of their own in the data as missing values are often intercorrelated (Blasius & Thiessen, 2012, p. 50). In certain cases the patterns of missing values indicate problems with data capture or institutional differences (Blasius & Thiessen, 2012, p. 86).

The default in many statistical packages is “listwise deletion” of cases with missing values (Blasius & Thiessen, 2012, p. 35, p. 50), which reduces the total sample. In the case of SEM, Blasius and Thiessen (2012) suggest that the NSR or ‘no opinion’ response be excluded by using the ‘listwise deletion of missing values’ option in SPSS. They warn though that if “the number of missing responses is large, the remaining sample might be biased since less educated (and less politically interested) respondents are more likely to use an NSR” (p. 102). As the sample size is large enough in the current study and respondents were given all possible assistance to complete all the items (compare the first part of this section), the listwise deletion model will be followed as suggested in the literature.

### **4.3 Structural Equation Modelling**

*Structural equation modeling (SEM) refers to the use of a general framework for linear multivariate statistical analysis that includes as special cases less general models, such as linear regression, factor analysis, and path analysis. Researchers can use SEM in a hypothetico-deductive context to test complex hypotheses or in an inductive context to estimate parameter values (effect sizes).*

(Markus, 2007, p. 773)

Some types of SEM are based on factor analysis and are powerful multivariate techniques “in which specific hypotheses about the structure of the factor loadings and intercorrelations are tested” (Hill & Lewicki, 2006, pp. 465-467). The specific field of application in this study concerns CFA (confirmatory factor analysis) which as explained above and in essence “tests an already theory-based factor structure for its fit to given data” (Rasch, Kubinger & Yanagida, 2011, p. 501). Although the lengthy and complex citation above is probably one of the most accurate, the most straightforward description is the statement by Heron, Brown and Croudace (2012b, s 4) who declare “CFA + Path Analysis = SEM” on one of their opening slides. Mueller and Hancock (2008, pp. 488-489) concur that classical factor analysis and path analysis have traditionally been equated with SEM, although most conventional statistical techniques such as the analysis of variance or covariance and multiple linear regression could technically be seen as special cases of SEM. Historically,

any analysis that concerns the relationship between latent variables in measurement models could be seen as types of SEM (Schumacker & Lomax, 1996, p. 2).

Path analysis is a method that attempts to describe the causal relationship between dependent and independent variables and, when used in combination with factor analysis, gives SEM its strength (Dilalla, 2000, p. 440). Dewberry (2004, p. 324) describes SEM as a “sophisticated” procedure that consists of “a combination of multiple regression and confirmatory factor analysis”.

Often confirmatory factor analysis in SEM is used to test a model that is based on a previous exploratory factor analysis. According to Rasch et al. (2011, p. 502), CFA is a unique type of SEM because

- (1) the latent variables (factors) are not modeled as the target of a single-edged, directed path, and thus do not show a latent error;*
- (2) all latent variables (factors) are modeled as being uninfluenced by manifest characters;*
- (3) all manifest characters are modeled as being dependent on at least one latent variable (factor) and thus all have been modeled with an error; and*
- (4) all these errors are assumed to be uncorrelated.*

In the next sections, factor analysis will be introduced and CFA be discussed in more detail. Then the general SEM model will be discussed to put the above statement in context.

#### 4.3.1 Factor analysis

The first of the latent variable analysis techniques used in psychology by Spearman as early as in 1904 was to determine the structure of intelligence by means of factor analysis, when he identified general intelligence as a latent variable (McGrath, 2011, p. 152). Today, factor analysis is one of the best-known multivariate data reduction techniques that are used to summarise big datasets. A few common factors are used to explain the correlations between measured (or observed) variables to develop or confirm theories (Fletcher, 2007, p. 244; Hayton, Allen & Scarpello, 2004, p. 192). The aim of factor analysis is parsimony, which can be explained as follows: to have  $m$  observed variables that can be described by **less than**  $m$  not directly observable (latent) independent factors (Rasch et al., 2011, p. 483).

Factor analysis can also be used to develop scales to measure latent variables (also called components or common factors) from observed items. Flowing from the latter, factor

analysis can be used to provide the background in support of the construct validity of a measure (Dewberry, 2004, p. 304; Fletcher, 2007, p. 244; Hayton et al., 2004, p. 192). In all of the cases above, latent variables are measured indirectly through multiple observed variables (Bowen & Guo, 2011, p. 18).

Costello and Osborne (2005, pp. 1-2) found that of a total of 1 700 studies in the field of psychology, more than 50% used the principal components analysis (PCA) with varimax rotation. They suggest this is a remnant of the historical times when computers were slow and expensive to run, and propose that a factor analysis is of more value. Applied to the current field of study, Mayer and Gavin (2005, p. 879) stipulate that if no a priori multidimensional structure is hypothesised for items in a scale, then an “exploratory factor analysis (EFA) using principal factors extraction with an oblique rotation” can be used in conjunction with Cronbach’s alpha to determine how many items need to be retained to have a unidimensional scale. In the current research though, the method that will be used is confirmatory factor analysis (CFA), as it is used to confirm whether a theory holds, given a new set of data (Fletcher, 2007, p. 245).

#### 4.3.2 *Confirmatory factor analysis*

A confirmatory factor analysis (CFA) is a specific application of SEM that is linked to the measurement model (Brown, 2006, p. 1; Hoyle, 2000, p. 466). EFA is more inductive and concerns the discovery of new links or relationships, while CFA is deductive and driven by hypothesis to investigate known theories and even which items measure which latent factor (Brown, 2006, p. 1; Hoyle, 2000, p. 456).

A confirmatory factor analysis is defined by the *Dictionary of Statistics & Methodology* as a “[f]actor analysis conducted to test hypotheses (or confirm theories) about the factors one expects to find. It is a type of or element of structural equation modeling” (Vogt, 2005, p. 57). In the case of SEM, the researcher uses both a measurement model and a structural model. The CFA represents this measurement model, while the “structural model concerns the directional relations between constructs” (Hoyle, 2000, pp. 465-466). CFA is also used to assess the quality of a measurement model in the case of a replication (Mayer & Gavin, 2005, p. 879). A measurement model according to Hair et al. (1995, p. 624) “specifies the rules of correspondence between manifest and latent variables” and is used to determine the reliability of scale items and their contribution to predicting the relationship between an independent and a dependent variable.

To confirm a theory with CFA, hypotheses are tested to confirm a theoretical model –  
*to assess the equivalence of parts of the basic factor model within a given data set.*  
*For example, one might hypothesize that all of the observed variables for intellect are*  
*equally related to intellect.*

(Fletcher, 2007, p. 245)

CFA is used to determine the statistical certainty that the observed variables correlate with a latent factor. Another use for CFA that Fletcher (2007) mentions is to test for the equivalence of the hypothetical factor structure for different subgrouping, for instance biographical groupings such as gender or race. To achieve this optimally, CFA allows the researcher more control than EFA, as factors can “be specified as oblique (correlated with one another), whereas others are specified to be orthogonal (uncorrelated with one another)”, but not simultaneous in the same analysis (Fletcher, 2007, p. 246).

According to Rasch et al. (2011, p. 501), CFA is a special case of “(linear)” structural equation models (SEMs)”. De Battisti, Nicolini and Salini (2010, p. 15) state that various methods can be used to estimate the relationship between latent and observed variables using statistical modelling, including SEM – using linear structured relationship modelling (LISREL); or partial least squares (PLS); or factor analysis; or principal components analysis (PCA). These techniques can only be used as long as the items make use of quantification measurements such as Likert scales, as is the case in the current research (De Battisti et al., 2010, p. 16).

Hair et al. (1995, p. 623) mention that one of the reasons why structural equation modeling (SEM) is used is the fact that latent variables can be taken into consideration in an analysis. “A latent variable is a hypothesized and unobserved concept that can only be approximated by observable or measured variables” (Hair et al., 1995, p. 623), while a manifest variable is represented by the observed variables encountered in the responses of the subjects or respondents of the survey.

Just as was the case in Davis, Schoorman, Mayer and Tan (2000, p. 571), confirmatory factor analysis will be used to test “whether the items measuring factors of trustworthiness can be differentiated from one another”. In the same way that Hope-Hailey et al. (2012, p. 89) used confirmatory factor analysis to ensure “that the items clustered as expected; [...] we used factor analysis to create statistically derived composite measures” when published scales were used. They also obtained scale reliabilities using Cronbach’s alphas “to ensure a high internal consistency” (Hope-Hailey et al., 2012, p. 89).

Factor analysis has many problems that mainly relate to the arbitrariness of decisions made. Nevertheless, the fact that sample size has a big influence on the resultant model and no real guidelines exist for what measures are to be used and how they should be used, does not negate its usefulness (Cabrera-Nguyen, 2010, p. 100; McGrath, 2011, pp. 161-162). In the current study the majority of these restraints are avoided as the concern is not with a best fit model or capitalisation on chance, but whether the two conceptual models, the Martins model and the Mayer et al. model can be brought together with a satisfactory fit for the sake of theory building.

In conclusion, the fact that the researcher can specify how many latent variables or factors are to be specified and which items or measured variables load on each one of these latent variables makes CFA an appropriate technique for the current study (Statistics Solutions, 2013a).

#### 4.3.2.1 *How many factors?*

When considering the number of factors to select, it is always difficult to decide what is just enough. Too few or too many both have associated problems. Hayton et al. (2004) summarise the problems associated with specifying too few factors as resulting in low factor loadings and in misinterpretation. A factor may be combined with another or even ignored, which leads to

*measured variables that actually load on factors not included in the model, falsely loading on the factors that are included, and distorted loadings for measured variables that do load on included factors.*

Hayton et al. (2004, p. 192)

Although less critical, specifying too many factors can lead to difficult or incorrect interpretations by being distracted to focus on the wrong factor or a factor that is nearly impossible to replicate (Hayton et al., 2004).

The most commonly used *factor retention criteria* that assist with the decision about how many factors need to be retained, is the so-called K1 rule (Blasius & Thiessen, 2012, p. 38; Costello & Osborne, 2005, p. 2; Hayton et al., 2004, p. 193) where factors with an eigenvalue (Kaiser criterion or eigenvalue) greater than one are retained. Although this is the default with statistical packages such as SPSS or SAS (Hayton et al., 2004, p. 193), it is also possibly the most inaccurate (Costello & Osborne, 2005, p. 2). The scree test (by Cattell) where the number of meaningful factors is read off to the left of the breakpoint or leap on a

plot of the eigenvalues (Rasch et al., 2011, p. 484) is another commonly used rule of thumb. The number of factors is normally determined by the number just *above* the breakpoint, not including the break itself (Costello & Osborne, 2005, p. 2). Both of these rules have problems, such as the arbitrariness of deciding what is above or below an eigenvalue of 1,0 (compare for instance 0,99999 and 1,000001 (Blasius & Thiessen, 2012, p. 38)) and determining the exact position of the breakpoint on a plot (Hayton et al., 2004, p. 193).

Technically, the most accurate method to use is *parallel analysis* (PA). However, it is hardly ever used due to the traditional use of K1, the difficulty of conducting a parallel analysis (which is not included in common statistical packages<sup>7</sup>), and the fact that this method is not taught in graduate courses (Costello & Osborne, 2005, pp. 2-3; Hayton et al., 2004, p. 192). The PA method's biggest advantage is that it "adjusts for the effect of sampling error" (Hayton et al., 2004, p. 194). The consensus would be that multiple methods should be used, for instance, looking for the most interpretable or theoretical robust explanation in conjunction with the above.

#### 4.3.2.2 *Rotation of factors*

Once it has been decided how many factors to take into consideration, the factor solution is rotated to assist in the interpretation of the resultant factor solution. *Varimax*, also called a *orthogonal rotation* (Rasch et al., 2011, p. 483) is the most popular (Blasius & Thiessen, 2012, p. 38), while for psychological tests *oblique rotation* is sometimes used, although this is very difficult to interpret (Rasch et al., 2011, p. 484). According to Costello and Osborne (2005, p. 3), "[o]rthogonal rotations produce factors that are uncorrelated; oblique methods allow the factors to correlate". Yet, the reality in the social sciences, especially in trust research, is that the factors are hardly ever uncorrelated and an oblique rotation would consequently result in a more accurate solution. In the current research where the aim is to confirm a few theoretically meaningful factors, an oblique rotation must be kept in mind (Hair et al. 1995, p. 384).

It is important to first investigate the unrotated solution to determine if it makes conceptual sense and if perhaps the second factor is a methodological factor (for instance all the negatively worded items load on the second factor). However, it is possible that even in cases where the second factor does not make theoretical sense, the third factor is again a theoretically based factor (Blasius & Thiessen, 2012, 97-98).

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<sup>7</sup> Hayton et al. (2004, p. 201) provide the SPSS syntax for conducting a parallel analysis.

#### 4.3.2.3 *Extraction method*

This seldom discussed aspect is addressed by Costello and Osborne (2005, p. 2) who suggest that in the case of exploratory factor analysis, if the data is fairly normally distributed, maximum likelihood is the best. In cases where data is not normally distributed, the SPSS method called 'principal axis factors' is recommended.

#### 4.3.2.4 *"Messy" factor loading tables*

There is always the possibility of not finding any real latent factors in the data, even after allowing for multiple numbers of factors (in EFA) and different rotations. Yet, before there is certainty about this, Costello and Osborne (2005, p. 3) suggest that items that are problematic by virtue of being "low loading, cross loading or freestanding" should be excluded. This can of course only be considered for items whose deletion does not undermine the integrity of the data. According to the above authors, the criteria that will as far as possible be followed in this study for a clean factor loading table are "item loadings above .30, no or few item cross-loadings, no factors with fewer than three items" (Costello & Osborne, 2005, p. 3). In case these rules of thumb by Costello and Osborne (2005) cannot be adhered to, good theoretical reasons will be provided.

### **4.4 General SEM Model**

The general topic in this section concerns how to develop or verify a model that seeks to explain the relationship between manifest variables (the observed or measured variables) and non-observable or latent variables, by testing multiple hypotheses about direct and indirect effects (Kline, 2011a, p. 563; Rasch et al., 2011, p. 453).

#### 4.4.1 *Steps in structural equation modeling*

Figure 4.1 presents a comparison of different steps reported in the literature that are involved when conducting a SEM.

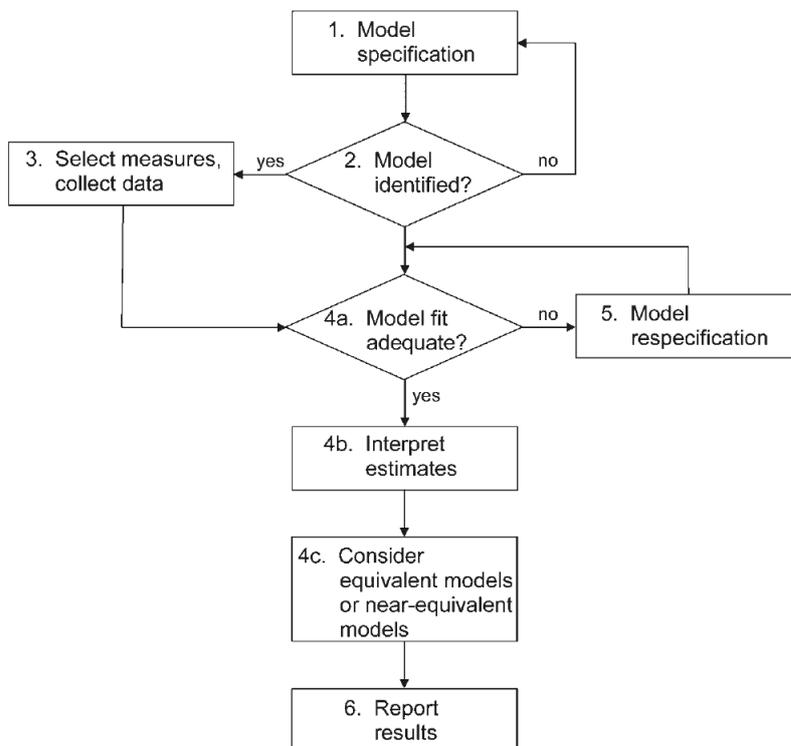
**Table 4.1. Steps involved in an SEM exercise**

| Dewberry (2004, p. 327)                            | Hair, Anderson, Tatham, & Black (1995)  | Hill & Lewicki (2006, p. 468)   | Kline in Heron et al. (2012b)  |
|--|---|---|--|
| 1. Collect data                                    | Step 1: Developing a theoretically based model  | 1. State the way that you believe the variables are inter-related, often with the use of a path diagram.  | 1. Specify model<br>Heron suggests that this step, which entails creating a model that is based on theory about how the concepts relate to each other, should happen before collecting the data so as to avoid contamination (Heron et al., 2012b, s 9). |
| 2. Create a path diagram                           | Step 2: Constructing a path diagram of causal relationships   | 2. Work out, via some complex internal rules, what the implications of this are for the variances and covariances of the variables.   | 2. Model identified? (if no, go to 1)<br><br>3. Collect data   |
| 3. Analyse data using statistical package          | Step 3: Converting the path diagram into a set of structural and measurement models<br>Step 4: Choosing the input matrix type and estimating the proposed model | 3. Test whether the variances and covariances fit this model of them.<br><br>4. Results of the statistical testing, and also parameter estimates and standard errors for the numerical coefficients in the linear equations are reported. | If the model does not simplify the data, then it has served no purpose (Heron et al., 2012b, s 22).  |
| 4. Revise model until best fit of data is achieved | Step 5: Assessing the identification of the structural model<br>Step 6: Evaluating goodness-of-fit criteria   | 5. On the basis of this information, decide whether the model seems like a good fit to your data.   | 4. Assess model fit.<br>5. If model fits poorly, then re-specify.  |
| 5. Report and discuss best-fitting model           | Step 7: Interpreting and modifying the model if theoretically justified   |   | 6. If model fits well: <ul style="list-style-type: none"> <li>• Interpret estimates</li> <li>• Consider near equivalent models</li> <li>• Report results</li> </ul>  |

As can be seen, the steps above have a common thread running through all of them. The basic procedure that can be deduced from Table 4.1 is that a researcher will have to at least follow the basic steps as suggested by Kline (2011b, pp. 91-92):

1. Specify the model.
2. Evaluate model identification (if not identified, go back to step 1).
3. Select the measures (operationalise the constructs) and collect, prepare and screen the data.
4. Estimate the model:
  - a. Evaluate model fit (if poor, skip to step 5).
  - b. Interpret parameter estimates.
  - c. Consider equivalent or near-equivalent models (skip to step 6).
5. Re-specify the model (return to step 4).
6. Report the results.

These steps are represented in Figure 4.1 in the flowchart by Kline (2011b), and the iterative process can be seen clearly. SEM is not a linear once-off analysis – it is a process that needs careful consideration and interpretation.



**Figure 4.1. Flowchart of the SEM process**  
 Source: Kline (2011b, p. 92)

As a first step, Dilalla (2000, p. 440) suggests that a structural model be developed that consists only of the latent unmeasured variables and is thoroughly based on theory. In the current research, the latent variables of interest are managerial practices (MP), the Big Five personality factors (B5) and ability, benevolence and integrity (ABI), as well as their relationship to trust. As a next step, the measured variables are added (in rectangles). In this step each latent variable will have the items that measure it linked to it – for this purpose the “coding guidelines” are used. The fit of this model is then tested using CFA (McGrath, 2011, p. 150).

As Rasch et al. (2011, p. 501) explain, the outstanding characteristic of SEM is that “(linear) dependencies, directed or undirected, are being modeled between several latent variables”. These are represented by the arrows in the path diagram in Figure 4.2. The variable at the “point” of the arrow is the dependent variable, while the variable at the origin of the arrow is a predictor variable (Dewberry, 2004, p. 325). If an arrow has two arrowheads, then it represents a correlation and no indication of the direction of the relationship. A single arrowhead indicates a predicted direction, while an  $e$  at the arrow origin normally stands for error or variance that cannot be predicted by the other variables (Dewberry, 2004, pp. 325-326).

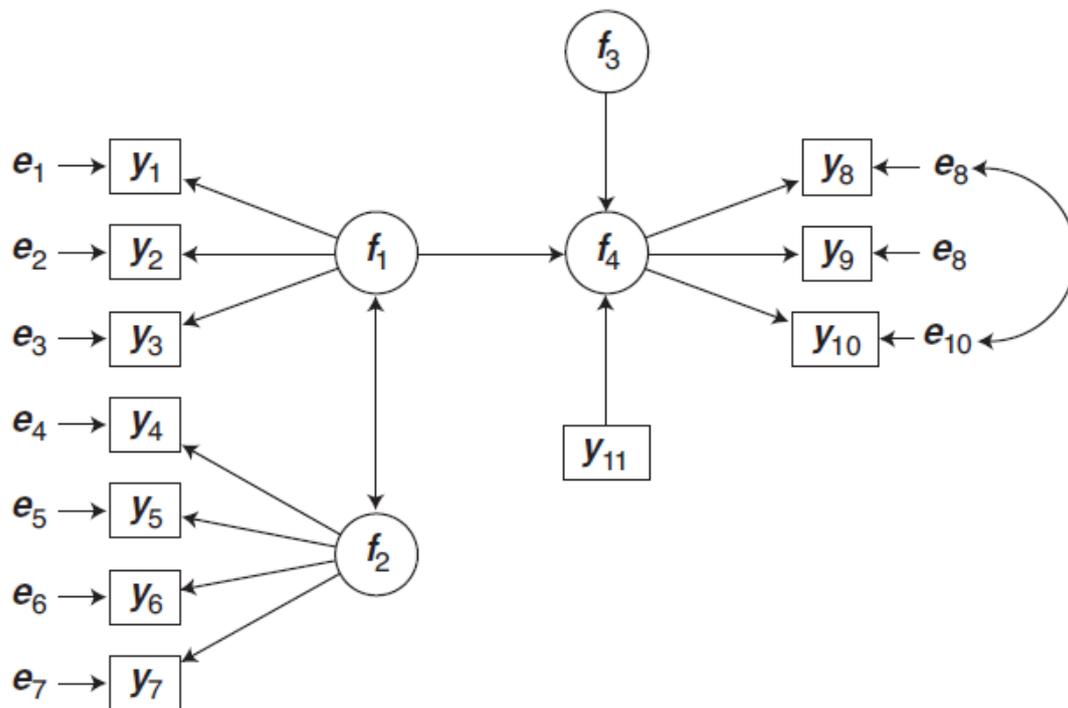
Some statistical packages even allow graphic input by using the path diagrams of the conceptual model which, in the case of CFA, tests how well the given data fits the previously developed theoretical model of the expected factor structure. The researcher in the end wants to estimate what the regression coefficients (and error) in this model are, in other words – can the model replicate the correlations between the observed or measured items that represent a factor or latent variable? (Rasch et al., 2011) The standardised regression coefficients are indicated as figures above the arrows in a path diagram, and are nothing more than beta-values found in multiple regression. They indicate the strength of the relationship between variables (how much variance in the dependent variable is explained) (Dewberry, 2004, p. 328).

To describe this method more accurately, SEMs are normally represented graphically using path diagrams (Rasch et al., 2011). In the following random example of a general SEM

- $f_x$  represents latent variables,
- $y_x$  represents the observed variables, and
- $e_x$  represents errors.

In the more general case, the arrows in a path diagram point from the independent variable (the predictor;  $X$  in the standard linear regression equation  $Y=aX+e$ ) to the dependent variable ( $Y$  in the standard linear regression equation  $Y=aX+e$ ), with a coefficient that represents the corresponding weight above the arrow, while latent variables are represented by an oval or circle, and manifest variables by boxes or rectangles (Dewberry, 2004, p. 327; Hill & Lewicki, 2006, p. 469; Kline, 2011a, pp. 572-573). In non-technical terms, the single arrowhead line “represents a hypothesized direct effect of one variable on another”, where these direct effects are called *paths* (Kline, 2011a, pp. 571-572). The variable that is the presumed cause serves as the starting point, while the arrowtip points towards to the effect.

If one factor (or latent variable) is used to predict another, the convention is to indicate the associated error as a “disturbance” or  $d$  (Dewberry, 2004, p. 327).



**Figure 4.2. An example of a structural equation model**  
 Source: Rasch et al. (2011, p. 501)

In the case above (see Figure 4.2) the latent variables predict the investigated or observed variables. The observed variables  $y_1$  to  $y_3$  for instance are predicted by latent variable  $f_1$ , while  $f_2$  predicts  $y_4$  to  $y_7$  in this example. These two latent variables ( $f_1$  and  $f_2$ ) correlate, as is represented by the arrow. The errors can also correlate, as represented by the link between  $e_8$  and  $e_{10}$ . Lastly,  $f_3$  is the latent error of  $f_4$ . From the above, linear equations can be derived to assist in the prediction of the various variables of interest, such as  $y_4 = \beta_{f_2y_4} \cdot f_2 + e_4$ ,

where  $\beta$  is the regression coefficient – in this case represented by correlations (Rasch et al., 2011, p. 502). As is the case with other types of modelling, the fact that “correlation is not causation” is also important – although SEM is a good indication that there might be a reason to suspect causation (Hill & Lewicki, 2006, p. 469).

It is clear from the above paragraphs that there are general conventions when it comes to the notation for SEM. Table 4.2 can serve as a quick guideline, especially in the chapters to follow.

**Table 4.2. Guide to notation used in SEM equations, illustrations and matrices**

| <b>Symbol</b>                     | <b>Name</b>   | <b>Definition</b>  |
|-----------------------------------|---------------|--|
| <i>Measurement model notation</i> |               |  |
| x                                 | x             | Observed indicators of latent exogenous variables ( $\xi$ )  |
| y                                 | y             | Observed indicators of latent endogenous variables ( $\eta$ )  |
| $\delta$                          | delta         | Measurement errors for x-indicators  |
| $\varepsilon$                     | epsilon       | Measurement errors for y-indicators  |
| $\lambda$                         | lambda        | Factor loadings (coefficients) of observed indicators on latent variables  |
| $\Lambda_x$                       | lambda x      | Matrix of coefficients (factor loadings) for x-indicators; individual matrix elements are indicated by lowercase lambda ( $\lambda$ )  |
| $\Lambda_y$                       | lambda y      | Matrix of coefficients (factor loadings) for y-indicators; individual matrix elements are indicated by lowercase lambda ( $\lambda$ )  |
| $\Theta_\delta$                   | theta-delta   | Covariance matrix of $\delta$ (measurement errors for x-indicators); individual matrix elements are indicated by lowercase delta ( $\delta$ )  |
| $\Theta_\varepsilon$              | theta-epsilon | Covariance matrix of $\varepsilon$ (measurement errors for y-indicators); individual matrix elements are indicated by lowercase epsilon ( $\varepsilon$ )                                |
| <i>Structural model notation</i>  |               |  |
| $\eta$                            | eta           | Latent endogenous variables  |
| $\xi$                             | xi            | Latent exogenous variables   |
| $\zeta$                           | zeta          | Structural error associated with latent endogenous variables (error of prediction)   |
| $\mathbf{B}$                      | beta          | Matrix of regression coefficients for paths between latent endogenous variables; individual matrix elements are indicated by lowercase beta ( $\beta$ )                                  |
| $\mathbf{\Gamma}$                 | gamma         | Matrix of regression coefficients for paths between latent exogenous variables and latent endogenous variables; individual matrix elements are indicated by lowercase gamma ( $\gamma$ ) |
| $\Phi$                            | phi           | Covariance matrix of latent exogenous variables; individual matrix elements are indicated by lowercase phi ( $\phi$ )  |
| $\Psi$                            | psi           | Covariance matrix of latent errors; individual matrix elements are indicated by lowercase psi ( $\psi$ )   |

Source: Bowen & Guo (2011, p. 202)

The next step would be to determine the quality of the model by using various **goodness-of-fit** indices. These are a bit of a misnomer as the indices are in reality indicators of the “lack of fit of the model to the data” (Harrington, 2009, p. 51). The different indices will be discussed after the statistical assumptions underpinning SEM have been discussed in the next section.

#### 4.4.2 *Statistical assumptions underlying SEM*

Kaplan (2009, p. 85) lists the following major assumptions underlying SEM as

- multivariate normality,
- completely random missing data,
- sufficiently large sample size,
- correct model specification
- exogeneity.

Ho (2006, p. 291) adds that observations have to be independent of each other and the sample has to be totally at random. A linear relationship between exogenous and endogenous variables needs to exist and observed variables should be distributed according to “multivariate normality”. In the next sections these assumptions will be discussed briefly.

*Multivariate normality* – If the maximum likelihood estimation extraction method is used, it is important that the “observations are drawn from a continuous and multivariate normal population” (Kaplan, 2009, p. 85). If this is not the case, there is a possibility of the overestimation of the goodness-of-fit (p. 86), especially in the case of categorical variables (p. 88). However, the effect of a non-normal multi-variate population is not such a big problem if the sample size is very large (Kaplan, 2009, p. 90).

*Missing data* – According to the classic text by Schumacker and Lomax (1996, pp. 3-4), there are at least seven possible methods to approach the missing data problem. These range from the very extreme *listwise deletion*, where any case with any missing data is excluded from the analysis and only cases with complete data are used, to the various methods where missing data is replaced by calculated estimates such as means, regression or principal component computations. The latter are also known as imputation methods (Kline, 2011b, p. 56). Each one of these methods has its limitations, such as resulting non-positive definitive covariance matrices or changing sample sizes, which impact on the SEM

analysis in the case of *pairwise deletion* (Kline, 2011b, p. 52; Schumacker & Lomax, 1996, p. 3).

If the missing data is missing at random or less than 5% on one variable, or the reason for the missing data is accidental and non-systematic, then there is no real problem and we can use nearly any method above (Kline, 2011b, p. 55). However, if this is not the case and there is an underlying reason for certain data being missing (for instance a certain category of employees has as a group refrained to answer), then the model might be inaccurate and cannot be ignored (Kaplan, 2009, p. 92). The effect of missing data is either a reduced sample or a biased result (Blunch, 2008, p. 217).

By using either the *listwise deletion*, the *listwise present approach* (LPA) or pairwise deletion (pairwise present approach - PPA), the researcher is exposed to various problems such as a serious data loss in the case of LPA. If, however, the reason for the missing values is not at random, then a listwise approach of deleting cases could lead to a conceptually unsound model. The missing values must consequently be investigated to ensure that the missing data is missing completely at random (MCAR) (Kaplan, 2009, pp. 92-93) – though it is doubtful if this is ever the case in real datasets (Kline, 2011b, pp. 55-56). Kaplan (2009) does not recommend PPA as it can lead to non-positive matrices and even if this is not the case, then only if “the amount of missing data is quite small and MCAR can be assumed to hold” (Kaplan, 2009, p. 94). Blunch (2008, p. 217) suggests that the full information maximum likelihood (FIML) procedure in AMOS is the best to use as long as the original data is used and not summarised data. This is obviously also the case if the missing data is missing at random (MAR). Lastly, bootstrapping can be used to generate hypothetical values to replace missing data in certain cases (Kline, 2011b, p. 42).

In conclusion, Schumacker and Lomax (1996, p. 5) suggest that various methods of handling missing data be tested and the effects of these be compared, while Kline (2011b, p. 56) goes one step further and advocates that the different interpretations of the reasons for data loss and the resulting choice of different methods and their interpretation, have to be reported separately.

*Sample size* – Hair et al. (1995, p. 637) suggest at least five observations for every included parameter that needs to be estimated. Ho (2006, p. 290) suggests ten respondents for every parameter. As the sample size in the current research is very large (more than 10 000 in total), this should not become critical, although the intended listwise deletion of missing values could dramatically decrease the sample.

*Correct model specification* – concerns the situation where certain relevant variables have been omitted from the modeling process. This is linked to the problems of sample size and statistical power (Kaplan, 2009, p. 98). Ho (2006, p. 290) suggests that a model should include at least three variables as indicator per construct, but cautions that too many indicator variables make model fit difficult. It is “preferable to use a relatively small number of “good” indicators than to delude oneself with a relatively large number of “poor” ones” (Pedhazur in Ho, 2006, p. 290). The use of *item parcels* can be useful in the case of an instrument such as the Trust Relationship Audit, which contains a relatively high number of items for the few latent variables to be analysed.

*Item parcelling* – is nothing more than the sum of item responses that load on a single factor and are divided into groups that have an equal factor loading in the end. These item parcels should reflect an underlying construct much better than individual items with their idiosyncrasies (more normally multivariate distributed), decrease the need for such big samples and ultimately lead to better model fit (Ho, 2006, p. 291). The total scores for the homogeneous parcels reflecting a common domain are then analysed instead of the individual items (Kline, 2011b, p. 181). In the case of the current study, the FFM scores are a good example. Instead of analysing 35 items as outcome variables, the five individual personality domains can be used as five individual parcels. An additional advantage is the fact that these parcel total scores are also continuous and normally distributed, which allows for the use of the less complex ML estimation procedure (Kline, 2011b, p. 181). It is important that the parcels are unidimensional and represent a single construct (determined by for instance exploratory factor analysis) as is the case in the current study (Kline, 2011b, p. 181; p 244).

*Exogeneity* – In the case of causal models, a variable is considered exogenous if its variability does not originate in the causal model but through causes outside of it. If, on the other hand, the variability has its origin in other variables in the model itself (exogenous as well as other endogenous variables), they are considered endogenous (Pedhazur in Ho, 2006, p. 281). Blunch (2008, p. 77) defines “(a)n exogenous variable [as] a variable that does not appear as a dependent variable anywhere in the model”. The real problem with exogeneity concerns the fact that researchers have a lot of freedom when defining and modelling their SEM, which is a strength of this technique as it can give cognisance to the underlying theory. But herein lies the real problem: if a researcher would “mistakenly” classify a variable as exogenous, it does not make it an exogenous variable (Kaplan, 2009,

p. 101). This problem is only treated on a theoretical basis in the literature (p. 104) and the assumption that only weak exogeneity exists should be tested (p. 106).

#### 4.4.3 “Goodness of Fit”

The fit of any model is unlikely to be perfect, as one of the assumptions in SEM is that there is a linear relationship between variables, which is hardly ever the case, especially in organisational psychology (Hill & Lewicki, 2006, p. 468). Markus (2007, p. 775) distinguishes between *fit statistics* and *fit indices*. The fit statistics, such as the RMSEA (root mean square error of approximation) and  $\chi^2$  (Chi-square) can be tested statistically, as they have statistical distributions and probability values can be determined. Indices such as AIC (Akaike Information Criterion) are mainly useful for comparing two (or more) concurrent models as they are based on descriptive statistics. Another commonly and traditionally used indicator that is used with the RMSEA is the CFI (comparative fit index) (Rasch et al., 2011, p. 502).

A goodness-of-fit test is fundamentally nothing more than a comparison between the expected frequencies that the model would forecast and the actually measured or observed frequencies (Rasch et al., 2011, p. 454). In its most elementary form, it answers the question of how well a model that the researcher is testing predicts the measured input data matrix (Statistics Solutions, 2013b). There are no specific cut-offs in the literature, just certain conventions that indicate when a model fits sufficiently (Rasch, et al., 2011, p. 502). According to Harrington (2009, p. 52) Brown’s recommendations from 2006 concerning criteria are the best to use, as they are based on acceptability and frequency of use in the literature, as well as on how well the indices performed in Monte Carlo simulations.

In addition to the three categories of indices by Brown (2006, p. 82), namely *absolute fit* indices, adjusting for model *parsimony* (or correction for parsimony) indices, and *comparative* or incremental fit indices, Harrington (2009) adds predictive fit indices. For the history behind the indices, a technical exposition and mathematical derivation, see Kaplan (2009) who developed some of the indices. In conclusion, it can be seen that there is no agreement on which goodness-of-fit indices are to be used to determine the adequacy of a model, but there is agreement that more than one should be used. Hair et al. (2010, p. 672) suggest that three to four indices should be used, as long as they do not make each other redundant (e.g. all are incremental fit indices and no absolute fit index is included).

#### 4.4.3.1 *Absolute fit indices*

These measures indicate how well the model that the researcher is testing fits or rather predicts the observed covariance matrix (Ho, 2006, p. 284). The most common absolute fit index is the  $\chi^2$  index, which tests if the model fits the population (Harrington, 2009, p. 52) and the p-value that is associated with the  $\chi^2$  should be insignificant (Bowen & Guo, 2011, p. 144; Ho, 2006, p. 285). This index will in all probability be significant as the sample size in the current research is very large, but as long as other fit indices show good results, the fact that  $\chi^2$  is significant is not a reason to reject the model (Bowen & Guo, 2011, p. 144; Harrington, 2009, p. 52). This is one of the reasons why it is necessary to use various indicators for the goodness of fit of a model to the data (Bowen & Guo, 2011, p. 146). One of these is the Goodness-of-Fit Index (GFI) which indicates “how much better the model fits compared with no model at all” (Ho, 2006, p. 285).

Other indices mentioned by Harrington (2009) are the Root Mean Square Residual (RMR) and the metric-free and thus easier interpretable Standardised Root Mean Square Residual (SRMR). The SRMR can range from 1 to 0, the latter indicating a perfect fit, with the implication that a lower SRMR is indicative of better model fit (Brown, 2006, p. 83).

#### 4.4.3.2 *Parsimony correction indices*

The less complex a model, the better for purposes of replication and interpretation (Ho, 2006, p. 286). In this case, the indices such as the well-known Root Mean Square Error of Approximation (RMSEA) punish complex models but are not so sample sensitive as the  $\chi^2$  (Harrington, 2009, p. 52). The closer this index is to 0, the better the model fit. However, it is recommended that confidence intervals should be reported to indicate how accurate the RMSEA estimate is, and Brown (2006, p. 84) suggests the use of “close” fit (CFit), which is the default in most software packages and indicates the probability (p) that RMSEA is  $\leq 0.05$ . Ho (2006) includes the Akaike Information Criterion (AIC) and Parsimonious Normed Fit Index (PNFI) under this heading.

#### 4.4.3.3 *Incremental or comparative fit indices*

These evaluate how well the model fits a base model and includes indices such as the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Non-Normed Fit Index (NNFI) (Harrington, 2009, p. 52). Ho (2006, p. 285) adds the Normed Fit Index (NFI),

Relative Fit Index (RFI) and Incremental Fit Index (IFI), which range from 0 to 1 (a perfect fit).

#### 4.4.3.4 Predictive fit indices

These indices that compare subsequent models are linked to the population and not the sample. Examples are the AIC and the Expected Cross-Validation Index (ECVI), which also take parsimony into consideration, thus implying that the lower the index, the “better” the model (Harrington, 2009, p. 52).

In some cases indices such as RMR, RMSEA, SRMR, and related indices are referred to as “badness of fit” indices that need to be complied with (Statistical Solutions, 2013b). In Table 4.3, the fit indices and recommended cut-offs that are suggested by various authors in the literature are summarised.

**Table 4.3. Fit criteria for various fit measures**

| Fit index   | Fit criteria   |
|---|--|
| <b>MEASURES OF ABSOLUTE FIT</b>                           |  |
| *Chi-square ( $\chi^2$ )                                  | $\chi^2$ values resulting in a nonsignificant p-value (i.e. $p \neq 0.05$ )  |
| Goodness-of-fit (GFI)                                     | $\geq 0.90$  |
| Standardised Root Mean Square Residual (SRMR)             | $p \leq 0.10$ considered favourable  |
| <b>INCREMENTAL FIT MEASURES</b>                           |  |
| Normed Fit Index (NFI)                                    | Same as CFI below  |
| Relative Fit Index (RFI)                                  |  |
| Incremental Fit Index (IFI)                               |  |
| *Root mean square error of approximation (RMSEA)          | Close fit: $\leq 0.05$<br>Reasonable fit: 0.05–.08<br>Mediocre fit: 0.08- 0.10<br>Poor fit: $\geq 0.10$<br>Acceptable $\leq 0.06^{**}$ |
| *Comparative Fit Index (CFI)                              | $\geq 0.95$<br>$\geq 0.90$ reasonably good fit**   |
| *Tucker-Lewis Index (TLI)                                 | $\geq 0.95$  |
| *Weighted root mean square residual (WRMR; in Mplus only) | $\geq 0.90$  |

Sources: Bowen & Guo (2011, p. 146); Harrington (2009, p. 53); Ho (2006, p. 285); Martins (2010, p. 312)

\* Recommended by Bowen and Guo (2011)

\*\* Brown/Kline reported in Harrington (2009, p. 53)

From the above it is clear that most indices should be larger than 0,95, except GFI when using AMOS. The Root Mean Square Error of Approximation (RMSEA) is a good indicator of fit as the complexity of a model is taken into account (Bowen & Guo, 2011, p. 145). Ho

(2006, p. 287) warns that the above cut-offs should just be used as “rules of thumb” and that researchers should always consider the specific study, its anomalies and also the underlying theoretical model when interpreting the indices in relation to a specific model. If the model presents acceptable fit statistics, then it is necessary to evaluate how well the model estimates the various parameters (Bowen & Guo, 2011, p. 147). This is discussed in detail in Chapter 5.

#### *4.4.4 Estimation failures*

Bowen and Guo (2011, pp. 136-145) discuss common causes of estimation failures. These include failures to identify the model (no  $\chi^2$  can be calculated or  $\chi^2$  is 0); variables that are not well defined or scaled; and consequently variances that differ hugely by a factor of 10 or more. This would be the case if all the variables are measured on a five-point scale, but one is measured in thousands (for instance ‘turnover of department’). For this reason it is important to set the unit of measurement at the correct scale. Harrington (2009) compares this to converting currency. In the example above it does not make a difference if the turnover is reported in dollars or euros. The scale of the latent variables can also lead to problems with identification, but fortunately the problem can be overcome if the latent variable is set to the same scale as a predictor variable or if the variance of the latent variable is set to 1 (Harrington, 2009, p. 26).

Another reason for failure occurs when latent variables are correlated very highly (from 0,80 but sometimes even as high as 0,90). This can result in “the model not running, inadmissible solutions, or unstable results” (Bowen & Guo, 2011, p. 138). The solution is to combine them or exclude one of the variables. This could be done, taking conceptual and theoretical aspects into account. Lastly, an analysis that did not converge or inadmissible solutions (correlations higher than 1,00) are also reasons to re-specify the model and re-run the analysis.

#### *4.4.5 Model identification*

A model can be either under identified, exact identified, or over identified, depending if there are sufficient equations to determine a unique solution. There must be more known than unknown parameters (Harrington, 2009, p. 25). In the case of an under-identified model, the number of estimated parameters is larger than the number of known parameters and there will be an infinite number of perfect-fitting solutions. To solve this dilemma, the researcher can fix some of the parameters. In the case of an over-identified model (as is expected),

when “the number of unknowns is smaller than the number of knowns and  $df$  are greater than 0” (Harrington, 2009, p. 25) the best possible fit is searched for within the limits of the model specification (Markus, 2007, p. 774). The last scenario of “just identified” or exact identified is also not conducive to further research and model testing, as only one exact model is possible with one unique answer and no goodness-of-fit indices will be forthcoming (Bowen & Guo, 2011, p. 136; Harrington, 2009, p. 25).

In the previous sections, aspects of structural equation modelling such as the steps, the statistical assumptions underpinning SEM, the problems with determining goodness of fit and technical aspects concerning parameter estimation were discussed in relative detail. In the next sections the discussion will turn to organisational trust measurement before giving attention to the critical aspect of criterion measurement and then focusing on the Trust Relationship Audit questionnaire itself.

#### **4.5 Organisational trust measurement**

In any attempt to link an instrument to a predominant model or theory, the researcher has to go back to the basic assumptions of that model. The Mayer et al. (1995) model has the “willingness to be vulnerable to another party” as the core of its definition of trust (Schoorman, 200, p. 347). As such, the definition necessitates that any instrument asks questions that measure this.

In a review stretching over 48 years and including 171 articles, McEvily and Tortoriello (2011) identified 129 different psychometric measures of trust. This in itself would be encouraging, but they found that only in 24 cases were valid measures re-used in the format that they were validated (11 of these were by the original authors working with their own instrument). To bring some clarity to the field (and to promote consistency, is the case in the current study), they included only all the instruments that were based on a multi-item survey methodology, as well as on Rousseau et al. (1998) as a basis for their definition of trust. This excluded instruments that tended to be more trait or behavioural based in their view on trust. Furthermore, still covering the same basis of investigation as the current study, McEvily and Tortoriello (2011, p. 26) departed from the standpoint that trust is an individual psychological state and consequently also excluded collective entities as trustors or sources of trust. As mentioned earlier, they included only psychometric measures that they equated to survey-type instruments or questionnaires, which comprise “a variety of questions intended to capture different theoretical dimensions of trust” (McEvily & Tortoriello, 2011, p. 26).

McEvily and Tortoriello (2011) furthermore found that from the early 1990s to 2010, the number of new instruments that were used only once (not used in replications) decreased, but not to the benefit of increased replications. Instead, non-verbatim replications increased, where items were combined, selected or adapted for the specific study. Another problem that surfaced during the review was that insufficient statistics concerning the construct validity are normally reported (McEvily & Tortoriello, 2011, p. 32). The most commonly reported statistic was Cronbach's alpha as an indication of internal consistency, followed by analysis of construct validity in the form of confirmatory or exploratory factor analysis.

#### **4.6 Criterion measure**

Since ability, benevolence and integrity together constitute the components of trust beliefs or trustworthiness, trustworthiness is seen as an antecedent of trust. If a trustor perceives a trustee as trustworthy, then the probability is high that the trustor will trust the trustee. In other words, "trustworthiness is a quality that the trustee has, while trusting is something that the trustor does" (Dietz & Den Hartog, 2006, p. 559). A criterion measure is also known as a dependent variable, as the variable that is determined by the independent variable, or as a predictor variable (Tredoux & Durrheim, 2002, p. 19).

##### *4.6.1 Using the word "trust" in the criterion*

Questions were raised about the use of the word 'trust' itself in the item when measuring trust, although as the dependent variable, trust is predicted by the components of trustworthiness (ABI can be considered the predictor or independent variable). This still does not overcome the problems normally associated with measuring trust as a measure. The question remains if the items can contain the word 'trust' or not? Cummings and Bromiley (1996, p. 306) insisted that the questions may not include the word trust, although some of the most used measures of trust do not observe this ruling (Dietz & Den Hartog, 2006, p. 571). According to the meta-analysis conducted by Colquitt et al. (2007, p. 920), whether "willingness-to-be-vulnerable measures" items are used or whether the direct measurement approach is followed seems not to be such a critical issue, as they found no moderating effect that could be attributed to the measurement approach. An example of an item of the willingness-to-be-vulnerable measures is for instance: "I would be comfortable giving top management a task or problem that was critical to me, even if I could not monitor their actions" and "How much trust do you place in your superiors?" (a direct measure) (Colquitt et al., 2007, p. 914). The non-direct approach however complicates the wording and understanding for respondents (Colquitt et al., 2011, p. 1012). In the Trust Relationship Audit

both approaches were followed and it will be left to the subject matter experts to decide where especially the willingness-to-be-vulnerable items will be classified, as they are often phrased very closely to the type of items that represent managerial practices in the Martins (2000) model.

#### *4.6.2 Using one or more items for the criterion*

The question that needs to be asked here, is whether a single item or question is sufficient to represent the dependent criteria, or should multiple items be used? Is it really necessary to always use a laboriously developed scale, or may one use just one generalised question or single measure as Six et al. (2010, p. 298) did? Uslaner (2012, pp. 76-77) addresses this question that deals specifically with the measurement of generalised trust and suggests that if more than one general question is used, two outcomes are possible. On the one hand, measurement error is reduced as items are added, but on the other hand, measurement error is increased “by forming a scale from indicators that don’t all seem to tap the same underlying concept” (Uslaner, 2012, p. 77). This indicates that the trust measure used to determine the levels of trust present in the trustors themselves is very important from a methodological perspective, as the trust measure itself could have an influence on the resultant model fit. The question of criterion measurement needs to be considered very carefully and the effect of this should be evaluated during the validation.

With this in mind, Colquitt et al. (2007, p. 912) included the effect that three different measures of trust had on the relationship with the antecedents of trust (ability, integrity, benevolence, trust propensity) in their meta-analysis. They found that a direct measure (asking respondents if they trust the trustee directly), scales measuring “willingness to be vulnerable” (for instance the scale by Mayer & Gavin, 2005), or scales measuring “positive expectations” had very little influence on the level of the relationship. The only exception was direct measures that exhibited a “somewhat stronger” correlation with benevolence and “somewhat weaker” relationship with integrity (Colquitt et al., 2007, p. 915). De Jong and Elfring (2010, p. 541) on the other hand found very little systematic differences between their “direct measure” and “indirect measures”. The advantage of including direct measures is that the researcher is sure that they are not contaminating the measurement by measuring trustworthiness. Dirks and Ferrin (2002, p. 623) also suggest further research on the effect of composite trust measures. From the above it seems that the literature deems it acceptable to use the word trust in a direct measure, as was done in the current study.

### 4.6.3 Dimensionality of trust

McEvily and Tortoriello (2011) analyse whether studies treated trust as unidimensional (fully 78% of the studies did) or multi-dimensional, as the trust literature suggests. Concerning the dimensions measured in the studies that treated trust as a multi-dimensional or faceted construct, most used the ABI concepts, followed by the cognitive-affective trust conceptualisation – as can be seen from Table 4.4.

**Table 4.4. Dimensions included in psychometric trust measures**

| <b>Dimension</b>              | <b>Number of times replicated</b> |
|-------------------------------|-----------------------------------|
| Integrity                     | 19                                |
| Ability/competence            | 14                                |
| Benevolence                   | 14                                |
| Affective                     | 12                                |
| Cognitive                     | 11                                |
| Trust (verbatim)              | 9                                 |
| Loyalty                       | 7                                 |
| Openness                      | 7                                 |
| Fairness                      | 6                                 |
| Reliability                   | 5                                 |
| Faith in intentions           | 4                                 |
| Predictability                | 4                                 |
| Promise/commitment fulfilment | 4                                 |
| Willingness to risk           | 4                                 |
| Others                        | -                                 |

Adapted from McEvily and Tortoriello (2011, p. 34)

“Others” in Table 4.4 represents a summary of the dimensional measures that were operationalised three or less times and that are listed in detail from number 15 to number 36 in McEvily and Tortoriello (2011, p. 34). This seems to point to the unfortunate reality that the trust literature and especially measurement lacks continuity and coherence. McEvily and Tortoriello (2011, p. 35) blame this on the context-specific nature of trust and the fact that researchers from different areas of organisational trust research therefore design their own measure of trust each time they are confronted with a different scenario.

Making use of the above information, McEvily and Tortoriello (2011) identify five measures that conform to their criteria and are based on a confirmatory factor analysis. The organisational trust measure by Mayer and Davis (1999) is based on the Mayer et al. (1995) conceptualisation of trustworthiness and the underlying dimensions of ability, benevolence and integrity, and it was meant as an operationalisation of the “integrative model of organisational trust” (McEvily & Tortoriello, 2011, p. 60). This instrument by Mayer and Davis (1999) is of special interest in this study, as it can facilitate the process of classifying the

items used in the Trust Relationship Audit under the preliminary categories of ABI. Fortunately this instrument, together with the inventories by McAllister (1995) and Cummings and Bromiley (1996), is included in the group of most replicated measures (McEvily & Tortoriello, 2011, p. 35). Moreover, all three focus on "... *trustworthiness beliefs*, or the individual characteristics upon which a subjective evaluation of a trustee's motives and intentions is made" (McEvily & Tortoriello, 2011, p. 38, italics in original). The instrument by McAllister (1995) is of added interest, although not equivalent to that of Mayer and Davis (1999), as it focuses primarily on cognition-based and affect-based trust. It measures near-equivalent facets, for instance "competence/ responsibility" for ability and "care/ concern" for benevolence (McEvily & Tortoriello, 2011, p. 38).

To answer the question of whether all three variables (ability, benevolence and integrity) need to be coded or just two variables (where benevolence and integrity are combined), it was decided to code the original three facets of trustworthiness as antecedents of trust. This decision is based on the findings by Colquitt et al. (2007, pp. 917-918), namely that all three dimensions had significant as well as unique relationships with trust. The alternative would have been to follow the cognitive-affective school of thought, in other words combining benevolence and integrity into one variable, and having ability as the other variable representing cognitive trust. Hope-Hailey et al., (2012, p. 16) add "predictability" to the other three "drivers" of trustworthiness, based on the work of Dietz and Den Hartog (2006). The items that did not seem to fit into the above three categorisations of ABI could perhaps be fitted into this class.

If, however, it is not possible to allocate certain items to a specific category, it has to be kept in mind that these items might represent another factor, such as the 'propensity to trust'. Colquitt et al. (2007, p. 918) found that the latter was related to trust itself, as well as to the three facets of trustworthiness. The items that were included to measure this factor in previous studies are therefore also listed in the guidelines. It is postulated that items that are included under the agreeableness factor of the personality variables will probably fall under the category of propensity to trust (see for instance the discussion concerning control variables in this chapter or Colquitt et al., 2007, p. 913).

#### 4.6.4 *Measuring the "willingness to be vulnerable"*

If the items used by Mayer and Davies (1999, and adapted by Mayer & Gavin, 2005) and Gillespie (2003/2012) to measure *willingness to be vulnerable* or "... the decision to expose him/herself to the risk of potentially being harmed by the actions or decisions of the trustee"

(McEvily & Tortoriello, 2011, p. 38), correspond to the items that are included in the Trust Relationship Audit, then this Audit can be used as an instrument that also addresses this willingness to be vulnerable. It can also be compared to other research that measures this concept as proposed by Mayer et al. (1995). The items by Gillespie (2012, pp. 183-184) that are included in the coding guidelines can also be supplemented with the applicable items from the trust measure developed by Currall and Judge (1995) as suggested by McEvily and Tortoriello (2011, p. 38). Both the Currall and Judge (1995) items and the Gillespie (2003) items give an indication of the trustor's 'decision to trust'. These items were designed to focus on the willingness to be vulnerable to the supervisor or leader (Colquitt & Rodell, 2011, p. 1193; Mayer et al., 2011, p. 187; Norman et al., 2010, p. 355).

#### *4.6.5 Referents/foci of the trust*

Some trust measures do not indicate who exactly is meant to be the trustee. This needs to be made explicit in the instrument, as the trustor who completes the instrument needs to know whom to focus on. This is not always the case in published research (Dietz & Den Hartog, 2006, p. 570; Gillespie, 2012, p. 179; McEvily & Tortoriello, 2011, p. 27). An often referred to statement by Mayer and Davis (1999, p. 124) that "the trustee must be specific, identifiable and perceived to act with volition", links to the problem that in large organisations the identity of the trustee is not always clear to the trustor when general terms such as "top management" are used. In the Trust Relationship Audit, the items clearly identified the trustee as the person to whom the trustor reports directly, irrespective of hierarchical level. In the later versions of the Trust Relationship Audit a so-called 360-degree evaluation is included where different foci are identified as targets of trust. In the following section, more detail will be given concerning the Trust Relationship Audit itself.

### **4.7 Trust Relationship Audit and comparable measures**

The Trust Relationship Audit (Martins et al., 1997; Martins & Von der Ohe, 2005) that was described in detail in Chapter 3, has been refined over time and adapted for commercial and research purposes. In the next sections a brief description is given of the instrument itself and the theoretical development process. To establish a strong theoretical foundation for the re-coding and classification of the item pool by subject matter experts, certain instruments were identified to form the basis for the specification phase of the structural equation modelling process. These instruments will determine the allocation of indicator variables to the latent constructs from the Mayer et al. (1995) structure.

#### 4.7.1 *Instrument development*

Bowen and Guo (2011) summarise the process that was followed during the construction of the Trust Relationship Audit. This so-called mixed methods process is appropriate in cases where the research is concerned with constructs that are not very well understood or “understudied” (Bowen & Guo, 2011, p. 78). However, it needs to be noted that the process was not a linear process of instrument development. During various phases, some of the initial phases were revisited, for instance to hold new focus groups or interview respondents from different target groups so as to gain clarity concerning the meaning of concepts in different cultures, etc. This often occurred, depending on the needs of clients who made use of the instrument or special applications of the instrument, and also when certain analyses of the data for publication purposes opened up new questions.

The steps of the mixed methods scale development process as listed by Bowen and Guo (2011, p. 79) are as follows:

- Conduct a literature review.
- Interview intended respondents about the construct.
- Create an initial item pool.
- Solicit feedback from academic experts and experts from the intended setting.
- Test items and response options with intended respondents.
- Solicit expert feedback on the revised item pool and format.
- Pilot test the revised item pool.
- Examine distributions.
- Collect data from a large sample.
- Conduct an exploratory factor analysis.
- Conduct a confirmatory factor analysis.
- Conduct reliability analysis and additional construct and criterion validity tests.

This process is covered in the publications by Martins and colleagues, starting with the initial development in Martins et al. (1997) through to Van der Berg and Martins (2013), as discussed in Chapter 3. In the current study, the next step would be to replicate the CFA of Martins (2000, 2002) to confirm the factor structure. This would be close to the procedure used after translation into another language during normal scale development (Bowen & Guo, 2011, p. 80).

#### 4.7.2 Instrument description

The instrument used in this study is the Trust Relationship Audit (Martins et al., 1997, Martins & Von der Ohe, 2005) as refined over time. It is a classical self-report instrument with various items that the respondent answers on the basis of a Likert scale. The scaled answers make statistical analysis possible in respect of the underlying psychological concepts that are investigated (Hall & Swee, 2007, p. 653).

Concerning the *foci* of trust, the original questionnaire only considered the immediate supervisor, as is illustrated by the following extract from the Trust Relationship Audit:

*In the questionnaire, you will find that statements refer to "the person I report to". This refers to your direct superior or "boss" in ... [organisation]... .*

The original questionnaire normally consisted of four parts, depending on whether the brief from the organisations wanted other organisational diagnostics included. As is customary in survey research, the first section collected biographical information of the respondents. The second section consisted of "typical descriptions of the person" whom they reported to, and was an indication of the Big Five personality dimensions as judged by others. The third section dealt with "those things which the person one reports to, often does in the work place". This section covered managerial practices. The fourth section included a question on "how efficient you think the person you report to, is" and "a few questions on how you feel about change and trust in ABC". This last section included the five items that would determine trust.

The following is an extract from the standard reports that are written upon completion of a trust audit in an organisation. This description is based on Martins (2000) and provides an elementary insight into what the instrument measures, as explained in the feedback reports.

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#### **Purpose of the Trust Relationship Audit**

[Against the background of the above scenario], the purpose of the Trust Relationship Audit is to:

- (a) compare trust levels in the organisation against the ... .. levels;
  - (b) indicate how satisfied employers are with the managerial practices and sources of information;
  - (c) discuss strengths and weaknesses regarding the organisation's trust levels and managerial practices;
-

- 
- (d) determine employees' satisfaction with change and change processes; and
  - (e) make suggestions/recommendations on how to increase or maintain the levels of trust and effective management practice in the organisation.
- 

### **Dimensions measured**

The broader aspect of trust among management and employees is probably one of the major managerial concerns at the moment. Further investigation of the possible antecedents of trust (or mistrust), led to the assumption that trust within companies is probably created by *personal factors and managerial practices*. Many unsuccessful attempts at associating work performance with personality aspects are well known to industry. Recent research (on which consensus has widely been reached) has however shown that five personality aspects, popularly referred to as the Big Five, tend to significantly predict work performance in industrial settings. In this audit, these personality factors were viewed as possible antecedents of interpersonal trust among superiors and subordinates (Harvey et al., 1995).

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### **Personality aspects**

The Big Five Personality Dimensions include the following:

#### *Conscientiousness*

This includes traits such as being persistent, determined, hardworking, as well as dependable, thorough and responsible. The opposite pole of this would be careless or irresponsible.

#### *Agreeableness*

This reflects being liked, courteous, good-natured, cooperative, forgiving and soft-hearted. The opposite pole of this would be cold, rude, unkind and independent.

#### *Emotional stability*

This reflects the absence of anxiety, depression, anger, worry, and insecurity. The opposite pole is called neuroticism.

#### *Resourcefulness (openness to experience)*

This reflects imaginativeness, creativeness, broad-mindedness and intelligence. The opposite pole is closed-mindedness, unimaginativeness and conventionalism.

#### *Extraversion*

This reflects sociability, friendliness, talkativeness and activity. The opposite pole of the dimension involves being introverted, quiet, shy and reserved.

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## **Managerial practices**

This dimension consists of four subdimensions:

### *Credibility*

This includes a willingness to listen, consider proposals, allow others the freedom to express feelings, tolerate mistakes and ensure that employees enjoy prestige and credibility in the organisation.

### *Team management*

This dimension refers to the effective management of team and individual goal accomplishments and the handling of conflict within groups.

### *Information sharing*

This dimension indicates the willingness to give individual feedback on performance and to reveal company-related information in an honest manner.

### *Work support*

This dimension deals with the willingness to support employees when needed and to provide job-related information for the accomplishment of objectives.

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## **Trust relationship**

This dimension reflects the relationship with the immediate supervisor in terms of openness, honesty, fairness and intention to motivate employees:

- I have an open, trusting relationship with the person I report to
- The person I report to, openly and honestly reveals important work-related facts to me
- The person I report to, is fair in judging my performances
- The person I report to, demonstrates good intentions and motives towards me
- I can believe what the person I report to, says

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Unpublished research undertaken in South Africa from 1998 to 2000 has indicated that the following additional dimensions need to be included in the questionnaire:

- Information sources: This dimension measures the reliability and sufficiency of information sources.
- 360-degree trust: This dimension measures the impact of trust on all organisational levels.
- How change is experienced by different employees.

In conjunction with the statistical results obtained by Martins (2000) and consulting work conducted during the duration of the project, additional evidence came from the subjects themselves. Just as was the case in the study undertaken by Whiteley et al. (1998, p. 435),

the current study's feedback sessions in the workplace (where the results for various work units were discussed) repeatedly revealed the need for the combined examination of the concepts of trust and information sharing (called communication by Whiteley et al., 1998). In the case of Whiteley et al. (1998, pp. 435-436), they also found anecdotal evidence in the workplace relating to this interrelatedness:

*[[I]f trust is to be developed it is dependent on communication, but effective communication is equally dependent on well-established trust in a relationship.*

The psychometric properties of the Trust Relationship Audit itself were described in detail in Chapter 3 (see Section 3.4.5).

The above dimensions of managerial practices, personality and trust, with their subdimensions, constitute the target of this study; in other words, to determine how the items representing these dimensions fit in with the model of trust as postulated in Mayer et al. (1995).

#### *4.7.3 Choice of comparable instruments*

The choice of alternative instruments that could be used in the process of developing the re-coding instructions (which could in turn be used to re-classify the Trust Relationship Audit item pool under the Mayer et al. (1995) antecedents of trust) was based mainly on whether they are listed by McEvily and Tortoriello (2011, p. 35) as "noteworthy measures of trust". These noteworthy measures of trust are the following:

- McAllister (1995, Managerial Interpersonal Trust)
- Cummings and Bromiley (1996, Organisational Trust Inventory)
- Mayer and Davis (1999, Organisational Trust)
- Gillespie (2003, Behavioural Trust Inventory)

Although Currall and Judge (1995, Boundary Role Persons' Trust) is a measure of interpersonal trust, it was not included in the guidelines since the items focus on "individuals working across organizational boundaries" (McEvily & Tortoriello, 2011, p. 57) and do not fit into the ambit of the current study.

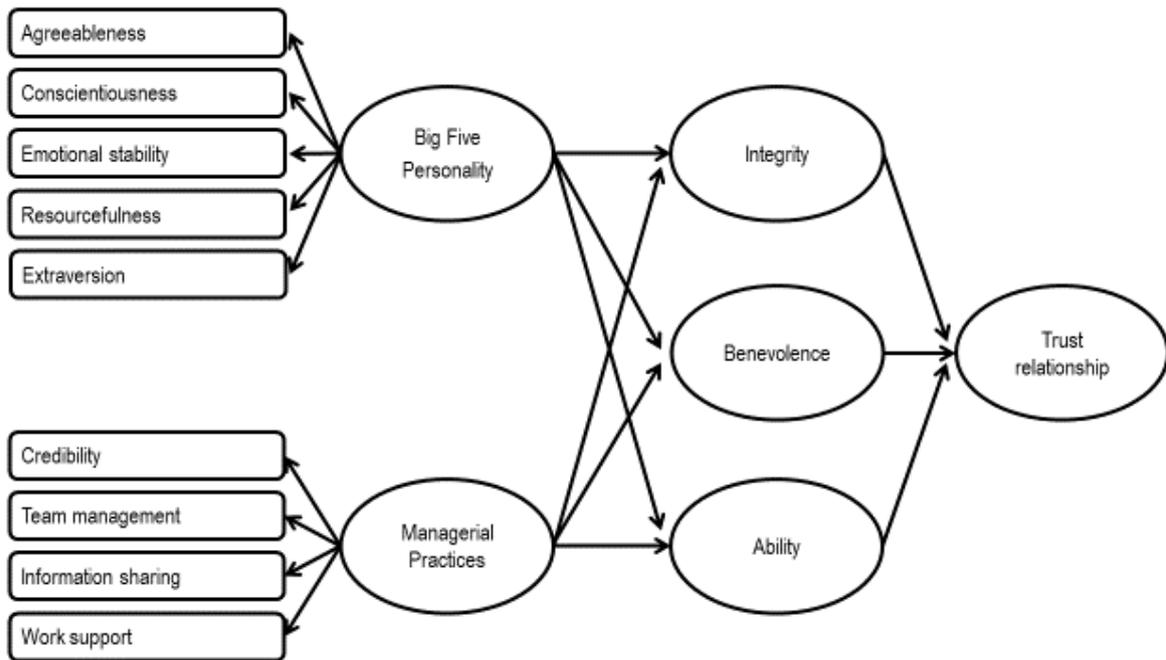
The psychometric properties of the instruments that were used as a basis for the coding process all exceed acceptable levels (McEvily & Tortoriello, 2011, pp. 54-55). The additional information such as the dimensions measured, item generation process, sample

composition, reliability (Cronbach's alpha) and type of validity for the measures that McEvily and Tortoriello (2011) supply, was used for the purpose of developing the coding key.

Appendix 2 in Dietz and Den Hartog (2006, pp. 579-580) was used even to a greater extent, as they provide in it a summary of the 14 measures that they included in their review. The Appendix reports on who the foci are, what percentage of the items are linked to ability, benevolence, integrity and predictability respectively, and the sources of trust. The latter are not discussed here as they are of no real concern in the current research. What is more important, is that all the measures are again psychometrically beyond reproach, as they were all published in high-standing international journals or, in the case of Gillespie (2003), presented at the *Academy of Management* and published in bookform (Dietz & Den Hartog, 2006, p. 566; Gillespie, 2012). This then leads to the next step, namely a description of the process of how the above questionnaires and the Trust Relationship Audit were deconstructed and the item pools were used to develop instructions that make it possible for subject matter experts to classify the items from the Trust Relationship Audit into the three antecedents of trust, as postulated by Mayer et al. (1995).

#### **4.8 Recoding of items to fit the Mayer et al. (1995) factor structure**

As previously mentioned, the most important aspect of any SEM is that it needs to have a well-researched and solid theoretical base (Mueller & Hancock, 2008, p. 489). For the purpose of the current study, the information gathered during the literature study was used as a foundation to develop the initial theoretical model depicted in Figure 4.3. The coding guidelines linked directly to this model can be used to reclassify the items from the Trust Relationship Audit as refined (Martins & Von der Ohe, 2005) under the various possible factors, for the purpose of statistical analysis.



**Figure 4.3. Theoretical model linking the Trust Relationship Audit and trustworthiness to trust**

The above model will be tested in the process of conducting the SEM, as explained in this chapter. Information obtained from the literature study and the model above was used to formulate guidelines for the re-coding of items (see Table 4.5 and Table 4.6). Some of the theoretical information from the studies is repeated in these guidelines because other subject matter experts will need to use this information to form an opinion when re-coding the Trust Relationship Audit items. This is necessary to ensure consistency and inter-rater reliability. The facts are collated in a matrix where each row represents a different study and the columns represent the antecedents of trust and the trust measure itself. In the following tables, the first column represents the study identification and its defining context. For the purpose of fitting the table onto paper, the matrix is split into two tables (see Table 4.5 and Table 4.6 below) and this identifying information is repeated for the trust measures. The first table (Table 4.5) thus represents the theoretical basis for the independent variables – in this case the antecedents of trust – and the second table (Table 4.6) provides the theoretical background to the dependent variable (the trust measure as criterion). In Chapter 5 the specific items will be allocated to their hypothetical factors and at that point the model will be tested. During this process there is a possibility that some items will not be allocated (theoretically) or fit (statistically) under these factors. These superfluous items could possibly represent something else, for instance affective commitment (see Colquitt et al., 2007, p. 919) or another antecedent identified in the literature, such as predictability (see Dietz & Den Hartog, 2006).

**Table 4.5. Coding guidelines for ability, benevolence, integrity and trust**

| Study –<br>Defining context  | Ability   | Benevolence   | Integrity   |
|--|---|---|---|
| Colquitt and Rodell (2011)<br><br>“Mayer and colleagues (1995) framed the concepts as facets of <i>trustworthiness</i> — attributes or characteristics of a trustee that inspire trust.” (Colquitt & Rodell, 2011, p. 1184)                          | <i>Ability</i> reflects concepts such as competence, skills, efficiency, and dedication. (Colquitt & Rodell, 2011, p. 1184)   | <i>Benevolence</i> reflects the sense that the trustee wants to “do good” to the trustor, with “doing good” including concepts such as being caring and open. (Colquitt & Rodell, 2011, p. 1184)  | <i>Integrity</i> reflects an adherence to a set of acceptable principles or a set of shared values.” (Colquitt & Rodell, 2011, p. 1184)   |
| Colquitt, LePine, Zapata and Wild (2011)<br><br>“We defined trust in our study as a unitary construct that is driven by perceptions of ability, integrity, and benevolence, following Mayer and colleagues (1995).” (Colquitt et al., 2011, p. 1001) | “By including ability and integrity as antecedents of trust, we sampled the same construct content that is found in operationalizations of knowledge- or cognition-based trust (Lewicki & Bunker, 1995; McAllister et al., 2006; McAllister, 1995; Shapiro et al., 1992).” (Colquitt et al., 2011, p. 1001)<br><br>“Similarly, McAllister and colleagues’ (2006) discussion of knowledge-based trust emphasized the importance of reliability, met expectations, and promise keeping (see also Lewicki & Bunker, 1995; McAllister, 1995; Shapiro et al., 1992).” (Colquitt et al., 2011, p. 1001) | “By including benevolence as an antecedent of trust, we sampled the same construct content that is found in operationalizations of goodwill- or affect-based trust (McAllister, 1995; McAllister et al., 2006).” (Colquitt et al., 2011, p. 1001) | “By including ability and integrity as antecedents of trust, we sampled the same construct content that is found in operationalizations of knowledge- or cognition-based trust (Lewicki & Bunker, 1995; McAllister et al., 2006; McAllister, 1995; Shapiro et al., 1992).” (Colquitt et al., 2011, p. 1001) |
| McEvily and Tortoriello (2011)   | “Ability is the first dimension and represents the skills, competencies and other characteristics that allow a counterpart to have influence in some domain.” (McEvily & Tortoriello, 2011, p. 61)  | “...benevolence, defined as the belief that a counterpart wants to do good to the counterpart, not solely from an egocentric profit motive.” (McEvily & Tortoriello, 2011, p. 60)   | “Integrity is the third dimension and reflects the belief that the counterpart adheres to a set of principles that the trustor finds acceptable.” (McEvily & Tortoriello, 2011, p. 60)  |

| Study –<br>Defining context   | Ability   | Benevolence   | Integrity   |
|---|---|---|---|
| Searle, Weibel and Den Hartog (2011)<br>“..., reliability, so far treated as a subcomponent of integrity, might be the essential trust driver in more calculative relationships and also in high-risk contexts.”<br>(Searle, Weibel et al., 2011, p. 145) |   | “Benevolence beliefs reflect the care and concern of the trustee for the well-being of the trusting employee.”<br>(Searle, Weibel et al., 2011, p. 145)   | “Integrity beliefs focus on whether the trustee is likely to adhere to moral principles and codes of behavior.”<br>“... integrity as congruence between words and deeds...” “... set of shared core values ...” “..., reliability...”<br>(Searle, Weibel et al., 2011, p. 145)  |
| Borum (2010)  | “...trustor’s perceptions of a trustee’s competence ... predictability ... or consistency”<br>(Borum, 2010, pp. 13-14)  | “...is based on perceptions and demonstrations of caring ..., goodwill ... and empathy...., responsibly fulfilling obligations, and goal commitment.”<br>(Borum, 2010, p. 14)   | “...a trustee’s objectivity, fairness ..., and accurate/honest communication, each of which also supports a trustee’s perceived dedication or commitment to a goal...”<br>(Borum, 2010, p. 14)  |
| Lapidot, Kark & Shamir (2007, p. 17-18)   | “..... a group of skills, competencies, and characteristics that enable an individual to have influence within a specific domain (Mayer et al., 1995; Zand, 1972). Within this specific domain (e.g., some technical area) the trustee may be highly competent and trusted to perform well; however, he or she may have a limited ability in a different area (e.g., interpersonal communication) and may not be trusted in that domain.” | “... the extent to which a trustee is believed to want to do good to the trustor, aside from a self-centered profit motive (Cook & Wall, 1980; Mayer et al., 1995; Mishra, 1996). Benevolence suggests that the trustee has some specific attachment to the trustor and is reflected in the perception of a positive orientation of the trustee toward the trustor ...” | “..., involves the trustor’s perception that the trustee adheres to a set of principles that the trustor finds acceptable. A sense of integrity involves both the adherence to and acceptability of the principles, since if a set of principles held by the trustee is not found acceptable by the trustor, the trustee would not be considered to have integrity ...” |
| Schoorman, Mayer & Davis (2007)   | “...is domain specific. ... The difference in the level of trust within the same relationship is a function of the different abilities across different domains.”<br>(Schoorman et al., 2007, p. 350).<br>[For example the partner can look after children but not drive sports car]  | “as the extent to which a party is believed to want to do good for the trusting party, aside from an egocentric profit motive”<br>(Schoorman et al., 2007, p. 345)<br>“benevolence as a quality of a relationship”<br>(Schoorman et al., 1996, p. 339)  | “...perception that the supplier has integrity suggests that it will fulfil agreements as promised.”<br>(Schoorman et al., 2007, p. 345)  |

| Study –<br>Defining context  | Ability   | Benevolence  | Integrity  |
|--|---|--|--|
| Dietz and Den Hartog (2006)  | “... competence refers to the other party’s capabilities to carry out her/his obligations (in terms of skills and knowledge)”<br>(Dietz & Den Hartog, 2006, p. 560)   | “... benevolence reflects benign motives and a personal degree of kindness toward the other party, and a genuine concern for their welfare”<br>(Dietz & Den Hartog, 2006, p. 560)  | “... integrity involves adherence to a set of principles acceptable to the other party, encompassing honesty and fair treatment, and the avoidance of hypocrisy”<br>(Dietz & Den Hartog, 2006, p. 560)<br>“... ‘openness and honesty’ as an equivalent to integrity”<br>(Dietz & Den Hartog, 2006, p. 568) |
| Simons (2002)<br>“Behavioral Integrity (BI) is the perceived pattern of alignment between an actor’s words and deeds.”<br>(Simons, 2002, p. 19)  |   |  | “...the extent to which employees believe a manager “walks her talk,” and, conversely, it reflects the extent to which they see her as “talking her walk.””<br>(Simons, 2002, p. 19)   |
| Davis, Schoorman, Mayer and Tan (2000)   | “... that group of skills and attributes which enables a party to have influence within some specific situation.”<br>“For a manager to be trusted, employees must perceive that he/she has the skills and aptitude to make a difference for them.”<br>“what can you do for me?”<br>(Davis et al., 2000, p. 566) | “...the extent to which the trustor perceives that the trustee intends to do good to the trustor in the relationship”<br>“...represents a positive personal orientation of the trustee to the trustor.”<br>(Davis et al., 2000, p. 566)<br>“... is flexible in scheduling work hours and considering their opinions when making a decision.”<br>(Davis et al., 2000, p. 567) | “... adheres to a set of principles that the employee finds acceptable. Such factors as consistency, a reputation for honesty, and fairness all contribute to the employee’s perception of GM integrity.”<br>“...is just, honest and fair.”<br>(Davis et al., 2000, p. 567)                                |
| <b>Studies with items</b>  |   |  |  |
| Colquitt, Scott and LePine (2007)<br><br>“The trust literature distinguishes <i>trustworthiness</i> (the ability, benevolence, and integrity of a trustee) and <i>trust propensity</i> (a dispositional willingness to rely on others) from <i>trust</i> (the intention to accept vulnerability to a | Ability: “that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain”<br>(Mayer et al., 1995, p. 717).<br><br><i>Mayer et al. (1995) synonyms:</i><br>Competence, perceived expertise<br><br>“... scales designed to                             | Benevolence: “the extent to which the trustee is believed to want to do good to the trustor, aside from an egocentric profit motive” (Mayer et al., 1995, p. 718).<br><br><i>Mayer et al. (1995) synonyms:</i><br>Loyalty, openness, caring, receptivity, availability   | Integrity: “the perception that the trustee adheres to a set of principles that the trustor finds acceptable” (Mayer et al., 1995, p. 719).<br><br><i>Mayer et al. (1995) synonyms:</i> Fairness, consistency, promise fulfilment, reliability, value congruence, discreetness                             |

| Study –<br>Defining context  | Ability  | Benevolence   | Integrity   |
|--|--|---|---|
| trustee based on positive expectations of his or her actions).” (Colquitt, Scott & LePine, 2007, p. 909)   | assess ability, like “competence,” “expertise,” “knowledge,” and “talent” (Mayer & Davis, 1999).” (Colquitt et al., 2007, p. 913)  | “... scales designed to assess benevolence, like “openness,” “loyalty,” “concern,” and “perceived support” (Mayer & Davis, 1999). Perceived support was included because of its focus on caring, valuing, showing concern, and helping the focal individual” (Colquitt et al., 2007, p. 913)  | “... scales designed to assess integrity, like “promise keeping,” “credibility,” and “procedural justice” (Mayer & Davis, 1999).” “... procedural justice... its focus on the consistency, bias suppression, and ethicality of decision making” (Colquitt et al., 2007, p. 913)   |
| Organisational Trust Instrument (Mayer & Davis, 1999) (Mayer & Gavin, 2005) * = reverse coded Scale (1 = disagree strongly to 5 = agree strongly) (McEvily & Tortoriello, 2011, p. 61) | Trustworthiness (Ability)<br>1. Top management is very capable of performing its job.<br>2. Top management is known to be successful at the things it tries to do.<br>3. Top management has much knowledge about the work that needs to be done.<br>4. I feel very confident about top management’s skills.<br>5. Top management has specialised capabilities that can increase our performance.<br>6. Top management is well qualified. | Trustworthiness (Benevolence)<br>1. Top management is very concerned about my welfare.<br>2. My needs and desires are very important to top management.<br>3. Top management would not knowingly do anything to hurt me.<br>4. Top management really looks out for what is important to me.<br>5. Top management will go out of its way to help me.     | Trustworthiness (Integrity)<br>1. Top management has a strong sense of justice.<br>2. I never have to wonder whether top management will stick to its word.<br>3. Top management tries hard to be fair in dealings with others.<br>4. Top management’s actions and behaviours are not very consistent.* [D&D - predictability]<br>5. I like top management’s values.<br>6. Sound principles seem to guide top management’s behaviour. |
| Managerial Interpersonal Trust Instrument (McAllister, 1995) * = reverse coded Scale (1 = strongly disagree to 7 = strongly agree) (McEvily & Tortoriello, 2011, p. 56)                | [Item categorisation according to Dietz & Den Hartog, 2006, Appendix 2]<br><br>This person approaches her/his job with professionalism and dedication<br>Given this person’s track record, I see no reason to doubt her/his competence and preparation for the job.<br>I can rely on this person not to make my job more difficult by careless work competence.  | [Item categorisation according to Dietz & Den Hartog, 2006, Appendix 2]<br><br>We have a sharing relationship. We can both freely share our ideas, feelings and hopes.<br>I can talk freely to this individual about difficulties I am having at work and know that (s)he will want to Listen.<br>If I shared my problems with this person, I know that | [Item categorisation according to Dietz & Den Hartog, 2006, Appendix 2]<br><br>If people knew more about this individual and her/his background, they would be more concerned and monitor her/his performance more closely.*  |

| Study –<br>Defining context   | Ability  | Benevolence  | Integrity  |
|---|--|--|--|
| Cummings and Bromiley (1996) (also available in Dietz & Den Hartog, 2006, p. 582)   | <p>2. We think that (___) meets its negotiated obligations to our department. [D&amp;D - Predictability/ competence]</p> <p>3. In our opinion, (___) is reliable. [D&amp;D – Predictability]</p>   | <p>(s)he would respond constructively and caringly.</p> <p>5. We feel that (___) tries to get the upper hand.* [D&amp;D - Benevolence]</p> <p>6. We think that (___) takes advantage of our problems.* [D&amp;D – Benevolence]</p> <p>12. We feel that (___) takes advantage of people who are vulnerable.* [D&amp;D - Benevolence/ Integrity]</p>   | <p>1. We think the people in (___) tell the truth in negotiations. [D&amp;D – Integrity]</p> <p>4. We think that the people in (___) succeed by stepping on other people.* [D&amp;D – Integrity]</p> <p>7. We feel that (___) negotiates with us honestly. [D&amp;D – Integrity]</p> <p>8. We feel that (___) will keep its word. [D&amp;D - Predictability/ integrity]</p> <p>9. We think that (___) does not mislead us. [D&amp;D – Integrity]</p> <p>10. We feel that (___) tries to get out of its commitments.* [D&amp;D – Integrity]</p> <p>11. We feel that (___) negotiates joint expectations fairly. [D&amp;D – Integrity]</p> |
| Jarvenpaa, Knoll & Leidner (1998, p. 37) – changed the Schoorman et al., instrument to focus on a team as trustee - a “collective entity” | <p>“<i>Ability</i> refers to the group of skills that enable a trustee to be perceived competent within some specific domain.” (Jarvenpaa et al., 1998, p. 31)</p> <p>I feel very confident about the other team members' skills.</p> <p>The other team members have much knowledge about the work that needs to be done.</p> <p>The other team members have specialised capabilities that can increase our performance.</p> <p>The other team members are well qualified.</p> <p>The other team members are very capable of performing their tasks.</p> | <p>“<i>Benevolence</i> is the extent to which a trustee is believed to feel interpersonal care and concern, and the willingness to do good to the trustor beyond an egocentric profit motive.” (Jarvenpaa et al., 1998, p. 31)</p> <p>The other team members were very concerned about the ability of the team to get along.</p> <p>The outcomes of this project are very important to the other team members.</p> <p>The other team members would not knowingly do anything to disrupt or slow down the project.</p> <p>The other team members are concerned about what</p> | <p>“<i>Integrity</i> is adherence to a set of principles (such as study/work habits) thought to make the trustee dependable and reliable, according to the trustor.” (Jarvenpaa et al., 1998, p. 31)</p> <p>The other team members try hard to be fair in dealing with one another.</p> <p>The other team members have a strong sense of commitment. I never am doubtful about whether the other team members will do what they promised.</p> <p>I like the work values of the members on this team.</p> <p>The other team members do not behave in a consistent manner - I am never</p>   |

| Study –<br>Defining context   | Ability   | Benevolence   | Integrity   |
|---|---|---|---|
|   | The other team members seem to be successful in the activities they undertake. (Jarvenpaa et al., 1998, p. 63)  | is important to the team. The other team members will do everything within their capacity to help the team perform. (Jarvenpaa et al., 1998, p. 63)   | sure if they are going to do what they promise or not. The other team members display a solid work ethic. (Jarvenpaa et al., 1998, p. 63)   |
| Behavioural Trust Inventory (Gillespie, 2003)<br>Instructions: How willing are you to ... Scale (1 = not at all willing to 7 = completely willing) (Dietz & Den Hartog, 2006, 587; Gillespie, 2012; McEvily & Tortoriello, 2011, pp. 62-63)   | <i>N/A Based on Zand (1972)</i><br>1. . . . rely on your leader's work-related judgements? [D&D - Competence/ predictability]<br>2. . . . rely on your leader's task-related skills and abilities? [D&D - Competence/ predictability] | <i>N/A Based on Zand (1972)</i><br>3. . . . depend on your leader to handle an important issue on your behalf? [D&D - Benevolence/ competence/ predictability]<br>4. . . . rely on your leader to represent your work accurately to others? [D&D - Benevolence/ competence/ predictability]<br>5. . . . depend on your leader to back you up in difficult situations? [D&D - Benevolence/ competence/ predictability] | <i>N/A Based on Zand (1972)</i>   |
| Robinson (1996)<br>Organisational trust "statements concerning the reliability, dependability and integrity of the organisation (e.g., I believe my employer is open and upfront with me), and asked to indicate their agreement on 7-point scales (1_strongly disagree; 7_strongly agree)." (Gellatly & Withey, 2012, p. 38) |   | 4. In general, I believe my employer's motives and intentions are good. [D&D - Benevolence]   | 1. I believe my employer has high integrity. [D&D - Integrity]<br>2. I can expect my employer to treat me in a consistent and predictable fashion. [D&D - Predictability]<br>3. My employer is not always honest and truthful.* [D&D - Integrity]<br>5. I don't think my employer treats me fairly.* [D&D - Integrity/benevolence]<br>6. My employer is open and upfront with me. [D&D - Integrity] |

Note. [D&D – *component name*] represents the item categorisation according to Dietz and Den Hartog (2006, Appendix 2). This refers to the fact that they "categorised each item in each measure to discern which of the four content components the wording seemed to capture – regardless of any category assigned to it by the author(s) – to gauge the proportionate attention given to each (p. 565)."

From the above table it has become clear that trust is still in its formative years and the need for a common language of trust is overdue. Trust researchers need to agree on the definitions and bases of their theoretical underpinnings to move the field of trust research forward. Similarly, Table 4.6 investigates the theoretical background concerning the trust measure and the possible coding guidelines when analysing the items used in the current study. The question that emerges in this context is whether some of the items from the managerial practices, 360-degree evaluation or the 'change' subscale will need to be included in the trust measure scale.

**Table 4.6. Coding guidelines for the trust measure**

| Study –<br>Defining context  | Trust measure (criterion / dependent variable)  |  |
|--|---|--|
| Frazier, Johnson and Fainshmidt (2013)   | <p><i>Propensity to trust</i></p> <p><b>Final items</b></p> <ul style="list-style-type: none"> <li>• I usually trust people until they give me a reason not to trust them.</li> <li>• Trusting another person is not difficult for me.</li> <li>• My typical approach is to trust new acquaintances until they prove I should not trust them.</li> <li>• My tendency to trust others is high.</li> </ul> <p>(Frazier et al., 2013, p. 82)</p> | <p><b>Items not retained in final CFA</b> <i>Propensity to trust</i></p> <ul style="list-style-type: none"> <li>• It is easy for me to trust others.</li> <li>• Even if I am uncertain, I will generally give others the benefit of the doubt.</li> <li>• I generally believe that others can be counted on to do what they say they will do.</li> <li>• I tend to trust others even if I have little knowledge of them.</li> <li>• I generally give people the benefit of the doubt when I first meet them.</li> <li>• I am seldom wary of others. I don't mind giving up control to others over matters which are essential to my future plans.</li> <li>• I believe that people usually keep their promises.</li> </ul> |
| <p>Colquitt et al. (2011)</p> <p>"We defined trust in our study as a unitary construct that is driven by perceptions of ability, integrity, and benevolence, following Mayer and colleagues (1995)."</p> <p>(Colquitt et al., 2011, p. 1001)</p> | <p><i>Global trust</i></p> <p>"In general, I trust my coworkers."</p> <p>"It bothers me to think that I am vulnerable to my coworkers' actions" (reverse-coded)</p> <p>"It bothers me when I have to rely on my coworkers during job tasks"</p> <p>"I am confident that my coworkers will do the right thing on the job" and</p>  | <p>"In addition, we included identification as an antecedent of trust, in an effort to sample the same construct content that is found in operationalizations of identification-based trust" (Colquitt et al., 2011, p. 1001)</p> <p>"It is important to note that the use of the word "trust" in the items classifies this measure as a "direct measure." "Measures based on a willingness-to-be-vulnerable definition are typically used in conjunction with Mayer and colleagues' (1995) unitary conceptualization of trust, but those measures have sometimes proven</p>   |

| Study –<br>Defining context   | Trust measure (criterion / dependent variable)   |   |  |
|---|--|---|--|
|   | “I am confident that I can depend on my coworkers when performing job tasks.”  | “We utilized an ad hoc scale for global trust because existing scales are either unreliable or include items that actually reflect trust antecedents such as ability, integrity, or benevolence” (Colquitt et al., 2011, p. 1006)   | unreliable (Mayer & Davis, 1999; Mayer & Gavin, 2005; Schoorman, Mayer, & Davis, 2007). Direct measures have proven to be reliable in past research, and the use of the word “trust” makes responding to the 18 tasks simpler than it would be with a willingness-to-be-vulnerable phrasing.” (Colquitt et al., 2011, p. 1005) |
| Dietz and Den Hartog (2006)   | “Cunningham and MacGregor (2000, pp. 1578-9) and Mishra (1996, p. 265) have both made powerful arguments for including predictability (or reliability).” (Dietz & Den Hartog, 2006, p. 560)  |   | “...predictability relates specifically to consistency and regularity of behaviour (and as such is distinct from competence or integrity).” (Dietz & Den Hartog, 2006, p. 560)<br>“...other’s consistency and reliability...” (Dietz & Den Hartog, 2006, p. 568)   |
| Colquitt, Scott and LePine (2007)<br><br>“The trust literature distinguishes <i>trustworthiness</i> (the ability, benevolence, and integrity of a trustee) and <i>trust propensity</i> (a dispositional willingness to rely on others) from <i>trust</i> (the intention to accept vulnerability to a trustee based on positive expectations of his or her actions).” (Colquitt, Scott & LePine, 2007, p. 909) | Trust<br>“Items that represent positive expectations of the trustor concerning trustee actions or behaviours such as “How confident do you feel that your superior keeps you fully and frankly informed about things that might concern you?”” (Colquitt, 2007, p. 914).                 | Propensity to trust<br>In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy. Parents usually can be relied upon to keep their promises. Parents and teachers are likely to say what they believe themselves and not just what they think is good for the child to hear. Most elected public officials are really sincere in their campaign promises. (Rotter, 1967, p. 654) |  |
| Organisational Trust Instrument (Mayer & Davis , 1999) (Mayer & Gavin, 2005)<br>* = reverse coded<br>Scale (1 = disagree strongly to 5 = agree strongly)<br><br>(McEvily & Tortoriello, 2011, p. 61)  | Willingness-to-be-vulnerable<br>1. If I had my way, I wouldn’t let top management have any influence over issues that are important to me.* [D&D -Intention to Act?/General]<br>2. I would be willing to let top management have complete control over my future in this company. [D&D - | Propensity to trust<br>1. One should be very cautious with strangers.<br>2. Most experts tell the truth about the limits of their knowledge.<br>3. Most people can be counted on to do what they say they will do.<br>4. These days, you must be alert or someone is likely to take advantage of you.<br>5. Most salespeople are  | Outcome instrumentality<br>1. Whether or not I get a raise depends on my performance.<br>2. If you are one of the better performers in this company, you will get one of the better raises.<br>3. If I perform well, my chances of moving up are improved.<br><br>Ability to Focus<br>1. The work climate here                 |

| Study –<br>Defining context  | Trust measure (criterion / dependent variable)  |  |  |
|--|---|--|--|
|  | <p>Intention to Act?/<br/>General/ Benevolence]</p> <p>3. I really wish I had a good way to keep an eye on top management.* [D&amp;D - Intention to Act?/General]</p> <p>4. I would be comfortable giving top management a task or problem which was critical to me, even if I could not monitor their actions. [D&amp;D - Intention to Act?/ General / Competence]</p> <p><i>Additional trust items (Mayer &amp; Gavin, 2005)</i></p> <p>1. I would tell ___ about mistakes I've made on the job, even if they could damage my reputation.</p> <p>2. I would share my opinion about sensitive issues with ___ even if my opinion were unpopular.</p> <p>3. I am afraid of what ___ might do to me at work.</p> <p>4. If ___ asked why a problem happened, I would speak freely even if I were partly to blame.</p> <p>5. If someone questioned ___ 's motives, I would give ___ the benefit of the doubt. [General item loaded with four items above]</p> <p>6. If ___ asked me for something, I respond without thinking about whether it might be held against me.</p> | <p>honest in describing their products.</p> <p>6. Most repair people will not overcharge people who are ignorant of their specialty.</p> <p>7. Most people answer public opinion polls honestly.</p> <p>8. Most adults are competent at their jobs.</p>  | <p>allows me to focus on doing my job.</p> <p>2. In this company, you need to make sure you "cover your backside".</p> <p>3. There are issues in this company which take my attention away from doing my job.</p> <p>4. I need to spend a fair amount of my time getting information to protect myself.</p> <p>5. If you don't watch out for yourself around here, you won't get what's coming to you.</p> <p>6. I don't feel like I need to worry about the politics in this company.</p> |
| <p>Managerial Interpersonal Trust Instrument (McAllister, 1995)</p> <p>* = reverse coded Scale (1 = strongly disagree to 7 = strongly agree)</p> <p>(McEvily &amp; Tortoriello, 2011, p. 56)</p> | <p>-</p>  | <p>Cognition-based trust</p> <p>1. This person approaches his/her job with professionalism and dedication.</p> <p>2. Given this person's track record, I see no reason to doubt his/her competence and preparation for the job.</p> <p>3. I can rely on this person not to make my job more difficult by</p> | <p>Affect-based trust</p> <p>1. We have a sharing relationship. We can both freely share our ideas, feelings, and hopes.</p> <p>2. I can talk freely to this individual about difficulties I am having at work and know that (s)he will want to listen.</p> <p>3. We would both feel a sense of loss if one of us</p>  |

| Study –<br>Defining context  | Trust measure (criterion / dependent variable)   |  |  |
|--|--|--|--|
|  |  | <p>careless work.</p> <p>4. Most people, even those who aren't close friends of this individual, trust and respect him/her at work.</p> <p>5. Other work associates of mine who must interact with this individual consider him/her to be trustworthy.</p> <p>6. If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.*</p> | <p>was transferred and we could no longer work together.</p> <p>4. If I shared my problems with this person, I know (s)he would respond constructively and caringly</p> <p>5. I would have to say that we have both made considerable emotional investments in our working relationship.</p> |
| Schoorman, Mayer & Davis (2007)  | <p>Trust Items (from Schoorman and Ballinger)</p> <p>My supervisor keeps my interests in mind when making decisions.</p> <p>I would be willing to let my supervisor have complete control over my future in this company.</p> <p>If my supervisor asked why a problem occurred, I would speak freely even if I were partly to blame.</p> <p>I feel comfortable being creative because my supervisor understands that sometimes creative solutions do not work.</p> <p>It is important for me to have a good way to keep an eye on my supervisor.</p> <p>Increasing my vulnerability to criticism by my supervisor would be a mistake.</p> <p>If I had my way, I wouldn't let my supervisor have any influence over decisions that are important to me.</p> | <p>"We defined trust as a willingness to be vulnerable to another party. ..., suitable measurement of the construct necessitates that questions be asked that assess the extent to which a trustor is willing to voluntarily take risks at the hands of the trustee." (Schoorman et al., 2007, p. 347)</p>   |  |
| Jarvenpaa, Knoll & Leidner (1998, p. 37) – adjusted the Schoorman et al. instrument to reflect team as foci, the | <p><i>Trust</i></p> <p>If I had my way, I wouldn't let the other team members have any influence over issues that are</p>  | <p><i>Propensity to Trust (in foreign international students)</i></p> <p>"...is influenced by a trustor's cultural, social, developmental</p>  | <p><i>Trustworthiness</i></p> <p>Members of my work group show a great deal of integrity.</p> <p>I can rely on those with whom I work in this</p>  |

| Study –<br>Defining context   | Trust measure (criterion / dependent variable)  |  |  |
|---|---|--|--|
| trustee was accordingly described as a “collective entity”.   | <p>important to the project.<br/>I would be comfortable giving the other team members complete responsibility for the completion of this project.<br/>I really wish I had a good way to oversee the work of the other team members on the project.<br/>I would be comfortable giving the other team members a task or problem that was critical to the project, even if I could not monitor them.<br/>(Jarvenpaa et al., 1998, pp. 63-64)</p> | <p>experiences, and personality type” (Jarvenpaa et al., 1998, p. 31)</p> <p>One should be very cautious when working with foreign students.<br/>Most foreign students tell the truth about the limits of their knowledge.<br/>Most foreign students can be counted on to do what they say they will do.<br/>If possible, it is best to avoid working with foreign students on projects.<br/>Most foreign students are honest in describing their experience and abilities.<br/>Most foreign students answer personal question honestly.<br/>Most foreign students are very competent in terms of their studies.<br/>(Jarvenpaa et al., 1998, p. 64)</p> | <p>group.<br/>Overall, the people in my group are very trustworthy.<br/>We are usually considerate of one another's feelings in this work group.<br/>The people in my group are friendly.<br/>There is no "team spirit" in my group.<br/>There is a noticeable lack of confidence among those with whom I work.<br/>We have confidence in one another in this group.<br/>(Jarvenpaa et al., 1998, p. 64)</p>   |
| <p>Behavioural Trust Inventory (Gillespie, 2003)<br/>Instructions: How willing are you to ...<br/>Scale (1 = not at all willing to 7 = completely willing)<br/>(Dietz &amp; Den Hartog, 2006, 587; Gillespie, 2012; McEvily &amp; Tortoriello, 2011, pp. 62-63)</p> | -   | <p>Reliance</p> <ol style="list-style-type: none"> <li>1. Rely on your leader's work-related judgements.</li> <li>2. Rely on your leader's task-related skills and abilities.</li> <li>3. Depend on your leader to handle an important issue on your behalf.</li> <li>4. Rely on your leader to represent your work accurately to others.</li> <li>5. Depend on your leader to back you up in difficult situations.</li> </ol>   | <p>Disclosure</p> <ol style="list-style-type: none"> <li>1. Share your personal feelings with your leader. [D&amp;D - Benevolence/ integrity]</li> <li>2. Confide in your leader about personal issues that are affecting your work. [D&amp;D - Benevolence/ competence/ integrity]</li> <li>3. Discuss how you honestly feel about your work, even negative feelings and frustration. [D&amp;D - Benevolence/ competence/ integrity]</li> <li>4. Discuss work-related problems or difficulties that could potentially be used to disadvantage you. [D&amp;D - Benevolence/ competence/ integrity]</li> <li>5. Share your personal beliefs with your leader. [D&amp;D - Benevolence/ competence/ integrity]</li> </ol> |
| <p>Robinson (1996)<br/>Organisational trust “statements concerning the reliability, dependability and</p>   | <p>I'm not sure I fully trust my employer. [D&amp;D - General]</p>  |  |  |

| Study –<br>Defining context   | Trust measure (criterion / dependent variable) |
|---|--|
| integrity of the organisation (e.g., I believe my employer is open and upfront with me), and asked to indicate their agreement on 7-point scales (1_strongly disagree; 7_strongly agree).” (Gellatly & Withey, 2012, p. 38) |  |

**Note.** [D&D – component name] stands for item categorisation according to Dietz and Den Hartog (2006, Appendix 2). This refers to the fact that they “...categorised each item in each measure to discern which of the four content components the wording seemed to capture – regardless of any category assigned to it by the author(s) – to gauge the proportionate attention given to each... (p. 565)”

From Table 4.6 it is interesting to note that some authors preferred to use a global or direct measure of trust that they developed themselves, as they felt that the existing scales are nothing more than measures of the antecedents of trust such as ability, integrity, or benevolence (Colquitt et al., 2011).

The commonly used trust measure developed by Mayer and Davis (1999) and updated by Mayer and Gavin (2005) is by general consensus considered to have been designed to capture participants or focus on the willingness to be vulnerable to their supervisor or leader (Colquitt & Rodell, 2011, p. 1193; Mayer et al., 2011, p. 187; Norman et al., 2010, p. 355). Other trust dimensions identified are identification-based trust, cognition- and affect-based trust and, interestingly, the propensity to trust. In the latter case, the current study postulates that this is a separate latent variable. The question remains though, whether propensity to trust (although distinct from optimism) is perhaps not an “antecedent to trustworthiness, as opposed to influencing trust alongside trustworthiness” (Frazier et al., 2013, p. 93). The current study proposes that the propensity to trust is neither an antecedent to trustworthiness as suggested by Frazier et al. (2013), nor an antecedent of trust (latent error) as suggested by Colquitt et al. (2007).

#### **4.9 Conclusion**

This chapter described the research methodology that was followed. Special emphasis was placed on the aspects that could influence the current study unexpectedly, the nature of factor analysis and the general structural equation model. A further aspect that was briefly addressed was the Trust Relationship Audit, its comparable instruments that would be used

in the development of the coding guidelines and the development of the coding guidelines themselves. In Chapter 5, the empirical testing of the various models will be reported on. This mainly entails the confirmatory factor analysis of the Martins (2000) model, determining the fit of the measurement model and developing a structural regression model that is both theoretically and empirically acceptable.

## Chapter 5: Results

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This chapter provides a description of and background to the data used. Next follows an investigation into whether the model as postulated by Martins (2000) holds and can be confirmed with the current dataset composition by way of a CFA using SEM. A description and analysis of the item selection procedure that was followed to determine which items can be used to predict the latent variables is provided. These latent variables represent ABI for the purpose of extracting the Mayer et al. (1995) model from the Martins (2000) model. After this, the resultant theoretical measurement model will be tested by means of a CFA, and during this process, the effect of the various missing values will be investigated. The resulting measurement models will then be expanded into a structural model that includes the trust construct in its various forms.

### 5.1 Data description

The combined database (N=12363) available for use in this research consists of various datasets collected from 1997 to 2010, with the last article published on a subset of the data by Van den Berg and Martins (2013). The data was collected from more than 26 organisations. Most of the data resulted from individual organisational development interventions (N= 8854), while some surveys were part of postgraduate student dissertations (N=203). Collection of most of the remaining data was undertaken in organisations for purely research purposes.

The only exception was the data collected between 2008 and 2010 in the so-called *Time Series* survey (N=698). This survey comprised an online survey on the state of trust during times of change. The initial respondents were past students of the University of South Africa, a mega open distance university (Martins & Von der Ohe, 2011, Von der Ohe & Martins, 2010). These students are more mature and mostly work full time – in contrast to residential university students. The other respondents in this online survey were the readers of a popular human resources journal wherein a call was made for readers to complete the survey (Von der Ohe & Martins, 2010, p. 3). This was one of only two surveys (the other survey was a small sample of 167 respondents in 2002) where no information on the personality-based items representing the Five Factor Model (FFM) was collected, as the focus was on change and trust. Change-related items, managerial practices (MP) and information-sharing items were the focus of the *Time Series* study. This explains the

differences in the total responses collected concerning FFM and MP responses in the combined database.

### *5.1.1 Merging of alternate versions of questionnaires*

It is important to maintain relevance concerning item phrasing and content when undertaking survey research. As part of the organisational development process, the items themselves changed as the needs of the client organisations were addressed and the items were adapted to the 'organisational language'. For further data integrity, each available paper questionnaire was compared to the other paper questionnaires in detail after an electronic document comparison had taken place. The researcher could not solely rely on the latter, as the different client logos and corporate layouts prevented an electronic comparison. The documents were then stripped of all these superfluous formatting and again compared. As a further precaution, the SPSS syntax files that allocated variable labels and names were also compared. During this process it was discovered that certain items had changed position or wording over the passage of time. Fortunately, these changes mostly concerned items that were not used in the current study and items that represented the constructs of organisational change, union relations and information sharing within the organisations (see Table 5.1). Examples are for instance the fact that the items for a certain organisation (Org D) concerning information sharing were excluded from the dataset and from any further analysis. The reason for this is that they represented fewer than 150 respondents, and upon inspection seemed to measure different constructs than those in the other organisations. The different versions of item b79 were combined, as in some non-unionised organisations the terminology did not refer to union representation.

Although the exact items that would be used in the study were not known at the stage of the dataset mergers, the items concerning the critical aspects of trust were also affected by these inconsistencies between the different questionnaires. This especially pertained to the fact that certain of the datasets did not include the items that related to the trust between supervisors and their subordinates. In other words, they did not differentiate between the direct manager and direct supervisor. This is probably a question of semantics, as a direct manager is also a direct supervisor even if the organisation does not use the term supervisor. These variables were not merged but rather kept separately, although this will have an effect on the amount of missing values in data that was collected in the organisations concerned.

The MP items in the so-called *Time Series* studies from 2008 to 2010 also had to be re-coded, as this study did not collect any FFM information and also used a different variable-naming convention. The variables were re-coded under a different variable and then the two output tables were compared to ensure that the re-coding was correct.

**Table 5.1. Re-coding and merging of items between different datasets**

| Org D Items  | Org E Items  | <i>Time Series</i> 2008 to 2010 and Org A Items  | Final combined dataset items   |
|--|--|--|--|
| b72 Re-organising of technical process and jobs<br>b73 Re-linking or re-grouping to another BU<br>b74 Re-structuring of the organisation<br>b75 The offering of separation packages<br>b76 Appointment of Top Management<br>b77 Appointment of middle management<br>b78 Change: Appointment of supervisors or team leaders | b72 Re-organising of technical process and jobs<br>b73 Re-linking or re-grouping to another BU<br>b74 Re-structuring of the organisation<br>b75 The offering of separation packages<br>b76 Appointment of top management<br>b77 Appointment of middle management<br>b78 Appointment of supervisors | V42 Change: Reorganising of technical processes and jobs<br>V43 Change: Restructuring of the organisation<br>V44 Change: Early retirement or severance packages<br>V45 Change: Appointment of top management<br>V46 Change: Appointment of middle management<br>V47 Change: Appointment of supervisors | b72 Change: Reorganising of technical processes and jobs<br>b73 Change: Re-linking or re-grouping to another BU<br>b74 Change: Restructuring of the organisation<br>b75 Change: Offering early retirement or severance packages<br>b76 Change: Appointment of top management<br>b77 Change: Appointment of middle management<br>b78 Change: Appointment of supervisors or team leaders |
| b79 Company relationship with trade unions<br>b80 Implementation of gender equality (as part of AA)<br>b81 Implementation of disability equality (as part of AA)<br>b82 Other changes  | b79 Granting of more decision-making power to trade unions<br>b80 The implementation of gender equality as part of affirmative action<br>b81 The implementation of disability equality as part of AA<br>b82 Other changes  | V48 Change: More decision-making power to employees<br>V49 Change: Management of employment equity<br>V50 Change: Implementation of gender equality<br>V51 Change: Implementation of disability equality<br>V52 Other changes  | b79 Change: More decision-making power to employees or unions<br>b80 Change: Management of employment equity<br>b80 Change: Implementation of gender equality(as part of AA)<br>b81 Change: Implementation of disability equality (as part of AA)<br>b82 Other changes   |
| b83 I trust: Top management<br>b84 I trust: My immediate manager<br>b85 I trust: My immediate supervisor<br>b86 I trust: My colleagues (team members)  | b83 I trust: Top management (group and departmental level)<br>b84 I trust: My immediate manager<br>b85 I trust: My immediate supervisor<br>b86 I trust: My colleagues (team members)   | V54 I trust top management<br>V55 I trust my immediate manager<br>V56 I trust my colleagues (team members)   | b83 I trust top management<br>b84 I trust my immediate manager<br><i>b85 I trust my immediate supervisor</i><br>b86 I trust my colleagues (team members)   |

|  |  |   |   |
|--|--|---|---|
| b87 My immediate supervisor trusts me<br>b88 My immediate manager trusts me<br>b89 Top management trusts employees<br>b90 My colleagues (team members) trust me  | b87 My immediate supervisor trusts me<br>b88 My immediate manager trusts me<br>b89 Top management trusts employees<br>b90 My colleagues trust me   | V57 My immediate manager trusts me<br>V58 Top management trusts employees<br>V59 My colleagues trust me   | b87 My immediate supervisor trusts me<br>b88 My immediate manager trusts me<br>b89 Top management trusts employees<br>b90 My colleagues (team members) trust me   |
| b91 The organisation responds quickly to changes in its external environment<br>b92 Change in Org D is managed effectively<br>b93 Employees are adequately prepared for change that might affect them  | b91 Org E responds quickly to changes in its external environment<br>b92 Change in Org E is managed effectively<br>b93 Employees in Org E are adequately prepared for change that might affect them  | V60 The organisation responds quickly to changes in its external environment<br>V61 Change in the organisation is managed effectively<br>V62 Employees in the organisation are prepared for change that might affect them | b91 The organisation responds quickly to changes in its external environment<br>b92 Change in the organisation is managed effectively<br>b93 Employees are adequately prepared for change that might affect them  |
| b94 Reliable & sufficient info from: Org D management team<br>b95 Reliable & sufficient info from: MD's Roadshows<br>b96 Reliable & sufficient info from: My team leader<br>b97 Reliable & sufficient info from: Co-workers<br>b98 Reliable & sufficient info from: Org D Intranet | b94 Reliable & sufficient info from: Org E Top management<br>b95 Reliable & sufficient info from: PS management<br>b96 Reliable & sufficient info from: My supervisor<br>b97 Reliable & sufficient info from: Co-workers<br>b98 Reliable & sufficient info from: Org E Intranet  |   | b94 Reliable & sufficient info from: Top management<br>b95 Reliable & sufficient info from: PS management<br>b96 Reliable & sufficient info from: My supervisor / team leaders<br>b97 Reliable & sufficient info from: Co-workers<br>b98 Reliable & sufficient info from: Intranet  |
| <i>[Removed – see text]</i>  | b99 Reliable & sufficient info from: Internal PS newsletter<br>b100 Reliable & sufficient info from: Internal newsletter e.g. Org E News<br>b101 Reliable & sufficient info from: Org E News<br>b102 Reliable & sufficient info from: Other newspapers<br>b103 Reliable & sufficient info from: Radio or Television<br>b104 Reliable & sufficient info from: The Internet<br>b105 Reliable & sufficient info from: Internal rumours<br>b106 Reliable & sufficient info from: Other |   | b99 Reliable & sufficient info from: Internal newsletter BU<br>b100 Reliable & sufficient info from: Internal newsletter Division<br>b101 Reliable & sufficient info from: Internal newsletter Organisation<br>b102 Reliable & sufficient info from: Other newspapers<br>b103 Reliable & sufficient info from: Radio or Television<br>b104 Reliable & sufficient info from: The Internet<br>b105 Reliable & sufficient info from: Internal rumours<br>b106 Reliable & sufficient info from: Other |
| b107 Official information is useful (relevant & complete)<br>b108 Official information is believable & tells me what is really happening<br>b109 Official information is much the same as informal information   | b107 In general I believe that the official information I receive is useful (relevant and complete)<br>b108 In general I think that the official information I receive is believable and tells me what is really happening in Org E  |   | b107 In general I believe that the official information I receive is useful (relevant and complete)<br>b108 In general I think that the official information I receive is believable and tells me   |

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b109 In general I think that the official information I receive is very much the same as the information I receive informally

what is really happening in the organisation  
b109 In general I think that the official information I receive is very much the same as the information I receive informally

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*Notes.* For readability purposes Org A, Org D and Org E are used as labels to protect the identity of various organisations and refer to different versions of the Trust Relationship Audit and not a specific organisation. BU= business unit; AA= affirmative action.

The above datasets are not labelled according to the article in which the data was published, as some of the datasets or questionnaires were used in more than one study or in different combinations of studies. Stemming from this historical combination of datasets, the possibility of errors occurring is increased. Hence, in the next section the steps followed to maintain data integrity will be discussed.

### 5.1.2 *Data integrity*

As not all items were included in all the surveys, the variables in the combined database sometimes have very high missing value percentages. If the default listwise replacement would be used, then very few observations would be left for investigation, which can lead to bias in the results (Blunch, 2008, p. 217). On the other hand, the other method of replacing the missing values with an estimate (for instance the mean) also distorts the results. The variance is decreased and the distribution becomes more peaked (Kline, 2011b, p. 58), which “eats up your degrees of freedom” and result in an under-identified model (Blunch, 2008, p. 224).

As sophisticated analytical packages make it easier for anybody to input data and get a result, the old adage ‘Rubbish in – rubbish out’ becomes a real possibility. Many researchers do not test the underlying assumptions upon which their statistical technique of choice is based. In the case of SEM, for instance, multivariate normality is required for an ML-based estimation (Garson, 2012a, p. 29). Additionally, for reliable and valid results, the data that is used needs to be “*clean (non-faulty)*”, which involves activities such as investigating data outliers, missing values, abnormal patterns of responding (e.g. random responding), and distributional peculiarities of the data (Osborne, 2013, pp. 1-2). Without these, results cannot be generalised.

As a first step, descriptive statistics for all items were obtained and inspected to determine whether the values obtained fell within the required minimum and maximum parameters. An

example of this would be coding mistakes, where a score of 6 was captured on a five-point scale. Only two responses (out of more than 210 000 responses) fell outside the maximum boundaries of the items. These two responses were replaced by missing values.

### 5.1.3 *Missing value analysis*

As Kline (2011b, p. 55) remarks, the ideal for any analysis is to have no missing values in a dataset. As discussed in Chapter 4, this is a theoretically difficult topic to handle correctly, especially if the data is not missing at random (MAR). As was mentioned in Section 5.1, the original combined dataset consisted of **12363** cases. As indicated earlier, the FFM items were not included in two surveys at all, namely the online longitudinal study where data was collected in 2008, 2009 and 2010 (n=698) and another study in a cement-manufacturing plant from 2002 (n=167). This would leave a theoretical total of **11498** cases, but with the exclusion of cases with missing values the total useable *n* value went down to **10121**. Further physical *listwise* deletion of cases that had incomplete records for specific item parcels for the FFM or MP (items q1 to q69) decreased the sample size to **9060**. In practice, this meant that in the case of the FFM items 189 respondents had not answered all the items (1,67%) and for the MP items 178 cases were incomplete (1,46%). Consequently, the maximum *n* that could be used to replicate the Martins (2000) model was **9060**; as these cases contained all the information to compute the item parcels, without unnecessary bias<sup>8</sup>.

Seeing that the original studies, Martins et al. (1997) and Martins (2000), did not include the criterion items measuring trust in the direct supervisor and direct manager (or for that matter trust in top management and colleagues), the dataset had to again be reduced to the studies that had included these items. In these studies not all respondents were able to respond to all the items, as some for instance did not report to a “supervisor” but only to a manager, while others could respond to both due to internal organisational differences. This meant that for item b84 “I trust my immediate manager” there were **4934** useable responses, while for item b85 “I trust my immediate supervisor” **3918** respondents supplied a rating. Applying listwise deletion with both item b84 and b85 as criteria would leave **3879** cases to be

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<sup>8</sup> As the strictest criteria are followed and no values are replaced by means, and because a *listwise* deletion of missing values is followed, each subsample or item parcel will have a unique *n* value. The final *Valid n (listwise)* in the notes section below certain tables will be the highest number of cases that have no missing values at all in their midst. It is also impossible to calculate total sample sizes for specific analytical procedures in the traditional sense, as the missing value patterns in the data matrix differ for each item combination.

analysed, but unfortunately this subsample also includes cases with incomplete records for the FFM and MP items, which again reduces the subsample size. The seriousness of these missing values is not to be underestimated (see discussion in Chapter 4). Fortunately AMOS makes use of the *full information maximum likelihood* (FIML), which gives good results (Blunch, 2008, p. 218), but it still cannot overcome the problem if the missing data is not missing at random. For this reason, it was decided to create another dataset which consisted entirely only of non-missing values (N=2860, listwise deletion, see Table 5.) and as a consequence comprised only cases with complete records in the predictors (Kline, 2011b, p. 57). This is especially for the purpose of obtaining the modification index (MI) and using bootstrapping techniques to overcome the problem of multivariate non-normality. In the case of AMOS specifically, procedures such as the calculation of a modification index (MI) (Arbuckle, 2013), determining deviations from normality of the data, or bootstrapping, missing values are not allowed and these observations should be omitted (<http://ssc.utexas.edu/software-faqs/amos>). By default, AMOS programming does not allow “estimation of means or intercepts” when using maximum likelihood procedures.

In summary it can be said that the total dataset consisted of 12363 cases of which about 9060 were used in the confirmatory factor analysis to replicate the Martins (2000) model and 2860 were suitable for structural equation modelling purposes.

In the next section the composition of the various datasets used will be discussed.

#### *5.1.4 Distribution of data*

As most of the multivariate analysis techniques used are based on the assumption of an underlying multivariate normal distribution of observed variables (Burdenski, 2000, p. 15; Ho, 2014, p. 433), the next step is to investigate the distribution of the data in this study. This assumption of multivariate normal distribution is especially critical if use is made of maximum likelihood (ML) estimation (Kaplan, 2009, p. 85). The summarised descriptive statistics are represented for the three datasets used in this study. The distribution data with the tests for normality per item is given in Table 5., while the detailed descriptive statistics for the two datasets used are given in Appendix A.

**Table 5.2. Summarised item descriptive statistics for three datasets**

|                               | N<br>( <i>listwise</i> ) | Mean | Standard<br>Deviation | Skewness<br>Statistic | Standard<br>Error | Kurtosis<br>Statistic | Standard<br>Error |
|-------------------------------|--------------------------|------|-----------------------|-----------------------|-------------------|-----------------------|-------------------|
| Total Trust data              |                          |      |                       |                       |                   |                       |                   |
| FFM Means                     | 11339                    | 6,65 | 2,065                 | -,993                 | ,023              | ,452                  | ,046              |
| Mean MP                       | 12215                    | 3,55 | 1,214                 | -,576                 | ,022              | -,578                 | ,044              |
| Mean Trust                    | 4679                     | 3,39 | 1,223                 | -,424                 | ,036              | -,711                 | ,072              |
| All FFM and MP data available |                          |      |                       |                       |                   |                       |                   |
| FFM Means                     | 9060                     | 6,70 | 2,013                 | -1,028                | ,026              | ,602                  | ,051              |
| Mean MP                       | 9060                     | 3,58 | 1,190                 | -,609                 | ,026              | -,484                 | ,051              |
| Mean Trust                    | 3040                     | 3,43 | 1,186                 | -,472                 | ,044              | -,589                 | ,089              |
| No missing values dataset     |                          |      |                       |                       |                   |                       |                   |
| FFM Means                     | 2860                     | 6,81 | 1,985                 | -1,080                | ,046              | ,707                  | ,092              |
| Mean MP                       | 2860                     | 3,62 | 1,176                 | -,646                 | ,046              | -,415                 | ,092              |
| Mean Trust                    | 2852                     | 3,41 | 1,190                 | -,452                 | ,046              | -,610                 | ,092              |

*Valid N (listwise):* 2829

*Note:* FFM= Five-Factor Model; MP = Managerial practices; FFM item range 1-9; MP item range 1-5; Trust item range 1-5.

Concerning the symmetry of the distribution of scores, Table 5.2 shows that in general the various ratings by the respondents are distributed negatively skew and consequently the data would have a long left tail if plotted (SPSS 22, 2013) – such a distribution plot represents many more large values than small values. Furthermore, as all the skewness values in the table above are at least twice the size of their standard error, a departure from symmetry is present (Hair et al., 2010, p. 36). This is especially the case with the personality-linked items in the FFM, which on average are more skewed than the Trust or MP items.

Kurtosis, again, is an indication of the tendency of scores to cluster around a central point. It is an indication of how flat or peaked a distribution is. In the case of the data in Table 5. and Table 5.3, the positive values indicate a peaked distribution (Garson, 2012b, p. 19; Hair et al., 2010, p. 35; SPSS 22, 2013). This is the case only with the personality-based items of the FFM, which display a leptokurtic distribution. The items representing the MP and Trust variables on the other hand are platykurtic with a quicker drop-off in scores (thicker tails) (Hair et al., 2011, p. 71). The values for kurtosis should fall in the range between +2 and -2 (or in more critical cases +1 and -1), which indicates that all the variables are univariate normal (Garson, 2012b, p. 19). What effect this has on the various analysis procedures will be addressed when those specific analytic procedures that are susceptible to non-normality are discussed. In general, Hair et al. (2010, p. 77) contend that the larger the sample size,

the smaller the impact of multivariate non-normality on the results. Above 200 cases, the impact is negligible.

**Table 5.3. Detailed descriptive statistics for all items**

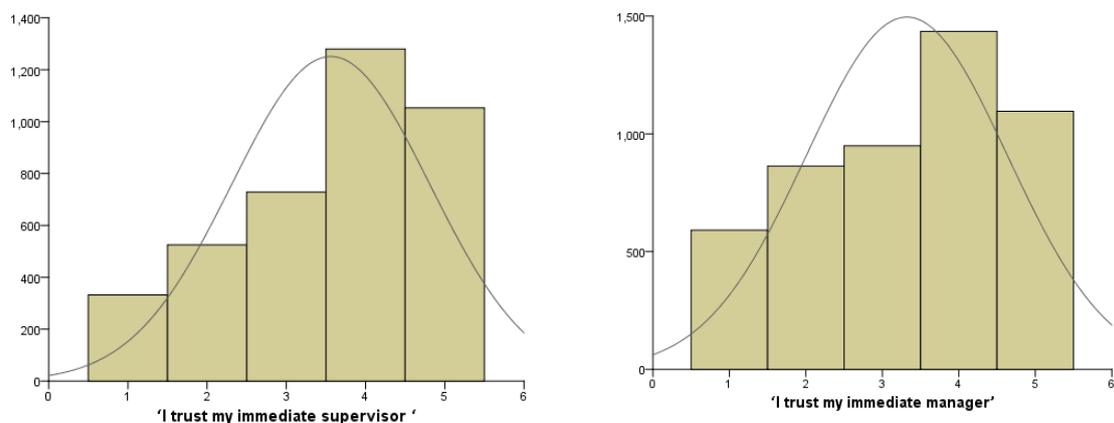
| Items                                    | Max | Mean | Std. Dev. | Skewness     | Kurtosis | Kolmogorov-Smirnov <sup>a</sup> |       | Shapiro-Wilks |       |
|--|-----|------|-----------|--------------|----------|---------------------------------|-------|---------------|-------|
|  |     |      |           | Standard     | Error:   | df:                             |       | df:           |       |
|  |     |      |           | Error: 0,046 | 0,092    | 2860                            | Sig.  | 2860          | Sig.  |
| q01 C Irresponsible vs responsible       | 9   | 6,96 | 1,97      | -1,222       | 1,065    | 0,202                           | 0,000 | 0,855         | 0,000 |
| q02 C Undependable vs Dependable         | 9   | 6,63 | 2,05      | -0,923       | 0,190    | 0,187                           | 0,000 | 0,893         | 0,000 |
| q03 C Disorganised vs Organised          | 9   | 6,73 | 2,04      | -0,988       | 0,343    | 0,190                           | 0,000 | 0,884         | 0,000 |
| q04 C Sloppy vs Neat                     | 9   | 7,15 | 1,88      | -1,298       | 1,402    | 0,215                           | 0,000 | 0,844         | 0,000 |
| q05 C Lazy vs Hardworking                | 9   | 7,23 | 1,87      | -1,305       | 1,414    | 0,224                           | 0,000 | 0,838         | 0,000 |
| q06 C Dishonest vs Honest                | 9   | 6,95 | 2,08      | -1,199       | 0,827    | 0,218                           | 0,000 | 0,846         | 0,000 |
| q07 C Careless vs Careful                | 9   | 7,11 | 1,88      | -1,302       | 1,385    | 0,222                           | 0,000 | 0,845         | 0,000 |
| q08 EX Quiet vs Talkative                | 9   | 6,83 | 2,02      | -1,077       | 0,608    | 0,193                           | 0,000 | 0,873         | 0,000 |
| q09 EX Withdrawn vs Sociable             | 9   | 6,80 | 1,98      | -1,065       | 0,656    | 0,192                           | 0,000 | 0,879         | 0,000 |
| q10 EX Unassertive vs Assertive          | 9   | 6,79 | 1,95      | -1,040       | 0,645    | 0,197                           | 0,000 | 0,884         | 0,000 |
| q11 EX Reserved vs Outgoing              | 9   | 6,65 | 1,93      | -0,897       | 0,406    | 0,179                           | 0,000 | 0,904         | 0,000 |
| q12 EX Gloomy vs Cheerful                | 9   | 6,77 | 1,91      | -1,052       | 0,812    | 0,191                           | 0,000 | 0,887         | 0,000 |
| q13 EX Shy vs Bold                       | 9   | 6,99 | 1,78      | -1,155       | 1,256    | 0,196                           | 0,000 | 0,877         | 0,000 |
| q14 EX Passive vs Active                 | 9   | 7,12 | 1,88      | -1,318       | 1,455    | 0,210                           | 0,000 | 0,844         | 0,000 |
| q15 A Cold-hearted vs Warm-hearted       | 9   | 6,59 | 2,01      | -0,962       | 0,449    | 0,191                           | 0,000 | 0,896         | 0,000 |
| q16 A Unfriendly vs Friendly             | 9   | 7,05 | 1,95      | -1,330       | 1,437    | 0,203                           | 0,000 | 0,841         | 0,000 |
| q17 A Rude vs Tactful                    | 9   | 6,68 | 2,05      | -1,059       | 0,568    | 0,196                           | 0,000 | 0,878         | 0,000 |
| q18 AC Deceitful vs Trustworthy          | 9   | 6,76 | 2,12      | -1,037       | 0,411    | 0,194                           | 0,000 | 0,871         | 0,000 |
| q19 A Insensitive vs Sympathetic         | 9   | 6,75 | 2,07      | -1,074       | 0,532    | 0,203                           | 0,000 | 0,871         | 0,000 |
| q20 A Hostile vs Peaceful                | 9   | 6,88 | 1,96      | -1,084       | 0,677    | 0,194                           | 0,000 | 0,873         | 0,000 |
| q21 A Mean vs Gentle                     | 9   | 6,77 | 1,96      | -1,007       | 0,585    | 0,186                           | 0,000 | 0,888         | 0,000 |
| q22 A Opposing vs Cooperative            | 9   | 6,79 | 2,09      | -1,140       | 0,626    | 0,207                           | 0,000 | 0,858         | 0,000 |
| q23 ES Nervous vs Relaxed                | 9   | 6,78 | 1,93      | -1,045       | 0,648    | 0,192                           | 0,000 | 0,885         | 0,000 |
| q24 ES Moody vs Stable                   | 9   | 6,63 | 2,10      | -0,995       | 0,272    | 0,197                           | 0,000 | 0,880         | 0,000 |
| q25 ES Insecure vs Confident             | 9   | 6,97 | 2,03      | -1,179       | 0,774    | 0,209                           | 0,000 | 0,851         | 0,000 |
| q26 ES Touchy vs Even-tempered           | 9   | 6,55 | 2,01      | -0,927       | 0,298    | 0,195                           | 0,000 | 0,898         | 0,000 |
| q27 ES Agitated vs Calm                  | 9   | 6,69 | 2,02      | -1,024       | 0,472    | 0,202                           | 0,000 | 0,883         | 0,000 |
| q28 A Angry vs Happy                     | 9   | 6,89 | 1,91      | -1,113       | 0,879    | 0,190                           | 0,000 | 0,875         | 0,000 |
| q29 ES R Dull vs Intelligent             | 9   | 7,24 | 1,86      | -1,358       | 1,555    | 0,233                           | 0,000 | 0,830         | 0,000 |
| q30 R Unimaginative vs Creative          | 9   | 6,87 | 1,94      | -1,107       | 0,808    | 0,194                           | 0,000 | 0,874         | 0,000 |
| q31 R Conventional vs Innovative         | 9   | 6,61 | 2,03      | -0,926       | 0,246    | 0,190                           | 0,000 | 0,895         | 0,000 |
| q32 R Indifferent vs Curious             | 9   | 6,75 | 1,93      | -1,044       | 0,720    | 0,196                           | 0,000 | 0,887         | 0,000 |
| q33 R Believing vs Questioning           | 9   | 6,89 | 2,04      | -1,152       | 0,740    | 0,200                           | 0,000 | 0,859         | 0,000 |
| q34 R Simple vs Complex                  | 9   | 6,22 | 2,06      | -0,739       | -0,021   | 0,166                           | 0,000 | 0,922         | 0,000 |
| q35 R Prefers routine vs Prefers variety | 9   | 6,17 | 2,19      | -0,650       | -0,378   | 0,162                           | 0,000 | 0,920         | 0,000 |

|  |   |      |      |        |        |       |       |       |       |
|--|---|------|------|--------|--------|-------|-------|-------|-------|
| q36 TR Have open & trusting relationship with S  | 5 | 3,78 | 1,11 | -0,927 | 0,186  | 0,292 | 0,000 | 0,837 | 0,000 |
| q37 TR S reveals important facts                 | 5 | 3,74 | 1,11 | -0,844 | 0,016  | 0,285 | 0,000 | 0,849 | 0,000 |
| q38 TR Fair judging of performance               | 5 | 3,73 | 1,15 | -0,869 | 0,008  | 0,276 | 0,000 | 0,847 | 0,000 |
| q39 TR S has good intentions                     | 5 | 3,72 | 1,09 | -0,838 | 0,053  | 0,292 | 0,000 | 0,849 | 0,000 |
| q40 TR Can believe what S says                   | 5 | 3,79 | 1,08 | -0,891 | 0,243  | 0,276 | 0,000 | 0,848 | 0,000 |
| q41 CR S respects different opinions             | 5 | 3,59 | 1,09 | -0,632 | -0,309 | 0,268 | 0,000 | 0,876 | 0,000 |
| q42 CR S listens & clarifies                     | 5 | 3,66 | 1,12 | -0,598 | -0,457 | 0,242 | 0,000 | 0,878 | 0,000 |
| q43 CR S analyses problems                       | 5 | 3,71 | 1,17 | -0,667 | -0,465 | 0,239 | 0,000 | 0,866 | 0,000 |
| q44 WS S is there when needed                    | 5 | 3,73 | 1,14 | -0,659 | -0,401 | 0,227 | 0,000 | 0,868 | 0,000 |
| q45 WS S gives information                       | 5 | 3,76 | 1,15 | -0,725 | -0,330 | 0,241 | 0,000 | 0,860 | 0,000 |
| q46 CR S allows expression of feelings           | 5 | 3,72 | 1,21 | -0,751 | -0,373 | 0,241 | 0,000 | 0,855 | 0,000 |
| q47 IS S feedback on performance                 | 5 | 3,51 | 1,29 | -0,500 | -0,894 | 0,223 | 0,000 | 0,875 | 0,000 |
| q48 CR S accepts our decisions                   | 5 | 3,55 | 1,12 | -0,626 | -0,303 | 0,254 | 0,000 | 0,881 | 0,000 |
| q49 CR S implements our decisions                | 5 | 3,42 | 1,15 | -0,431 | -0,628 | 0,225 | 0,000 | 0,898 | 0,000 |
| q50 TM S ensures acceptable performance          | 5 | 3,72 | 1,13 | -0,702 | -0,278 | 0,247 | 0,000 | 0,868 | 0,000 |
| q51 TM S is self-disciplined                     | 5 | 3,97 | 1,13 | -1,013 | 0,220  | 0,243 | 0,000 | 0,814 | 0,000 |
| q52 TM S conducts effective meetings             | 5 | 3,74 | 1,18 | -0,770 | -0,306 | 0,253 | 0,000 | 0,854 | 0,000 |
| q53 CR S accepts negative feedback               | 5 | 3,37 | 1,19 | -0,504 | -0,643 | 0,242 | 0,000 | 0,889 | 0,000 |
| q54 TM S freely talks/ gives opinions            | 5 | 3,87 | 1,08 | -0,876 | 0,099  | 0,259 | 0,000 | 0,843 | 0,000 |
| q55 IS S gives straight feedback                 | 5 | 3,61 | 1,26 | -0,623 | -0,691 | 0,238 | 0,000 | 0,865 | 0,000 |
| q56 TM S handles conflict well                   | 5 | 3,48 | 1,23 | -0,495 | -0,750 | 0,227 | 0,000 | 0,886 | 0,000 |
| q57 IS S reveals company information             | 5 | 3,56 | 1,21 | -0,577 | -0,619 | 0,235 | 0,000 | 0,879 | 0,000 |
| q58 TM S confronts culprits                      | 5 | 3,64 | 1,23 | -0,599 | -0,677 | 0,228 | 0,000 | 0,869 | 0,000 |
| q59 TM S ensures same goals                      | 5 | 3,75 | 1,12 | -0,734 | -0,187 | 0,247 | 0,000 | 0,864 | 0,000 |
| q60 TM Know what S expects                       | 5 | 3,81 | 1,12 | -0,781 | -0,196 | 0,249 | 0,000 | 0,853 | 0,000 |
| q61 CR S encourages expression of feelings       | 5 | 3,68 | 1,21 | -0,693 | -0,472 | 0,241 | 0,000 | 0,863 | 0,000 |
| q62 CR S keeps promises                          | 5 | 3,57 | 1,22 | -0,605 | -0,580 | 0,232 | 0,000 | 0,876 | 0,000 |
| q63 CR S tolerates mistakes                      | 5 | 3,33 | 1,20 | -0,399 | -0,794 | 0,232 | 0,000 | 0,896 | 0,000 |
| q64 TM S explains how my work influences company | 5 | 3,46 | 1,25 | -0,480 | -0,805 | 0,231 | 0,000 | 0,886 | 0,000 |
| q65 WS S supports me when needed                 | 5 | 3,72 | 1,19 | -0,708 | -0,431 | 0,238 | 0,000 | 0,861 | 0,000 |
| q66 CR S ensures prestige & credibility          | 5 | 3,44 | 1,24 | -0,456 | -0,784 | 0,219 | 0,000 | 0,890 | 0,000 |
| q67 CR S tells truth about future                | 5 | 3,52 | 1,26 | -0,556 | -0,718 | 0,230 | 0,000 | 0,878 | 0,000 |
| q68 CR S considers my proposals                  | 5 | 3,49 | 1,18 | -0,567 | -0,540 | 0,246 | 0,000 | 0,884 | 0,000 |
| q69 IS S asks feedback on S performance          | 5 | 2,82 | 1,41 | 0,118  | -1,307 | 0,170 | 0,000 | 0,883 | 0,000 |
| b84 'I trust my immediate manager'               | 5 | 3,32 | 1,29 | -0,350 | -0,997 | 0,215 | 0,000 | 0,892 | 0,000 |
| b85 'I trust my immediate supervisor'            | 5 | 3,62 | 1,21 | -0,654 | -0,510 | 0,243 | 0,000 | 0,870 | 0,000 |

Valid N (listwise): 2860; S= "(t)he person you report to"

Note. The item labels consist of three parts – firstly the item number prefaced by a **q**, then the latent construct code based on the Martins (2000) model, and lastly the abbreviated item wording itself. The latent construct codes are Conscientiousness (C), Extraversion (EX), Agreeableness (A), Emotional stability (ES), Resourcefulness (R), Trust (TR), Credibility (CR), Work support (WS), Team management (TM), and Information sharing (IS).

As a further test, the dataset with no missing values in any field (N=2860) was investigated in respect of its conformity to normality. As the Shapiro-Wilks W is recommended for samples smaller than 2000 and the Kolmogorov-Smirnov D for larger samples, and this sample is relatively close to this cut-off point, both tests were run (Garson, 2012b, p. 21). According to the Kolmogorov-Smirnov (with the Lilliefors Significance Correction) and the Shapiro-Wilks normality tests, **all** the FFM, MP and Trust items are significantly different from normally distributed at a  $p < 0,000$  level, as the tests should be “non-significant if residuals are normally distributed” (Garson, 2012b, p. 35). This again indicates that the effect of this non-normality on the structural model needs to be investigated when appropriate in a later section, although most of the tests for non-normality tend to be sensitive to the size of the sample used, and in the case of a large sample such as in this study, the statistics tend to reject the hypothesis of normality “even for small violations” (Ramzan, Zahid & Ramzan, 2013, p. 263). Because of this technical tendency to statistically reject normality, seeing that the tests tend to overemphasise “unimportant deviations”, Garson (2012b, p. 21) and Ramzan et al. (2013) suggest that a combination of statistical test and graphical methods should be used.



**Figure 5.1. Score distribution for two key trust indicator variables**

To confirm the above data, the graphical rendition of the two items that are used as an indication of the level of trust that employees have in their immediate superiors are “I trust my immediate supervisor” and “I trust my immediate manager” (see Figure 5.1). Both item score distributions can be seen to be negative skew and especially item b84 (I trust my immediate manager) is platykurtic. It is consequently important to determine the effect of the multivariate normality of the data when testing the fit of the SEM.

### 5.1.5 Handling non-normal data in SEM

From the above analysis it is evident that the data is not normally distributed, and in a later section the effect of this on the final model will be investigated by using a bootstrapping simulation inside the SEM. A further method of determining the effect of non-normality is to make use of the Bollen-Stine p-value (instead of the maximum likelihood p-value) that is used to correct for non-normality when assessing overall model fit (<http://ssc.utexas.edu/software-faqs/amos>). This is however not an important aspect in any SEM if sufficient goodness of fit is achieved, as non-normality of the data in essence increases the probability of rejecting “models that may not be false”, in other words a type 1 error (<http://ssc.utexas.edu/software-faqs/general#nonnormdatainsem>).

### 5.1.6 Mahalanobis $D^2$

As was shown in Section 5.1.4, the item responses are skew by nature (despite a relative normal kurtosis). To investigate if this would have an effect on model fit the 100 cases that had the most extreme scores, in other words, the scores farthest from the centroid as measured by the Mahalanobis distance (SPSS 22, 2013) were removed.

*The Mahalanobis distance is the distance of a case from the centroid where the centroid is the point defined by the means of all the variables taken as a whole. The Mahalanobis distance demonstrates how far an individual case is from the centroid of all the cases for the predictor variables.*

(Burdenski, 2000, p. 19)

A Mahalanobis  $D^2$  can be used in this case as it indicates where in the multidimensional space an observation lies in relation to the sample mean of the relevant multiple variables (the centroid) in a model (Hair et al., 2010, p. 66; Kline, 2011b, p. 54). If the resulting value is relatively high, then Burdenski (2000, p. 19) contends that the related observation is an outlier.

As the original organisational unit information had been removed to retain anonymity of respondents, supervisors and managers for ethical reasons, a new technique based on case numbers was developed to determine if a *clustering* effect might be present within the cases themselves. This was possible as the researcher knew that the cases were originally captured in batches according to the business unit from which they originated. The 100 highest Mahalanobis d-squared cases were imported into a spreadsheet and then sorted

according to their case number. Following this, the distance between the case numbers was calculated by subtracting the following case number from the current case number. These resulting distances were then scrutinised and it became clear that there were at least five such groupings. The groupings could be explained by the hypothesis that there was probably no “bias” involved in the positive skew ratings, as these cases most likely reported to the same supervisor or manager and the positive ratings represented real positive differences to other supervisors or managers. As a researcher can never be sure if the observation under consideration is a real outlier or just a normal extreme measurement, it is advisable not to designate too many cases as outliers and then remove them (Hair et al., 2010, p. 67). To investigate this further, the 100 cases with a high Mahalanobis  $D^2$  were removed one by one from the dataset with no missing values, resulting in a dataset with 2760 observations. This data was used to test the final model and to determine if there was any real difference in the fit indices. The results are reported in Section 5.8.2 to enable a comparison with the final model.

## **5.2 Exploratory Factor Analysis: Replication of Martins (2000)**

In order to establish whether the combined dataset is comparable to the previous subsets that were used in the development of the Martins (2000) model, the next sections will investigate the factor structure of this expanded combined dataset of 12 393 cases. In the first instance, a principal component analysis (PCA) will be run to replicate the previous work of Martins and colleagues so as to determine if the factor loadings remained constant. Although this step would not be recommended in a pure confirmatory approach, the fact that Martins et al. (1997) and Martins (2000) both made use of item parcelling makes it necessary. The aim is to confirm the content of the item parcels and the consequent calculation of the values of these parcelled observed variables that will form part of the structural equation model. These purely empirical results will then be used as a basis for exploratory common factor analysis such as principal axis factoring (PAF). Furthermore, in preparation of the structural equation modelling, a factor analysis based on maximum likelihood extraction will be conducted.

### *5.2.1 Principal component analysis*

The combined database of approximately 12000 respondents is much more comprehensive than the other separate analyses, and the different groups were probably also relatively homogeneous (except for the Time Series group) as they all consisted of employees of specific employer organisations. The researcher wanted to establish if the items in this

study's database would again cluster around the predetermined factors, without forcing them, as would be the case with a CFA. For this purpose all the items as used in Martins et al. (1997), Martins (2000) and later (q1 to q69) were used as input to replicate the PCAs that were previously conducted (see section on previous research with the Martins model in Chapter 4). After listwise deletion only 9060 observations were left.

According to Field (2006, p. 631) PCA "is a psychometrically sound procedure" which is not as complex on a conceptual level. The difference between factor analysis and PCA is not really significant if many variables are used (more than 30) and the communalities are larger than 0,7.

Table 5. gives the results for the first PCA run with all the items (q1 to q69). The resulting six components clearly split the managerial practices and personality factors. The first factor loaded only on items that represented the managerial practices (MP) in the Martins (2000) model. The expected five factors of the FFM only loaded on four factors as the first personality factor combined items that previously represented *Agreeableness* and *Emotional Stability* in one common factor. The sixth factor consisted of the items that Martins and colleagues used as criteria to indirectly indicate the level of trustworthiness of the person the respondent reported to. Interestingly, these items all had very high cross-loadings with Factor 1 consisting of the Managerial Practices items.

The total variance explained by the six factors was an acceptable 64,8%, of which the first factor (MP items) explained about a third of the variance (23,7%). Concerning communalities, all were above 0,400, except for items q33, q34 and q63. The low communalities of these three items will be investigated in more detail in the following exploratory phases.

**Table 5.4. Rotated principal components – All items (N=9060 listwise) <sup>a</sup>**

|  | Component   |      |      |      |      |      |
|--|-------------|------|------|------|------|------|
|  | 1           | 2    | 3    | 4    | 5    | 6    |
| q55 IS S gives straight feedback                 | <b>.722</b> | .165 | .159 | .172 | .116 | .173 |
| q66 CR S ensures prestige & credibility          | <b>.719</b> | .260 | .140 | .138 | .126 | .123 |
| q49 CR S implements our decisions                | <b>.711</b> | .284 | .177 | .100 | .117 | .066 |
| q68 CR S considers my proposals                  | <b>.702</b> | .333 | .126 | .091 | .111 | .127 |
| q47 IS S feedback on performance                 | <b>.701</b> | .218 | .152 | .167 | .085 | .164 |
| q64 TM S explains how my work influences company | <b>.691</b> | .146 | .164 | .195 | .123 | .002 |
| q56 TM S handles conflict well                   | <b>.688</b> | .283 | .224 | .163 | .114 | .084 |
| q60 TM Know what S expects                       | <b>.687</b> | .123 | .273 | .190 | .106 | .153 |
| q65 WS S supports me when needed                 | <b>.686</b> | .290 | .201 | .148 | .069 | .234 |
| q59 TM S ensures same goals                      | <b>.686</b> | .167 | .309 | .168 | .135 | .110 |

|  |             |             |             |             |      |       |
|--|-------------|-------------|-------------|-------------|------|-------|
| q61 CR S encourages expression of feelings | <b>.681</b> | .280        | .129        | .139        | .070 | .098  |
| q50 TM S ensures acceptable performance    | <b>.679</b> | .179        | .302        | .139        | .114 | .118  |
| q57 IS S reveals company information       | <b>.669</b> | .219        | .173        | .156        | .128 | .175  |
| q67 CR S tells truth about future          | <b>.663</b> | .219        | .172        | .126        | .132 | .121  |
| q69 IS S asks feedback on S performance    | <b>.663</b> | .218        | .010        | .141        | .119 | -.030 |
| q48 CR S accepts our decisions             | <b>.660</b> | .391        | .107        | .051        | .070 | .098  |
| q62 CR S keeps promises                    | <b>.644</b> | .293        | .274        | .059        | .098 | .204  |
| q45 WS S gives information                 | <b>.628</b> | .192        | .315        | .126        | .091 | .226  |
| q46 CR S allows expression of feelings     | <b>.619</b> | .393        | .106        | .109        | .038 | .239  |
| q52 TM S conducts effective meetings       | <b>.618</b> | .237        | .333        | .119        | .135 | .029  |
| q42 CR S listens & clarifies               | <b>.616</b> | .379        | .217        | .083        | .087 | .191  |
| q44 WS S is there when needed              | <b>.608</b> | .245        | .247        | .109        | .052 | .273  |
| q53 CR S accepts negative feedback         | <b>.607</b> | .397        | .083        | .082        | .076 | .019  |
| q58 TM S confronts culprits                | <b>.607</b> | .009        | .282        | .212        | .155 | .089  |
| q43 CR S analyses problems                 | <b>.606</b> | .280        | .315        | .096        | .170 | .201  |
| q54 TM S freely talks/ gives opinions      | <b>.587</b> | .103        | .200        | .295        | .134 | .072  |
| q41 CR S respects different opinions       | <b>.578</b> | .449        | .141        | .069        | .093 | .192  |
| q51 TM S is self-disciplined               | <b>.551</b> | .275        | .474        | .054        | .115 | .134  |
| q63 CR S tolerates mistakes <sup>b</sup>   | <b>.504</b> | .377        | -.014       | .023        | .042 | -.035 |
| q20 A Hostile vs Peaceful                  | .295        | <b>.745</b> | .244        | .111        | .062 | .130  |
| q21 A Mean vs Gentle                       | .296        | <b>.738</b> | .222        | .134        | .081 | .131  |
| q27 ES Agitated vs Calm                    | .296        | <b>.732</b> | .234        | .122        | .176 | .065  |
| q24 ES Moody vs Stable                     | .303        | <b>.708</b> | .224        | .154        | .159 | .099  |
| q28 A Angry vs Happy                       | .316        | <b>.707</b> | .208        | .237        | .123 | .103  |
| q17 A Rude vs Tactful                      | .300        | <b>.703</b> | .288        | .167        | .077 | .129  |
| q16 A Unfriendly vs Friendly               | .272        | <b>.693</b> | .230        | .304        | .034 | .174  |
| q19 A Insensitive vs Sympathetic           | .333        | <b>.682</b> | .246        | .183        | .079 | .207  |
| q15 A Cold-hearted vs Warm-hearted         | .294        | <b>.676</b> | .241        | .264        | .034 | .184  |
| q26 ES Touchy vs Even-tempered             | .258        | <b>.672</b> | .182        | .133        | .219 | .086  |
| q22 A Opposing vs Cooperative              | .361        | <b>.662</b> | .312        | .159        | .114 | .167  |
| q12 EX Gloomy vs Cheerful                  | .279        | <b>.550</b> | .209        | .529        | .084 | .095  |
| q18 C Deceitful vs Trustworthy             | .365        | <b>.546</b> | .425        | .137        | .125 | .317  |
| q23 ES Nervous vs Relaxed                  | .283        | <b>.543</b> | .244        | .240        | .248 | .043  |
| q25 ES Insecure vs Confident               | .345        | <b>.449</b> | .409        | .275        | .281 | .147  |
| q29 R Dull vs Intelligent                  | .315        | <b>.447</b> | .439        | .224        | .325 | .163  |
| q30 R Unimaginative vs Creative            | .334        | <b>.413</b> | .398        | .282        | .389 | .143  |
| q03 C Disorganised vs Organised            | .329        | .321        | <b>.685</b> | .183        | .105 | .062  |
| q04 C Sloppy vs Neat                       | .239        | .304        | <b>.670</b> | .178        | .113 | -.003 |
| q01 C Irresponsible vs Responsible         | .297        | .342        | <b>.657</b> | .170        | .136 | .179  |
| q05 C Lazy vs Hardworking                  | .281        | .301        | <b>.654</b> | .223        | .155 | .122  |
| q07 C Careless vs Careful                  | .291        | .373        | <b>.641</b> | .186        | .124 | .137  |
| q02 C Undependable vs Dependable           | .301        | .369        | <b>.557</b> | .157        | .121 | .172  |
| q06 C Dishonest vs Honest                  | .306        | .469        | <b>.527</b> | .154        | .085 | .294  |
| q08 EX Quiet vs Talkative                  | .118        | .095        | .084        | <b>.732</b> | .132 | .057  |
| q11 EX Reserved vs Outgoing                | .227        | .333        | .162        | <b>.713</b> | .117 | .045  |
| q13 EX Shy vs Bold                         | .186        | .163        | .190        | <b>.694</b> | .210 | .052  |

|   |      |      |      |             |             |             |
|---|------|------|------|-------------|-------------|-------------|
| q09 EX Withdrawn vs Sociable                    | .224 | .397 | .199 | <b>.668</b> | .081        | .090        |
| q14 EX Passive vs Active                        | .294 | .269 | .417 | <b>.499</b> | .213        | .140        |
| q10 EX Unassertive vs Assertive                 | .302 | .290 | .418 | <b>.475</b> | .230        | .095        |
| q34 R Simple vs Complex <sup>b</sup>            | .093 | .051 | .123 | .104        | <b>.758</b> | .033        |
| q33 R Believing vs Questioning <sup>b</sup>     | .176 | .134 | .219 | .175        | <b>.667</b> | .044        |
| q35 R Prefers routine vs Prefers variety        | .285 | .290 | .005 | .245        | <b>.585</b> | .079        |
| q31 R Conventional vs Innovative                | .352 | .407 | .312 | .282        | <b>.435</b> | .109        |
| q32 R Indifferent vs Curious                    | .314 | .397 | .308 | .278        | <b>.419</b> | .133        |
| q40 TR Can believe what S says                  | .482 | .302 | .263 | .076        | .129        | <b>.568</b> |
| q36 TR Have open & trusting relationship with S | .449 | .393 | .219 | .128        | .081        | <b>.560</b> |
| q38 TR Fair judging of performance              | .492 | .331 | .158 | .130        | .085        | <b>.555</b> |
| q39 TR S has good intentions                    | .507 | .367 | .195 | .118        | .099        | <b>.552</b> |
| q37 TR S reveals important facts                | .499 | .262 | .200 | .169        | .104        | <b>.549</b> |

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

b. Items with communalities < 0.400

Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0,991

From the above it is also evident that item q18 (Deceitful vs Trustworthy) needed to move to another one of the five factors, namely *Agreeableness*, while q29 (Dull vs Intelligent) needed to move to *Extraversion*. To confirm this different loading of the two individual items, only the personality-linked items were used in the following set of factor analyses.

### 5.2.2 Factor analysis of personality items (Five-Factor Model)

Even though the PCA established that the factor structure had hardly changed, a common factor analysis namely Principal Axis Factoring (PAF) was run because of the concerns regarding the normal distribution of the variables.

*If the assumption of multivariate normality is "severely violated" they recommend one of the principal factor methods; in SPSS this procedure is called "principal axis factors".*

(Costello & Osborne, 2005, p. 2, discussing Fabrigar et al.)

The PAF confirmed that items q18 and q29 needed to move as they were loading on other factors than in the initial articles. The analysis was repeated with both eigenvalue > 1 and forcing of five factors. The results repeatedly showed that the two items seem to have moved in the bigger dataset. The first one *q18 C* (Deceitful vs. Trustworthy) loaded on the first factor and not with the other *Conscientiousness* items in factor 2 where it had originally been placed in the previous studies. The new loading found in this study would make much

more sense as the literature defines the FFM *agreeableness* as “trustworthy” (see Chapter 4).

The second item that did not load on the factor on which it traditionally loaded in the previous studies is *q29 R* (Dull vs. Intelligent). The explanation could be found in the fact that the general population in South Africa considered the term “dull” not as an opposite of “intelligent”, but rather as a personality factor equivalent to “boring” or “stable” (which could explain the current loading on *emotional stability*). The original classification as R or *Resourcefulness* would indicate a loading on the “intelligent” side of the scale. To confirm this, a Principal Axis Factoring was run with eigenvalue > 1 and varimax rotation (N=10047 listwise). These results are given in Table 5.5.

**Table 5.5. Rotated factor matrix – Personality items (N=10047 listwise) <sup>a</sup>**

|   | Factor       |              |              |              |
|---|--------------|--------------|--------------|--------------|
|   | 1            | 2            | 3            | 4            |
| q20 A Hostile vs Peaceful                   | <b>0,762</b> | 0,305        | 0,162        | 0,147        |
| q21 A Mean vs Gentle                        | <b>0,755</b> | 0,291        | 0,179        | 0,157        |
| q27 ES Agitated vs Calm                     | <b>0,735</b> | 0,241        | 0,151        | 0,291        |
| q28 A Angry vs Happy                        | <b>0,723</b> | 0,246        | 0,260        | 0,241        |
| q19 A Insensitive vs Sympathetic            | <b>0,712</b> | 0,337        | 0,228        | 0,175        |
| q24 ES Moody vs Stable                      | <b>0,711</b> | 0,253        | 0,185        | 0,275        |
| q17 A Rude vs Tactful                       | <b>0,711</b> | 0,348        | 0,214        | 0,170        |
| q16 A Unfriendly vs Friendly                | <b>0,702</b> | 0,304        | 0,340        | 0,125        |
| q22 A Opposing vs Cooperative               | <b>0,696</b> | 0,380        | 0,198        | 0,231        |
| q15 A Cold-hearted vs Warm-hearted          | <b>0,686</b> | 0,331        | 0,306        | 0,124        |
| q26 ES Touchy vs Even-tempered              | <b>0,639</b> | 0,216        | 0,168        | 0,303        |
| q18 AC Deceitful vs Trustworthy             | <b>0,610</b> | 0,511        | 0,176        | 0,235        |
| q23 ES Nervous vs Relaxed                   | <b>0,543</b> | 0,244        | 0,244        | 0,364        |
| q25 ES Insecure vs Confident                | <b>0,491</b> | 0,391        | 0,265        | 0,441        |
| q29 ES R Dull vs Intelligent                | <b>0,465</b> | 0,432        | 0,222        | 0,459        |
| q03 C Disorganised vs Organised             | 0,335        | <b>0,691</b> | 0,209        | 0,238        |
| q01 C Irresponsible vs Responsible          | 0,360        | <b>0,686</b> | 0,198        | 0,245        |
| q05 C Lazy vs Hardworking                   | 0,309        | <b>0,659</b> | 0,238        | 0,272        |
| q07 C Careless vs Careful                   | 0,382        | <b>0,657</b> | 0,216        | 0,230        |
| q04 C Sloppy vs Neat                        | 0,297        | <b>0,609</b> | 0,208        | 0,221        |
| q06 C Dishonest vs Honest                   | 0,502        | <b>0,608</b> | 0,198        | 0,177        |
| q02 C Undependable vs Dependable            | 0,384        | <b>0,587</b> | 0,197        | 0,224        |
| q11 EX Reserved vs Outgoing                 | 0,312        | 0,199        | <b>0,694</b> | 0,232        |
| q09 EX Withdrawn vs Sociable                | 0,382        | 0,250        | <b>0,657</b> | 0,182        |
| q08 EX Quiet vs Talkative                   | 0,095        | 0,127        | <b>0,599</b> | 0,215        |
| q13 EX Shy vs Bold                          | 0,167        | 0,202        | <b>0,595</b> | 0,334        |
| q12 EX Gloomy vs Cheerful                   | 0,540        | 0,262        | <b>0,547</b> | 0,197        |
| q14 EX Passive vs Active                    | 0,306        | 0,417        | <b>0,458</b> | 0,360        |
| q10 EX Unassertive vs Assertive             | 0,311        | 0,428        | <b>0,457</b> | 0,349        |
| q31 R Conventional vs Innovative            | 0,424        | 0,315        | 0,264        | <b>0,564</b> |
| q30 R Unimaginative vs Creative             | 0,438        | 0,390        | 0,261        | <b>0,532</b> |
| q35 R Prefers routine vs Prefers variety    | 0,284        | 0,100        | 0,251        | <b>0,529</b> |
| q33 R Believing vs Questioning <sup>b</sup> | 0,150        | 0,211        | 0,196        | <b>0,527</b> |
| q32 R Indifferent vs Curious                | 0,410        | 0,324        | 0,273        | <b>0,509</b> |
| q34 R Simple vs Complex <sup>b</sup>        | 0,044        | 0,147        | 0,156        | <b>0,501</b> |

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

b. Items with communality < 0,400

Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0,985

From Table 5.5 it can be seen that three of the five factors load very neatly – these are factor 2 *Conscientiousness*; factor 3 *Extraversion*; and factor 4 *Resourcefulness*. The only exceptions are items q18 and q29 as discussed above. Total variance explained was 63%,

while the three “clean” factors explained 37% of this. Two items in the *Resourcefulness* factor, q33 (Believing vs Questioning) and q34 (Simple vs Complex), had low communalities, but no cross-loadings, suggesting the intriguing possibility of another as yet unmeasured or named factor (Costello & Osborne, 2005, p. 4). Upon investigation it was found though that the initial eigenvalue < 1 for a 5<sup>th</sup> factor was not close to 1,00 but a distant 0,819.

As a further step in this exploratory phase, the 15 items representing factor 1, which together explained 26% of the total variance, were analysed on their own and forced into two factors. These results are represented in Table 5.6 below.

**Table 5.6. Rotated factor matrix – 1st Personality factor 2nd order structure <sup>a</sup>**

|                                    | Factor      |             |
|------------------------------------|-------------|-------------|
|                                    | 1           | 2           |
| q15 A Cold-hearted vs Warm-hearted | <b>.744</b> | .394        |
| q21 A Mean vs Gentle               | <b>.743</b> | .418        |
| q19 A Insensitive vs Sympathetic   | <b>.742</b> | .425        |
| q20 A Hostile vs Peaceful          | <b>.721</b> | .452        |
| q16 A Unfriendly vs Friendly       | <b>.721</b> | .432        |
| q17 A Rude vs Tactful              | <b>.700</b> | .464        |
| q22 A Opposing vs Cooperative      | <b>.658</b> | .532        |
| q18 A C Deceitful vs Trustworthy   | <b>.620</b> | .535        |
| q28 A Angry vs Happy               | <b>.604</b> | .574        |
| q25 ES Insecure vs Confident       | .353        | <b>.759</b> |
| q23 ES Nervous vs Relaxed          | .367        | <b>.683</b> |
| q27 ES Agitated vs Calm            | .530        | <b>.651</b> |
| q24 ES Moody vs Stable             | .520        | <b>.646</b> |
| q29 ES R Dull vs Intelligent       | .437        | <b>.633</b> |
| q26 ES Touchy vs Even-tempered     | .457        | <b>.599</b> |

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

This analysis confirms the original model, as both *Agreeableness* and *Emotional Stability* distinctly load on their separate factors, with the expected high cross-loadings as they did initially constitute one factor. The above hypotheses concerning q18 and q29 are again confirmed as they again load on the new factor that was expected from a theoretical standpoint.

### 5.2.3 Exploratory Factor Analysis (EFA)

*While principal components with varimax rotation and the Kaiser criterion are the norm, they are not optimal, particularly when data do not meet assumptions, as is often the case in the social sciences.*

(Costello & Osborne, 2005, p. 7)

In the preceding section a component analysis approach to factor analysis (specifically PCA) was used, because the previous studies involving the Martins (2000) model were based on PCA. This ensured consistency and enabled comparison with previous studies that used the Martins (2000) model.

On the other hand, Kline (2011b, p. 268) advocates that a common factor analysis rather than a confirmatory factor analysis should be conducted, as a PCA is methodologically less applicable. The type of exploratory factor analysis to be conducted needs to be linked to its future use – such as providing the basis for a measurement model. In this study, as the structural equation modelling is based on maximum likelihood (ML), the exploratory factor analysis should also be based on maximum likelihood:

*This EFA model should be analyzed with the same method of estimation, such as maximum likelihood (ML), as used to analyze the final SR.*

(Kline, 2011b, p. 268)

Hair et al. (2010, p. 108) recommend that if there are any concerns about the PCA results, a researcher should also apply common factor analysis, as similar results are often found. In the next sections, these results of the exploratory factor analysis will be presented.

## 5.3 Exploratory factor analysis for the Trust Relationship Audit

An exploratory factor analysis (maximum likelihood) for all the items (q1 to q 69), for the personality items (FFM) and for the managerial practices (MP) items was conducted for all 12 393 cases in the total database. To determine the number of factors to be extracted the default eigenvalue greater than 1 was retained. *Varimax* rotation was used. In the case of all the following EFAs, both the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity were computed. As was mentioned in Chapter 4, the closer the KMO is to 1, the more likely it is that an acceptable factor structure will be found. Moreover, values above 0,70 are considered good (Field, 2006, p. 735) while values above 0,50 are regarded as acceptable (Hair et al., 2010, p. 132). Bartlett's Test of Sphericity determines

whether significant intercorrelations exist between the dependent variables and indicates if factor analysis is appropriate (Hair et al., 2010, p. 104). In the current study the results of all the Bartlett tests were significant at the 0,000 level, indicating the “presence of non-zero correlations” (Hair et al., 2010, p. 132). In the case of the KMO statistics, the data also yielded values above 0,90 (sometimes close to 1), which would confirm its appropriateness for factor analysis.

In the first run all the items were included without restrictions. This resulted in six factors being extracted that explained 61% of the total variance. The first factor consisted of only the MP items (explained 24,2% of the variance). As expected, the MP items are clearly different from the FFM items. The personality factors in the Five-factor Model replicated the results of the component analysis (reported above) to some extent. Factor 1 (16% of the variance) consisted of items that previously loaded on agreeableness, emotional stability and extraversion. Factors 2 and 3 were again “clean” factors as they each replicated items in the same manner as was the case in the Martins (2000) model. Factor 2 only consisted of conscientiousness items and factor 3 consisted only of extraversion items, while factor 4 mainly represented resourcefulness items but also one item that previously represented emotional stability (q25, Insecure vs Confident). The item concerning whether the direct supervisor was deceitful or trustworthy (q18) again loaded with the other ‘Agreeableness’ items, as was the case in the PCA and PAF. However, in contrast with the component analysis above, q29 (Dull vs Intelligent) again loaded on resourcefulness like in the original studies and not under emotional stability as was the case under PAF.

From the above it seemed prudent to investigate the MP and FFM items separately. The fact that the personality items and management aspects of the Martins (2000) model did not load on any common latent factors in the exploratory factor analysis stage, can probably already point to the possibility that the FFM items and the MP items will not load on the various ABI latent constructs together.

### *5.3.1 Exploratory factor analysis – Five Factor Model items*

Initially an unrestricted factor analysis was run on all the items representing the FFM, with an eigenvalue > 1 as extraction criterion. This resulted in four factors being extracted with 62,9% of variance explained. It was then decided to force the EFA into five factors (Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization) to “*maintain comparability with the component analysis*” (Hair et al., 2010, p. 144) and the personality theory upon which this study is based. This seemed prudent

against the background of previous empirical studies and personality theory. As factor 1 again contained items from both the *Agreeableness* and the *Emotional Stability* scales, a four-factor model was also run. These models were essentially identical as the same items loaded on the same factors, just in a slightly different order. The five-factor model explained 64,1% of the variance, while the four-factor model explained 62,9%. However, in the five-factor model no distinctive item loadings were found for factor five as can be seen from Table 5.7, meaning this is a “weak and unstable” factor (Costello & Osborne, 2005, p. 5). The items in this fifth factor also had higher loadings on other factors, making factor 5 superfluous.

Lastly, all the items had communalities of 0,40 or higher, which is common in the social sciences (Costello & Osborne, 2005, p. 4), except for q33 (initial communality: 0,371) and q34 (initial communality: 0,303) in the four-factor solution (see Table 5.5). This could theoretically indicate that another factor is present or that these items are not related to the other (Costello & Osborne, 2005), which is not the case as can be seen from the five-factor model below. Furthermore, although these communalities are low, they did not contradict any previous empirical findings concerning the factors that they loaded on and should at this stage be of no concern. Yet, if they are identified as items that are to be included in the CFA (or SEM) as representing the latent ABI factors, attention will have to be paid to the low communalities when the squared multiple correlations are investigated for fitting the measurement or structural regression model (Hair et al., 2010, p. 708).

**Table 5.7. Rotated factor matrix – EFA FFM (restricted to five factors)<sup>a</sup>**

|  | Factor      |             |             |             |       |
|--|-------------|-------------|-------------|-------------|-------|
|  | 1           | 2           | 3           | 4           | 5     |
| q20 A Hostile vs Peaceful                | <b>,762</b> | ,300        | ,179        | ,162        | ,006  |
| q21 A Mean vs Gentle                     | <b>,761</b> | ,282        | ,193        | ,174        | -,037 |
| q19 A Insensitive vs Sympathetic         | <b>,719</b> | ,320        | ,240        | ,214        | -,112 |
| q17 A Rude vs Tactful                    | <b>,707</b> | ,338        | ,214        | ,212        | -,005 |
| q16 A Unfriendly vs Friendly             | <b>,705</b> | ,288        | ,182        | ,336        | -,076 |
| q27 ES Agitated vs Calm                  | <b>,705</b> | ,250        | ,285        | ,164        | ,308  |
| q28 A Angry vs Happy                     | <b>,704</b> | ,244        | ,259        | ,266        | ,163  |
| q15 A Cold-hearted vs Warm-hearted       | <b>,697</b> | ,312        | ,183        | ,300        | -,124 |
| q22 A Opposing vs Cooperative            | <b>,684</b> | ,370        | ,286        | ,192        | ,005  |
| q24 ES Moody vs Stable                   | <b>,682</b> | ,267        | ,266        | ,197        | ,278  |
| q26 ES Touchy vs Even-tempered           | <b>,616</b> | ,230        | ,279        | ,179        | ,271  |
| q18 AC Deceitful vs Trustworthy          | <b>,601</b> | ,503        | ,292        | ,168        | -,059 |
| q23 ES Nervous vs Relaxed                | <b>,508</b> | ,253        | ,358        | ,254        | ,275  |
| q03 C Disorganised vs Organised          | ,320        | <b>,691</b> | ,245        | ,218        | ,106  |
| q01 C Irresponsible vs Responsible       | ,348        | <b>,683</b> | ,267        | ,201        | ,029  |
| q07 C Careless vs Careful                | ,374        | <b>,650</b> | ,253        | ,217        | ,030  |
| q05 C Lazy vs Hardworking                | ,298        | <b>,645</b> | ,304        | ,240        | ,008  |
| q04 C Sloppy vs Neat                     | ,285        | <b>,617</b> | ,210        | ,219        | ,099  |
| q06 C Dishonest vs Honest                | ,500        | <b>,603</b> | ,223        | ,190        | -,058 |
| q02 C Undependable vs Dependable         | ,375        | <b>,594</b> | ,233        | ,200        | ,026  |
| q31 R Conventional vs Innovative         | ,390        | ,283        | <b>,649</b> | ,253        | -,003 |
| q30 R Unimaginative vs Creative          | ,402        | ,354        | <b>,642</b> | ,243        | -,016 |
| q32 R Indifferent vs Curious             | ,390        | ,305        | <b>,545</b> | ,272        | ,001  |
| q29 R (ES) Dull vs Intelligent           | ,435        | ,410        | <b>,525</b> | ,216        | ,056  |
| q35 R Prefers routine vs Prefers variety | ,268        | ,096        | <b>,503</b> | ,268        | ,023  |
| q25 ES Insecure vs Confident             | ,446        | ,392        | <b>,473</b> | ,264        | ,207  |
| q33 R Believing vs Questioning           | ,149        | ,224        | <b>,434</b> | ,224        | ,048  |
| q34 R Simple vs Complex                  | ,045        | ,165        | <b>,394</b> | ,184        | ,030  |
| q11 EX Reserved vs Outgoing              | ,299        | ,193        | ,252        | <b>,694</b> | ,021  |
| q09 EX Withdrawn vs Sociable             | ,374        | ,244        | ,213        | <b>,652</b> | ,010  |
| q08 EX Quiet vs Talkative                | ,094        | ,127        | ,195        | <b>,603</b> | -,003 |
| q13 EX Shy vs Bold                       | ,148        | ,203        | ,328        | <b>,595</b> | ,089  |
| q12 EX Gloomy vs Cheerful                | ,529        | ,259        | ,213        | <b>,554</b> | ,061  |
| q10 EX Unassertive vs Assertive          | ,291        | ,425        | ,363        | <b>,465</b> | ,048  |
| q14 EX Passive vs Active                 | ,285        | ,407        | ,394        | <b>,453</b> | ,039  |

Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0,985

From Table 5.7 it seems that the loadings correspond to the results of the component analysis to a great extent, except for the fact that item q25 (Insecure vs Confident) has the highest loading on the *Resourcefulness* factor (factor 3). The item also has a near equivalent

high loading on factor 1, which includes the items representing the original factor *Emotional Stability*.

It has to be kept in mind that the above are a third-party evaluation of the supervisor (very reliable – see Chapter 4) but there is probably some range restriction present as managers and supervisors have “worked their way up” in most cases. The fact that emotional stability and agreeableness are combined can possibly be explained from the perspective that, in a management paradigm, emotionally stable individuals are probably also seen as agreeable.

In the case of q25 it makes sense that part of being seen as a resourceful manager or supervisor is to be seen as confident – or from a factor-loading perspective, the managers or supervisors that are resourceful are probably also evaluated as confident (and vice versa). This finding would need to be investigated further.

The next step was to investigate the Managerial Practices items from an EFA viewpoint. This is particularly important as it might have implications for the SEM specification.

### 5.3.2 *Exploratory factor analysis – Managerial Practices items*

In the spirit of an exploratory factor analysis, which “is to reveal any underlying structure caused by latent variables that cause the manifest variables to covary” (Costello & Osborne, 2005, p. 2), the first run of the management practice-related items was not directly restricted but rather again left to the latent root criterion to establish the cut-off for the number of factors. Hair et al. (2010, p. 109) indicate that this criterion (eigenvalue >1 criterion) is at its most reliable in identifying the number of factors to extract when the number of variables is between 20 and 50. Moreover, this so-called *Kaiser* criterion is best used if the sample size is larger than 250 and the average communality is 0,600 or more (Field, 2006, p. 633). As there were 34 MP items that in the original PCA all loaded on factor 1, the sample size was 10803 (listwise) and the average communality was computed as 0,601, this criterion seems acceptable from a statistical theoretical perspective.

**Table 5.8. Rotated factor matrix – Managerial practices (N= 10803 listwise) <sup>a</sup>**

|  | Factor       |              |              |
|--|--------------|--------------|--------------|
|  | 1            | 2            | 3            |
| q60 TM Know what S expects                       | <b>0,701</b> | 0,257        | 0,333        |
| q59 TM S ensures same goals                      | <b>0,674</b> | 0,313        | 0,332        |
| q64 TM S explains how my work influences company | <b>0,613</b> | 0,348        | 0,230        |
| q55 IS S gives straight feedback                 | <b>0,610</b> | 0,370        | 0,349        |
| q58 TM S confronts culprits                      | <b>0,607</b> | 0,230        | 0,241        |
| q50 TM S ensures acceptable performance          | <b>0,594</b> | 0,381        | 0,340        |
| q45 WS S gives information                       | <b>0,567</b> | 0,321        | 0,413        |
| q47 IS S feedback on performance                 | <b>0,560</b> | 0,402        | 0,353        |
| q56 TM S handles conflict well                   | <b>0,557</b> | 0,449        | 0,340        |
| q66 CR S ensures prestige & credibility          | <b>0,541</b> | 0,474        | 0,340        |
| q54 TM S freely talks/ gives opinions            | <b>0,538</b> | 0,297        | 0,263        |
| q57 IS S reveals company information             | <b>0,532</b> | 0,401        | 0,357        |
| q65 WS S supports me when needed                 | <b>0,529</b> | 0,451        | 0,428        |
| q61 CR S encourages expression of feelings       | <b>0,512</b> | 0,455        | 0,325        |
| q52 TM S conducts effective meetings             | <b>0,511</b> | 0,421        | 0,310        |
| q67 CR S tells truth about future                | <b>0,499</b> | 0,444        | 0,309        |
| q51 TM S is self-disciplined                     | <b>0,491</b> | 0,377        | 0,406        |
| q43 CR S analyses problems                       | <b>0,485</b> | 0,418        | 0,428        |
| q44 WS S is there when needed                    | <b>0,479</b> | 0,361        | 0,443        |
| q62 CR S keeps promises                          | <b>0,475</b> | 0,467        | 0,411        |
| q48 CR S accepts our decisions                   | 0,321        | <b>0,673</b> | 0,334        |
| q49 CR S implements our decisions                | 0,440        | <b>0,611</b> | 0,307        |
| q68 CR S considers my proposals                  | 0,419        | <b>0,607</b> | 0,348        |
| q53 CR S accepts negative feedback               | 0,329        | <b>0,578</b> | 0,296        |
| q41 CR S respects different opinions             | 0,305        | <b>0,566</b> | 0,437        |
| q46 CR S allows expression of feelings           | 0,388        | <b>0,509</b> | 0,435        |
| q42 CR S listens & clarifies                     | 0,402        | <b>0,508</b> | 0,437        |
| q63 CR S tolerates mistakes <sup>b</sup>         | 0,263        | <b>0,481</b> | 0,233        |
| q69 IS S asks feedback on S performance          | 0,448        | <b>0,461</b> | 0,201        |
| q39 TR S has good intentions                     | 0,317        | 0,334        | <b>0,720</b> |
| q36 TR Have open & trusting relationship with S  | 0,289        | 0,324        | <b>0,707</b> |
| q40 TR Can believe what S says                   | 0,325        | 0,306        | <b>0,693</b> |
| q38 TR Fair judging of performance               | 0,318        | 0,306        | <b>0,676</b> |
| q37 TR S reveals important facts                 | 0,382        | 0,253        | <b>0,655</b> |

Extraction Method: Maximum Likelihood.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

b. Item with communality < 0,400

Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0,988

From Table 5.8 it becomes clear that the Managerial Practices load on three factors. The first of these seems to be a mixed factor, while the second factor only loads on the *Credibility*

items (except for one item), and the last factor loads on the original *Trust* items. Item q63 was again the only management practice item where the communality was smaller than 0,400, in this case 0,354 (see results for the PCA above). There are hardly any cross-loadings with the other factors, which can probably be explained by the fact that this item is the only item that seems to have a negative connotation in the wording. The fact that it refers to the supervisor who “tolerates mistakes”, implies that mistakes are made, that these are tolerated and that it might even indirectly implicate the respondent as the person who has made the mistake.

Hair et al. (2010, p. 109) contend that in the social sciences it is not abnormal for only around 60% of the variance to be explained in an acceptable solution, which is the case here, as 59,5% of the total variance is explained by the three factors. Factor 1 explains 23,5% of this variance; factor 2 explains 18,5% and factor 3 explains 17,5% of this solution. As factor 3, which represented the “trust” items in the Martins (2000) model, consisted of five items only, but explained nearly a third of the total variance, these items will be explored in more detail in the next section.

### 5.3.3 *Exploratory factor analysis – Trust items*

As this study uses additional items to measure trust, it was deemed necessary to investigate the relationship between these items. For this purpose the original items that loaded on the trust factor in the Martins (2000) model, items q36 to q40 and the items directly enquiring about the perceived levels of trust in different referent persons or groups (see Table 5.9 for the detail), an EFA was run, with ML extraction, eigenvalue > 1 and varimax rotation (N= 3581 listwise). This first analysis revealed that item b86 (“I trust my colleagues (team members)”), does not belong in this analysis with an initial communality of just 0,132, while all the other items were above 0,350. The analysis was repeated with this item excluded – and the total variance (explained without this one item) improved from 58,8% to 65%. All communalities after extraction now exceeded 0,400 (lowest value was “I trust top management” with 0,427). There was a generic warning though: “One or more communality estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.”

**Table 5.9. Rotated factor matrix – Trust items (N=3797) <sup>a</sup>**

|   | Factor       |              |
|---|--------------|--------------|
|   | 1            | 2            |
| q39 TR S has good intentions                    | <b>0,825</b> | 0,215        |
| q36 TR Have open & trusting relationship with S | <b>0,802</b> | 0,229        |
| q40 TR Can believe what S says                  | <b>0,782</b> | 0,247        |
| q38 TR Fair judging of performance              | <b>0,776</b> | 0,205        |
| q37 TR S reveals important facts                | <b>0,762</b> | 0,204        |
| b85 'I trust my immediate supervisor'           | <b>0,572</b> | 0,504        |
| b84 'I trust my immediate manager'              | 0,256        | <b>0,873</b> |
| b83 'I trust top management'                    | 0,138        | <b>0,639</b> |

Extraction Method: Maximum Likelihood.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy 0,903

To heed the above warning, as a next step the item concerning b83 “I trust top management” was removed, as it was felt that this item might have other unknown outside effects impacting on it, such as the effect of global recessions or political changes. To test this, Cronbach’s alpha was computed for the above items as a scale. The results indicated that if the top management item was removed, the Cronbach’s alpha would increase from 0,890 to 0,901. As expected from a theoretical perspective, only one factor could be extracted after removing this item.

**Table 5.10. Factor loadings and communalities – Trust items <sup>a</sup>**

|   | Factor 1 | Communalities |            |
|---|----------|---------------|------------|
|   |          | Initial       | Extraction |
| q39 TR S has good intentions                    | 0,847    | 0,655         | 0,718      |
| q36 TR Have open & trusting relationship with S | 0,832    | 0,630         | 0,693      |
| q40 TR Can believe what S says                  | 0,822    | 0,612         | 0,675      |
| q38 TR Fair judging of performance              | 0,798    | 0,586         | 0,637      |
| q37 TR S reveals important facts                | 0,787    | 0,567         | 0,620      |
| b85 'I trust my immediate supervisor'           | 0,704    | 0,539         | 0,495      |
| b84 'I trust my immediate manager'              | 0,512    | 0,355         | 0,262      |

Extraction Method: Maximum Likelihood.

a. 1 factor extracted. 4 iterations required.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0,913

Using an unorthodox interpretation of the communalities as represented in Table 5.10, it seems that using item b85 (I trust my immediate supervisor) because it represents the traditional Martins (2000) items and item b84 (I trust my immediate manager) because it has

the lowest communality, should give an indication of the level of trust in direct superiors, with a wider variance in measurement.

The Martins "trust items" (q 36 to q 40) again all loaded on one factor with the "I trust my immediate supervisor" item (b84). This makes sense, as all the items are directed towards trust of the supervisor. They all seem to focus on *Integrity* as is clear from Table 5.15, where the item classification is reported.

It has to be remembered that a maximum likelihood method EFA is just that, exploratory, and its aim is to find a theory that can be generalised to the population. The fact that close to the same factors were found in the above analysis, does not confirm the Martins (2000) model. EFA is not designed to test theories or even hypotheses – that is the task of a confirmatory factor analysis (Costello & Osborne, 2005, p. 8). The next step would then be to move over to latent variable modelling techniques, such as confirmatory factor analysis.

#### **5.4 Confirming the Martins (2000) model**

To determine how solid the foundation is upon which the new model will be based, it is necessary to investigate whether the current data still holds for the model as proposed by Martins and others. This step is another confirmation of the model; moreover to replicate a study is critical as it is a so-called "golden standard of science" (Kline, 2010, p. 150) – either internal or external replication by another author – to avoid the SEM becoming nothing more than another "statistical exercise" (Kline, 2011b, p. 98). External replication by an independent author is lamentably scarce in the case of SEM (Kline, 2010, p. 150).

##### *5.4.1 Reporting process and technical specifications*

In the following section the results of the AMOS procedures that were used to determine the Goodness-of-Fit (GOF) of the measurement models and structural models are reported. Linking to the theoretical steps discussed in Chapter 4, which are based closely on Hair et al. (2010), further guidelines from Kline (2011b), Cabrera-Nguyen (2010) and Schreiber, Nora, Stage, Barlow, and King (2006) will be followed in the following sections, especially when it comes to reporting on the new proposed model. These guidelines concern aspects that are often omitted in published research, which makes the understanding and replication of a researcher's studies nearly impossible. They deal with aspects such as whether experts were used to review the items, the sampling strategy, data preparation (including

investigating the normality of the distribution), and how missing data was dealt with (Cabrera-Nguyen, 2010, pp. 99-100).

All the analyses were conducted using SPSS Version 22 (SPSS 22, 2013), while AMOS 22 was used for the CFA and SEM analysis (Arbuckle, 2013). The default estimation method in AMOS – maximum likelihood (ML) with co-variance matrix analysis – was used in all instances, except if reported differently (Arbuckle, 2013; SPSS 22, 2013).

#### 5.4.2 *Fit indices and model comparisons*

With regard to the comparison of alternative models, Zurbruggen (2009) warns that although this is often practised, one should not compare the  $\chi^2$  of non-nested models<sup>9</sup> directly. As no deliberate use was made of nested models in this study, the best way to compare these is with the so-called predictive fit indices as discussed in Chapter 4. The most commonly used of these predictive fit indices or *information-theoretic fit measures* is the Akaike Information Criterion (AIC or *Akaike*) (Blunch, 2008, p. 117; Kline, 2011b, p. 220). In the current study the *Akaike* – and not the often suggested alternative, the Bayesian Information Criterion (BIC) – is used to compare the different models. To confirm this choice, Vrieze (2012) uses simulation studies to determine the differences between the *Akaike* and the BIC for the purpose of model selection, especially in the field of psychology. In the case of very complex psychological models that are “at best woefully modeled by current approaches”, the *Akaike* is the preferred indicator (Vrieze, 2012, p. 241). He specifically mentions the fields of personality and industrial and organisational psychology in this regard. The other fit statistics that need to be reported are the RMSEA (with 90% confidence interval), CFI and SRMR (Kline, 2010, p. 153).

As the ideal values for each of the fit indices (discussed in Chapter 4) are not likely to be achieved – firstly for theoretical reasons, but also because of the inherent weakness of each concerning their sensitivity for parsimony and sample size – a compromise has to be reached to determine what acceptable fit is. From a purely statistical view, Hair et al. (2010, p. 672) suggest acceptable fit indices for various levels of complexity and different sample sizes. In the case of all the models in the current study, the  $n$  will be larger than 1000 observations and the number of statistical variables ( $m$ ) will be more than 12, but mostly

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<sup>9</sup> A nested model is a model based on the default model where additional parameters are constrained (Arbuckle, 2013, p. 116). They are “*hierarchical models based on the same dataset*” where certain paths are constrained to zero (Ho, 2014, pp. 455- 456).

more than 30. In Table 5.11, the Goodness-of-Fit for the various models is summarised together with the relevant information from Hair et al. (2010) for ease of reference. The Relative Noncentrality Index (RNI) is omitted from Table 5.11 as it is not used if  $N > 1000$  (Hair et al., 2010, p. 672). Furthermore, a RMSEA of between 0,05 and 0,08 can be considered an adequate fit (Ho, 2014, p. 492).

**Table 5.11. Goodness-of-fit across different model situations**

|             | $12 < m < 30$                       | $m \geq 30$                         |
|-------------|-------------------------------------|-------------------------------------|
| $\chi^2$    | anticipate significant p-values     | anticipate significant p-values     |
| CFI and TLI | 0,92 or more                        | 0,90 or more                        |
| SRMR        | 0,08 or smaller, if CFI > 0,92      | 0,08 or smaller, if CFI > 0,92      |
| RMSEA       | 0,07 or smaller, if CFI $\geq$ 0,92 | 0,07 or smaller, if CFI $\geq$ 0,90 |

Guideline values from Hair et al. (2010, Table 11-4, p. 672)

As a rule of thumb, Hair et al. (2010, p. 676) contend that the more complex models with many parameters that also use a large sample (as is the case in the current scenario) should not be held ransom to an unrealistic orthodox cut-off value of 0,95. Kline (2011b, p. 195) reminds that "... there is no magic in fit statistics of any kind". The *Akaike* is not included in the listed guidelines above, as this index is not interpreted in the normal statistical fashion. The lower a value is, the better, but "the measures have no upper limit and therefore these fit measures are primarily used as a basis for choosing among several substantively meaningful models" (Blunch, 2008, p. 116). According to Kline (2011b, p. 220), the smaller the AIC values, the higher the probability that this model will replicate as it is more parsimonious and has relatively better GOF than competing models.

#### 5.4.3 Testing of the Martins (2000) structural equation model

The research in this study is based on the original premises of the Martins (2000) model and its sequels, such as Van den Berg and Martins (2013), who tested the model again by means of SEM. At this stage, though, no study has fitted a SEM based on the data collected between 1997 and 2010 ( $N = 12363$ ). According to Bowen and Guo (2011, p. 80), it is necessary to confirm the factor structure if a prior instrument was adapted (or translated).

In current study, use was made of item parcels (Heron, Brown & Croudace, 2012a, p. 95; Ho, 2014, p. 290) for various reasons:

- The programming for the parcels was available from previous analyses, and only two items needed to be reassigned according to the PCA results. This ensured greater fidelity to the replication of the study.
- The original data is not multivariate normally distributed for each item (Kaplan, 2009, p. 85)
- The effect of the large number of missing values is somewhat negated as the “idiosyncratic characteristics of individual items” should not distort the analysis (Ho, 2014, p. 291, p. 433).

Parcelling is not without controversy – see Section 4.4.2 for a description of item parcelling and Section 4.6.2 concerning the use of a composite measure or indicator. However, if all the items in each parcel are unidimensional, Kline (2011b, p. 244) commends this method to overcome the problems of individual respondents’ variability on different items. Added to the fact that Likert-type items are often not suitable for ML estimations, the manner in which items are allocated to parcels can have an effect on the results, especially if they are assigned at random and not according to a theoretically based rationale (Kline, 2011b, p. 182).

From the results of the principal component and factor analysis in previous sections it became clear that some items had moved between constructs (q18 & q29). Consequently, the parcelling representing the composite indicators of the personality factors *Agreeableness*, *Conscientiousness*, *Extraversion* and *Resourcefulness* had to be recalculated before they could be used in the latent variable analysis (Ho, 2014, p. 432). The parcels were calculated by summing the responses of individual items that loaded on the following variables for each respondent:

- *FFM Agreeableness*
- *FFM Conscientiousness*
- *FFM Extraversion*
- *FFM Resourcefulness*
- *FFM Emotional stability*
- *MP Credibility*
- *MP Team management*
- *MP Information sharing*
- *MP Work support*
- *Trust*

The descriptive statistics of these new parcels and the previous parcels are given in Table 5.12. All further analyses in the replication of the Martins (2000) model will use the new parcelling values that have been calculated for each respondent.

**Table 5.12. Descriptive statistics for the recalculated personality parcels**

|                          | N     | Mean   | Standard<br>Deviation | Skew-<br>ness | Kurtosis |
|--------------------------|-------|--------|-----------------------|---------------|----------|
| Agreeableness            | 11035 | 73,72* | 19,95                 | -,987         | ,582     |
| 2014 Agreeableness       | 11008 | 73,77* | 19,93                 | -,983         | ,564     |
| Conscientiousness        | 10971 | 76,10* | 19,06                 | -1,054        | ,729     |
| 2014 Conscientiousness   | 11043 | 76,36* | 19,02                 | -1,079        | ,812     |
| Extraversion             | 10937 | 74,59* | 17,32                 | -,890         | ,698     |
| 2014 Extraversion        | 10890 | 75,26* | 16,99                 | -,936         | ,822     |
| Resourcefulness          | 11032 | 72,10* | 17,18                 | -,758         | ,556     |
| 2014 Resourcefulness     | 11064 | 70,81* | 17,40                 | -,661         | ,393     |
| Emotional stability      | 11098 | 72,85  | 19,56                 | -,833         | ,258     |
| 2014 Emotional stability | 11098 | 72,85  | 19,56                 | -,833         | ,258     |

Standardised scores: Minimum: 11,11; Maximum= 100,00

\*Means significantly different  $p < 0,000$

Standard Error Skewness = 0,023; Standard Error Kurtosis = 0,046 – 0,047

Table 5.12 shows that although the values hardly differ, the new parcels are statistically significantly different from the previous parcelling results as the  $n$  is very large (although the practical difference is not very much). The values are standardised scores that have been converted into scores out of 100, as these scores are more understandable during feedback sessions. The conversions are given at the bottom left of Table 5.13. The differences that are apparent can be attributed to the fact that items q18 and q29 moved between parcels, as is clear from Table 5.13.

**Table 5.13. Syntax for item parcelling and standardising of scores**

| <b>Item parcelling FFM (Martins, 2000)</b>                             | <b>Item parcelling (Current study, 2014)</b>                       |
|--|--|
| COMPUTE agree =<br>q15+q16+q17+q19+q20+q21+q22+q28 .                   | COMPUTE agree14 =<br><b>q18</b> +q15+q16+q17+q19+q20+q21+q22+q28 . |
| COMPUTE concient =<br>q01+q02+q03+q04+q05+q06+q07+ <b>q18</b> .        | COMPUTE concient14 =<br>q01+q02+q03+q04+q05+q06+q07 .              |
| COMPUTE extro =<br>q08+q09+q10+q11+q12+q13+q14 .                       | COMPUTE extro14 =<br><b>q29</b> +q08+q09+q10+q11+q12+q13+q14 .     |
| COMPUTE resour =<br><b>q29</b> +q30+q31+q32+q33+q34+q35 .              | COMPUTE resour14 =<br>q30+q31+q32+q33+q34+q35 .                    |
| COMPUTE stable = q23+q24+q25+q26+q27.                                  | COMPUTE stable14 = q23+q24+q25+q26+q27.                            |
| <b>Item parcelling MP</b>  |  |
| COMPUTE credib = q48+q41+q53+q68+q63+q46+q49+q42+q61+q62+q43+q66+q67 . |  |
| COMPUTE team_man = q59+q58+q50+q60+q64+q51+q52+q56+q54 .               |  |
| COMPUTE infoshar = q47+q55+q57+q69 .                                   |  |
| COMPUTE wrksupt = q44+q65+q45 .  |  |
| COMPUTE trustrel = q36+q37+q38+q39+q40 .                               |  |
| <b>Standardisation MP and FFM items</b>                                | <b>Variable labels</b>   |
| COMPUTE n_agree = ((agree / 8)/9) * 100 .                              | n_agree "FFM Agreeableness".                                       |
| COMPUTE n_concie = ((concient / 8)/9) * 100 .                          | n_concie "FFM Conscientiousness".                                  |
| COMPUTE n_extro = ((extro / 7)/9) * 100 .                              | n_extro "FFM Extraversion".  |
| COMPUTE n_resour = ((resour / 7)/9) * 100 .                            | n_resour "FFM Resourcefulness".                                    |
| COMPUTE n_stable = ((stable / 5)/9) * 100 .                            | n_stable "FFM Emotional stability".                                |
| COMPUTE n_credib = ((credib / 13)/5) * 100 .                           | n_credib "MP Credibility".   |

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```

COMPUTE n_team = ((team_man / 9)/5) * 100 .   n_team "MP Team management".
COMPUTE n_infosh = ((infoshar / 4)/5) * 100 .   n_infosh "MP Information sharing".
COMPUTE n_wrksup = ((wrksupt / 3)/5) * 100 .   n_wrksup "MP Work support".
COMPUTE n_trustr = ((trustrel / 5)/5) * 100 .   n_trustr "MP Trust relationship".

```

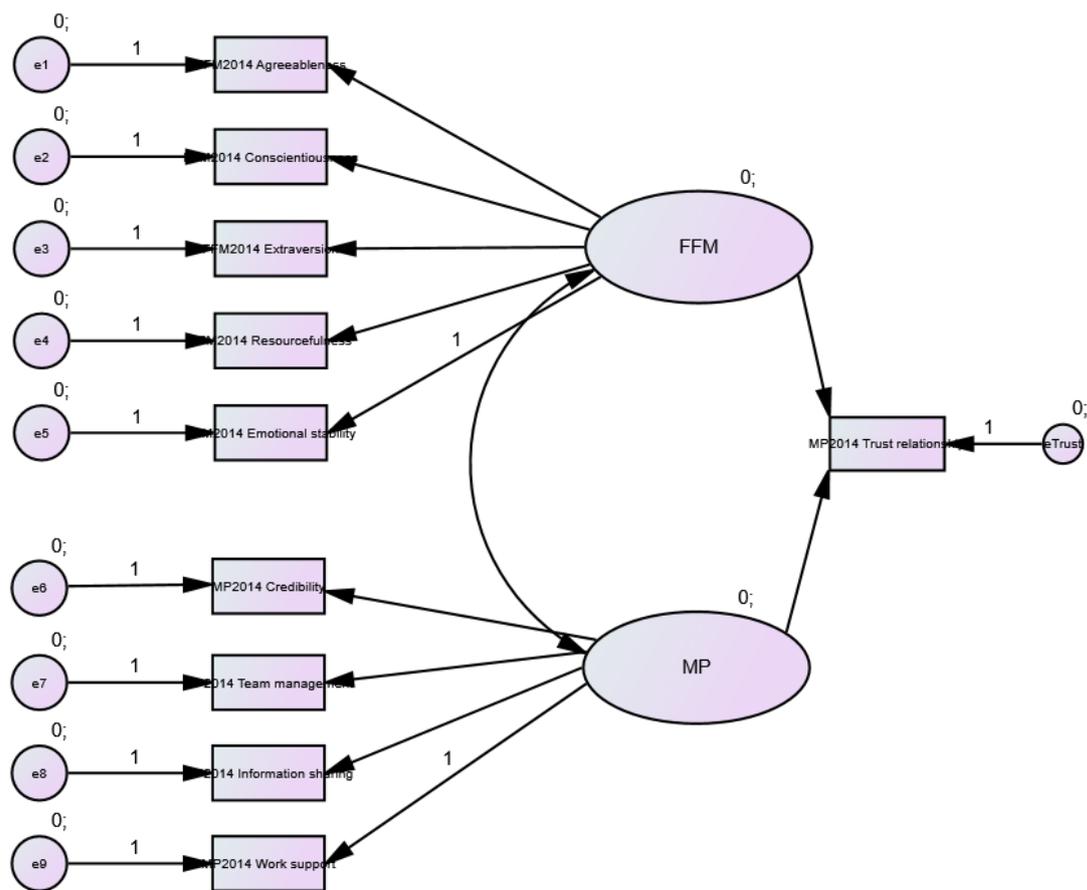
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*Items **q18** and **q29** are in bold as they moved between parcels*

Table 5.13 shows that item q18 moved from the Conscientiousness dimension to Agreeableness, while item q29 moved from the Resourcefulness dimension to Extraversion. This was a result of the exploratory factor analysis as discussed in Section 5.2 (see Table 5.7). The change that occurred in the factor structure between the previous studies and the current study should be taken note of for the sake of scientific rigour, although the practical relevance might not be that important.

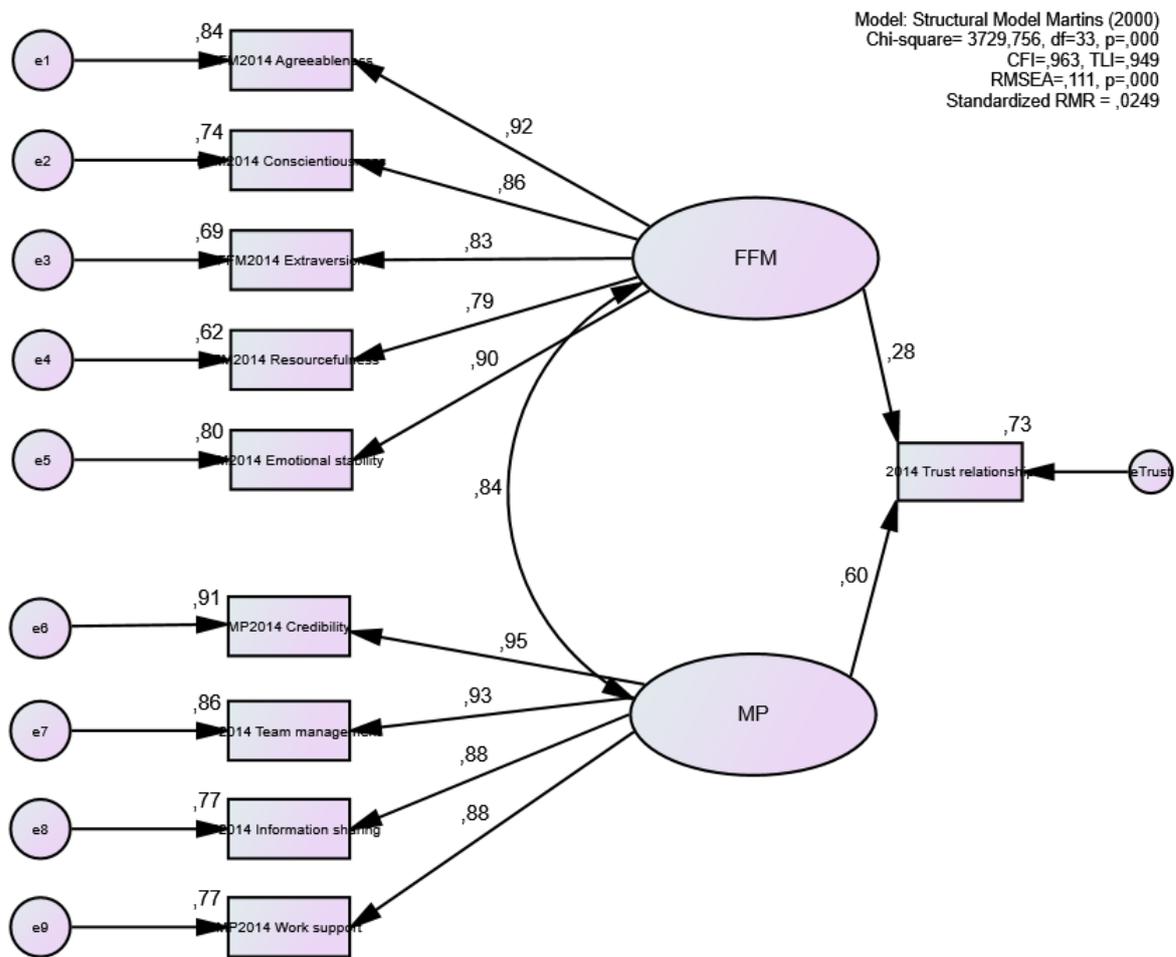
#### 5.4.4 Testing of data and old models

To determine if Martins' (2000) latent variable structural model still holds with the current comprehensive datasets, the previous models were re-tested, with the proviso that the two items that had loaded differently in the PCA above were now allocated to these FFM constructs. The model as tested is represented below. As the Martins (2000) model was adapted in subsequent studies, and as some of the variables used in other studies (e.g. Von der Ohe, Martins and Roode (2004) and Van den Berg and Martins (2013)) were unique to those studies, the original Martins model was adapted slightly and is represented in Figure 5.2. The dataset that was used included all the observations that had no missing values in either the FFM or MP variables (q1 to q69) (see discussion above). In this case, 9060 observations were left (listwise non missing).



**Figure 5.2. Default structural model by Martins (2000)**

According to the Goodness-of-Fit indices, this basic model (see Figure 5.3) could be improved as both the RMSEA (0,111) and the SRMR (0,025) are signs that the model needs to be re-specified. These are both so-called badness-of-fit indicators where a higher value is a sign of poor fit, and a value between 0,05 to 0,08 is seen as acceptable, while a value between 0,08 to 1,00 is “mediocre fit” (Hair et al., 2010; p 668; Ho, 2014, p. 425; Kline, 2011b, p205).

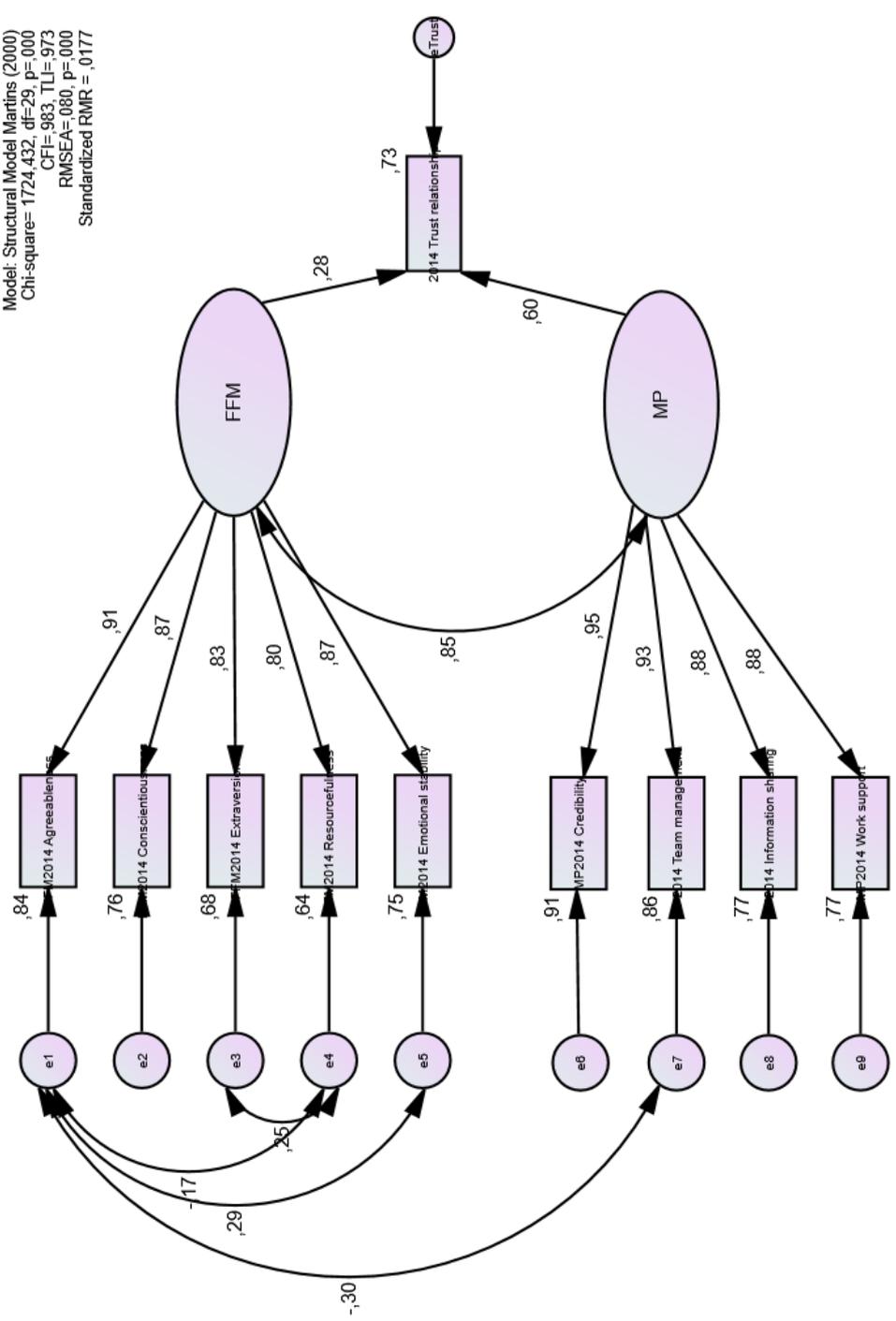


**Figure 5.3. Model fit of the Martins (2000) replication**

Upon investigating the modification index (MI) it became clear that (as was the case in Van den Berg & Martins, 2013) the model had to be adapted and certain parameters were restrained. The adapted model, as depicted in Figure 5.4, showed remarkable improvement in goodness of fit and was accepted as sufficient substantiation of the (adapted) Martins (2000) model concerning its fit of the data. This model was recursive and converged successfully ( $\chi^2= 1724,43$ ,  $df= 29$ ,  $p<0,000$ ). The incremental fit indices remained acceptable (CFI=0,983; TLI=0,973), while RMSEA improved to a now acceptable 0,080 (SRMR = 0,0177). The changes in standardised regression weights and squared multiple correlations<sup>10</sup> or residuals compared to the original model and the various replications will be discussed below.

<sup>10</sup> Note. Squared Multiple Correlations (SMC) are reported to the left of each observed variable or indicator for the sake of visibility.

Model: Structural Model Martins (2000)  
 Chi-square= 1724,432, df=29, p=,000  
 CFI=,983, TLI=,973  
 RMSEA=,080, p=,000  
 Standardized RMR = ,0177



**Figure 5.4. Adapted Martins (2000) structural model**

Agreeableness and Emotional stability need to co-vary as their correlation is high in this data. Extraversion seems to co-vary with Resourcefulness in this database, supervisors who are seen as extrovert might also be perceived as resourceful by their subordinates. The negative intercorrelations are also insightful: The agreeable supervisor is seen as less resourceful by subordinates (or the more resourceful supervisor is perceived as less

agreeable). *Agreeableness* also has a very strong negative (-0,30) relationship with *Team Management*. It seems that supervisors who were rated as high in team management were not rated high on agreeableness.

When comparing this *Adapted Martins (2000) structural model* with other models such as Martins (2000) and Van den Berg and Martins (2013), it is evident that the overall pattern stays much the same. It has to be noted that Van der Berg and Martins (2013) were mainly concerned with the link to quality of work life and as such do not report all the information needed for a detailed comparison in a standardised format. With the information available, it is apparent that MP and FFM both load on trust in the same pattern in Martins (2000, p. 30) and in Van den Berg and Martins (2013, p. 8). A comparison between Martins (2000) and the above results shows that in both studies, personality (FFM) loads lower on trust relationship (0,28 in Figure 5.4; 0,24 in Martins, 2000; on average 0,26) compared to managerial practices (MP) (0,60 in Figure 5.4; 0,56 in Martins, 2000; on average 0,58).

Now that the basis for the current research has been established and reconfirmed, the next step is to use the individual items that contributed to the FFM and MP item parcels in the adapted Martins model and reclassify them on a purely theoretical basis into the latent constructs of ability, benevolence and integrity. The purpose of the current research is to use them as observed, endogenous variables that will in the final structural regression model predict the trust that employees have in their supervisor or manager. In this way, a linkage can be made between the FFM and MP latent constructs as postulated by Martins (2000) and the antecedents of trust as postulated by Mayer et al. (1995).

## **5.5 Procedure for classifying the items**

Following a similar methodology as in meta-analysis and validity generalisation studies (in which the author has extensive previous experience (e.g. Von der Ohe, 1990)), the re-coding of the items into the three ABI categories to serve as indicators for the different constructs (or latent variables) followed the data matrix in Appendix B - *Coding Guidelines for Ability, Benevolence, and Integrity*. A similar process was followed for their meta-analyses by Colquitt et al. (2007, p. 913) and Dietz and Den Hartog (2006, p. 565), and the steps followed are included as such in the coding guidelines. Dietz and Den Hartog (2006) attempted to re-categorise items into the different content components of trust, independently of the original category the item had been allocated too. This categorisation was based on the original specific wording of the items.

To determine which items best represent ability, benevolence and integrity, as defined in the theoretical trust literature, a spreadsheet-based procedure and detailed instructions were developed. These instructions (see Appendix B) of how to rate the items included a covering letter, a summary of the most pertinent characteristics of the definitions and, for the sake of comprehensiveness, all of Table 4.4 was included. The latter was deemed necessary as the identified subject matter experts (SMEs) had a strong academic background.

As a first step the researcher himself classified each item according to the instructions as a way to test the latter and determine the feasibility of the process. The two SMEs were identified at that time and sent the necessary instructions and classification questionnaire. Both were senior industrial psychologists who specialised in both psychological assessment and research methodology. Both had previous extensive teaching experience at undergraduate and postgraduate level at university – in the one case more than 20 years and more than 30 years in the other case. Both can boast an extensive publication record which includes undergraduate textbooks. This last fact led the researcher to believe that they were well versed in the basic underlying psychological theory that is so often missing in SMEs who are niche experts in one small field.

Firstly the SMEs were requested to classify the items into ABI constructs, much the same as did Dietz and Den Hartog (2006). They were also asked to rate the relevance or fit of the item with regard to the definitions extracted from the literature. The idea was to get some indication of which five or six items could be seen as the strongest theoretical indicators of the specific construct. The researcher himself also completed this exercise twice. In the first case his aim was to test the practicality of the instructions and the functionality of the proposed procedure. Then, after a period of two months when all residual knowledge/information pertaining to the creation of the table had been negated, the second rating took place.

On receipt of the SMEs' results, the researcher tabulated the classification and ratings to determine which items would possibly represent the constructs of ABI the best on a theoretical level. As was the case with Dietz and Den Hartog (2006), some items were classified into more than one of the three constructs (see Table 5.14). This was especially the case with the items representing emotional stability and one item that measured assertiveness. However, these items were not included for consideration as not one of the three SMEs had deemed them to be a good representation of the ABI constructs. The last column of Table 5.14 gives an indication of the number of times the item was rated as strongly representative or as a good theoretical indicator of the relevant construct.

### 5.5.1 *Inter-rater agreement*

When it comes to inter-rater agreement, all three raters classified 39 of the items (55%) exactly the same. They also partially agreed on the classification of 27 items (38%), while only in the case of 5 items (7%) no agreement was reached. For the personality-based items the three SMEs' classification was in total agreement for 63% of the items; in just less than a quarter of the cases at least two of the SMEs agreed on the classification, while in 14% of the cases no agreement was reached and they each classified the item under a different construct.

In respect of the managerial practices the inter-rater agreement was somewhat poorer, with all three SMEs allocating the same construct code in only 47% of the cases, but with all the other items at least two of the SMEs agreed (53%). When considering all 69 items, the SMEs agreed in 55% of the cases, partially agreed in 38% of the cases and could not agree in only 7% of the cases. These latter cases were all items that covered personality aspects, where the SMEs commented that although the instructions were clear, it was sometimes difficult to make provisions for the negative side of the dichotomy when classifying the items. This was the case where for instance the one pole of the item would load on ability, but the other might load on integrity.

In the following tables, item q70 (The person I report to creates the impression that one must hide one's feelings) and item q71 (The person I report to is generally: inefficient /efficient) are excluded, although they were included in the initial classification exercise. The reasons for their exclusion are firstly, that they are not part of the original Martins (2000) model; secondly, item q70 is reverse-phrased or negatively phrased and could be misunderstood (see Chapter 4 where the language issues in South Africa were discussed) and lastly, negative phrased items that need to be reverse-scored invariably cause problems in the reliability analysis (Field, 2006, p. 669).

**Table 5.14. Item classification: Personality**

| Item   | ABI code allocated by SME |                                    |       | Agreement by SMEs |        |        | Final ABI | Strongest ABI items | Frequency of selection as best representation |   |
|--|---------------------------|------------------------------------|-------|-------------------|--------|--------|-----------|---------------------|---|---|
|  | SME 1                     | SME 2                              | SME 3 | 3 of 3            | 2 of 3 | 0 of 3 |           |                     |   |   |
| <i>The person you report to is typically</i> |                           |                                    |       |                   |        |        |           |                     |   |   |
| Q01  | C                         | Irresponsible vs Responsible       | A     | A                 | I      |        | 1         | A(I)                | A   | 1 |
| Q02  | C                         | Undependable vs Dependable         | I     | I                 | I      |        | 1         | I                   | I   | 2 |
| Q03  | C                         | Disorganised vs Organised          | A     | A                 | A      |        | 1         | A                   | A   | 2 |
| Q04  | C                         | Sloppy vs Neat                     | A     | A                 | A      |        | 1         | A                   |   |   |
| Q05  | C                         | Lazy vs Hardworking                | A     | AI                | AI     |        | 1         | AI                  | A   | 1 |
| Q06  | C                         | Dishonest vs Honest                | I     | I                 | I      |        | 1         | I                   | I   | 3 |
| Q07  | C                         | Careless vs Careful                | A     | A                 | A      |        | 1         | A                   |   |   |
| Q08  | EX                        | Quiet vs Talkative                 | B     | A                 | B      |        | 1         | B                   |   |   |
| Q09  | EX                        | Withdrawn vs Sociable              | B     | AB                | B      |        | 1         | B                   |   |   |
| Q10  | EX                        | Unassertive vs Assertive           | I     | A                 | B      |        |           | 1                   | ABI   |   |
| Q11  | EX                        | Reserved vs Outgoing               | B     | A                 | B      |        | 1         | B                   |   |   |
| Q12  | EX                        | Gloomy vs Cheerful                 | B     | A                 | B      |        | 1         | B                   |   |   |
| Q13  | EX                        | Shy vs Bold                        | A     | A                 | B      |        | 1         | A                   |   |   |
| Q14  | EX                        | Passive vs Active                  | A     | A                 | A      |        | 1         | A                   | A   | 1 |
| Q15  | A                         | Cold-hearted vs Warm-hearted       | B     | B                 | B      |        | 1         | B                   | B   | 2 |
| Q16  | A                         | Unfriendly vs Friendly             | B     | B                 | B      |        | 1         | B                   | B   | 1 |
| Q17  | A                         | Rude vs Tactful                    | B     | B                 | BI     |        | 1         | B                   | B   | 1 |
| Q18  | C                         | Deceitful vs Trustworthy           | I     | I                 | I      |        | 1         | I                   | I   | 2 |
| Q19  | A                         | Insensitive vs Sympathetic         | B     | B                 | B      |        | 1         | B                   | B   | 2 |
| Q20  | A                         | Hostile vs Peaceful                | B     | A                 | BI     |        | 1         | B                   |   |   |
| Q21  | A                         | Mean vs Gentle                     | B     | B                 | B      |        | 1         | B                   | B   | 1 |
| Q22  | A                         | Opposing vs Cooperative            | B     | B                 | B      |        | 1         | B                   | B   | 2 |
| Q23  | ES                        | Nervous vs Relaxed                 | I     | A                 | B      |        |           | 1                   | ABI   |   |
| Q24  | ES                        | Moody vs Stable                    | I     | A                 | B      |        |           | 1                   | ABI   |   |
| Q25  | ES                        | Insecure vs Confident              | I     | A                 | AB     |        | 1         | A                   |   |   |
| Q26  | ES                        | Touchy vs Even-tempered            | I     | A                 | B      |        |           | 1                   | ABI   |   |
| Q27  | ES                        | Agitated vs Calm                   | I     | A                 | B      |        |           | 1                   | ABI   |   |
| Q28  | A                         | Angry vs Happy                     | B     | A                 | B      |        | 1         | B                   |   |   |
| Q29  | R                         | Dull vs Intelligent                | A     | A                 | A      |        | 1         | A                   | A   | 1 |
| Q30  | R                         | Unimaginative vs Creative          | A     | A                 | A      |        | 1         | A                   | A   | 1 |
| Q31  | R                         | Conventional vs Innovative         | A     | A                 | A      |        | 1         | A                   | A   | 1 |
| Q32  | R                         | Indifferent vs Curious             | A     | A                 | A      |        | 1         | A                   |   |   |
| Q33  | R                         | Believing vs Questioning           | A     | A                 | AI     |        | 1         | A                   |   |   |
| Q34  | R                         | Simple vs Complex                  | A     | A                 | A      |        | 1         | A                   |   |   |
| Q35  | R                         | Prefers routine vs Prefers variety | A     | A                 | A      |        | 1         | A                   |   |   |

**Table 5.15. Item classification: Managerial practices**

| Item                                    |    |   | ABI code allocated by SME |       |       | Agreement by SMEs |        |        | Frequency of selection as best representation |           |
|---|----|---|---------------------------|-------|-------|-------------------|--------|--------|---|-----------|
|   |    |   | SME 1                     | SME 2 | SME 3 | 3 of 3            | 2 of 3 | 0 of 3 |   | Final ABI |
| <i>The person I report to typically</i> |    |   |                           |       |       |                   |        |        |   |           |
| Q38                                     | TR | Is fair in judging my performances  | I                         | I     | IB    | 1                 |        | I      | I   | 2         |
| Q39                                     | TR | Demonstrates good intentions and motives towards me                           | B                         | B     | IB    | 1                 |        | B      | B   | 2         |
| Q40                                     | TR | I can believe what the person I report to says                                | I                         | B     | I     |                   | 1      | I      | I   | 1         |
| Q41                                     | CR | Respects differences of opinions and ideas                                    | I                         | B     | BI    |                   | 1      | BI     |   | 0         |
| Q42                                     | CR | Listens carefully and clarifies misunderstandings                             | BA                        | B     | BI    | 1                 |        | B      | B   | 1         |
| Q43                                     | CR | Carefully analyses problems when things go wrong                              | A                         | A     | A     | 1                 |        | A      | A   | 3         |
| Q44                                     | WS | Is there when I need him  | B                         | B     | B     | 1                 |        | B      | B   | 1         |
| Q45                                     | WS | Gives me the information I need to do my job properly                         | A                         | AB    | AB    | 1                 |        | AB     |   | 0         |
| Q46                                     | CR | Allows me to freely express my feelings towards him/her                       | B                         | B     | B     | 1                 |        | B      | B   | 1         |
| Q47                                     | IS | Gives me feedback on my performance   | A                         | B     | AB    |                   | 1      | AB     |   | 0         |
| Q48                                     | CR | Accepts decisions made by my colleagues and I                                 | B                         | B     | BI    | 1                 |        | B      |   | 0         |
| Q49                                     | CR | Ensures that decisions made by us are implemented                             | A                         | I     | IAB   |                   | 1      | IA     |   | 0         |
| Q50                                     | TM | Ensures that colleagues and I perform at an acceptable level                  | A                         | B     | AB    |                   | 1      | AB     | A   | 1         |
| Q51                                     | TM | Is a self-disciplined person  | I                         | A     | A     |                   | 1      | A      | A   | 2         |
| Q52                                     | TM | Conducts meetings in an effective manner                                      | A                         | A     | A     | 1                 |        | A      | A   | 1         |
| Q53                                     | CR | Accepts negative feedback from my colleagues and I                            | AB                        | IB    | BI    | 1                 |        | BI     |   | 0         |
| Q54                                     | TM | Freely talks about his/ her opinions on how things should be done around here | IA                        | B     | BA    |                   | 1      | BA     |   | 0         |
| Q55                                     | IS | Gives me straightforward feedback on my performances                          | I                         | IA    | ABI   |                   | 1      | IA     |   | 0         |
| Q56                                     | TM | Is good at handling conflict in my team                                       | A                         | A     | AB    | 1                 |        | A      | A   | 2         |
| Q57                                     | IS | Honestly reveals company-related information to me                            | I                         | I     | IAB   | 1                 |        | I      |   | 0         |
| Q58                                     | TM | Confronts the culprits when things go wrong                                   | I                         | I     | AB    |                   | 1      | I      | I   | 1         |
| Q59                                     | TM | Ensures that my colleagues and I work towards the same goals                  | AB                        | I     | AB    |                   | 1      | AB     | A   | 1         |
| Q60                                     | TM | Ensures that I know what he/she expects of me                                 | I                         | I     | AB    |                   | 1      | I      | I   | 2         |
| Q61                                     | CR | Encourages me to openly express my feelings during team discussions           | B                         | IB    | B     | 1                 |        | B      |   | 0         |
| Q62                                     | CR | Keeps promises  | I                         | I     | I     | 1                 |        | I      | I   | 2         |
| Q63                                     | CR | Manages work-related mistakes which are made in a positive way                | B                         | IA    | AI    |                   | 1      | A      |   | 0         |
| Q64                                     | TM | Explains how my work influences the rest of the company                       | A                         | I     | AB    |                   | 1      | A      |   | 0         |
| Q65                                     | WS | Supports me when I need him/her   | B                         | B     | B     | 1                 |        | B      | B   | 3         |
| Q66                                     | CR | Ensures that we enjoy prestige and credibility in the company                 | B                         | I     | ABI   |                   | 1      | BI     |   | 0         |
| Q67                                     | CR | Tells the truth about future changes within the company                       | I                         | I     | I     | 1                 |        | I      | I   | 2         |
| Q68                                     | CR | Seriously considers the proposals I make                                      | B                         | I     | AB    |                   | 1      | B      |   | 0         |
| Q69                                     | IS | Asks for feedback on his/her performance                                      | AB                        | I     | AB    |                   | 1      | AB     |   | 0         |

From the above table it can also be seen that in many cases the researcher had to make a decision whether an item represented a certain construct or not, as two of the raters had each classified the items under two different constructs or in a different order. In this case a weight was allocated according to the item's cumulative frequency and rank order in the classification. Item q63 is an example of an instance whether an item was classified as IA by one rater (in other words the item measured Integrity more than Ability) and as AI by another rater (who thought the item represented Ability to a greater extent than Integrity).

Also interestingly, four out of the five emotional stability items (q23 to q27) were classified into three separate and different constructs. Upon discussion and reflection, it was postulated that this was probably the case because these items carry an equal weight on all three constructs, depending on the supervisor and the context in which the items are used.

Table 5.14 makes it clear that certain items were considered as the most valid representation of the constructs under consideration. For instance, the item representing how honest the respondent's supervisor or manager is (q06), was rated by all three SMEs as being highly representative of Integrity. As the construct is defined as such, it is a strong indicator of the construct validity of the item. On the managerial practices side, the item concerning the propensity of the manager to carefully analyse problems when things go wrong (q43) was chosen by all three SMEs as a strong indicator of Ability. Lastly, the strongest indicator for Benevolence was item q65, which measured the tendency of the supervisor or manager to support the respondent when the latter needs it (see Table 5.15). Having determined which items would (according to theory) validly measure the three constructs, the next step is to empirically confirm if these items do in fact represent a psychometrically reliable scale.

### 5.5.2 *Scale reliability*

To determine the internal consistency of the scales that were developed based on the theoretical inputs from the SMEs, it was deemed prudent to investigate whether there was any internal consistency in the new combinations of items that were put together purely on a theoretical basis. The first step was to perform a reliability analysis for all 69 items that had been classified and allocated to a certain construct. As can be seen from Table 5.16, this exercise was not very productive as the deletion of only two items would have made only a slight difference in the reliability of the scales. The analysis of internal consistency reliability (Cronbach's alpha) was not very efficient because of the size of the sample and the high number of items in each scale proved non-conclusive. In both the Ability and the Benevolence scale, the removal of only one item would have improved the Cronbach's alpha, and this by only a negligible amount. The results of this first analysis appear below in Table 5.16.

**Table 5.16. Reliability statistics for all items classified**

|                   | Cronbach alpha | N of Items | N     | Highest Cronbach alpha if item deleted |
|-------------------|----------------|------------|-------|--|
| Ability scale     | 0,962          | 31         | 9921  | 0,963 (one item)                       |
| Benevolence scale | 0,960          | 25         | 10228 | 0,962 (one item)                       |
| Integrity scale   | 0,927          | 13         | 10604 | 0,926                                  |

The next step to reduce the number of items was to follow a theoretical approach. Cronbach's alpha was determined for the three reduced scales by selecting only the items on which the three SMEs had agreed and those that at least one of the SMEs had indicated as a strong representation of the underlying latent factor/construct. This information can be gained from the columns named "*Strongest ABI items*" and "*Frequency of selection as best representation*" in Table 5.14 for the personality-related items and in Table 5.15 for the management-related items. As was to be expected, the resultant analysis decreased Cronbach's alpha somewhat in all cases, but remained at a very high level of above 0,95 in the case of *ability* and *benevolence* (see Table 5.17 and Table 5.18), while in the case of the *integrity* subscale a Cronbach alpha of 0,897 was returned.

**Table 5.17. Reliability statistics – Ability scale**

| Item description                        | Scale mean if item deleted | Scale variance if item deleted | Corrected item-total correlation | Cronbach alpha if item deleted |
|---|----------------------------|--------------------------------|----------------------------------|--------------------------------|
| q01 C Irresponsible vs responsible      | 63,13                      | 221,161                        | ,751                             | ,930                           |
| q03 C Disorganised vs Organised         | 63,43                      | 218,719                        | ,745                             | ,930                           |
| q05 C Lazy vs Hardworking               | 62,86                      | 222,924                        | ,737                             | ,930                           |
| q14 EX Passive vs Active                | 63,02                      | 225,969                        | ,706                             | ,931                           |
| q29 ES R Dull vs Intelligent            | 62,81                      | 222,752                        | ,773                             | ,929                           |
| q30 R Unimaginative vs Creative         | 63,28                      | 219,799                        | ,784                             | ,928                           |
| q31 R Conventional vs Innovative        | 63,57                      | 220,955                        | ,737                             | ,930                           |
| q43 CR S analyses problems              | 66,33                      | 242,541                        | ,710                             | ,932                           |
| q50 TM S ensures acceptable performance | 66,32                      | 244,735                        | ,680                             | ,933                           |
| q51 TM S is self-disciplined            | 66,07                      | 243,116                        | ,728                             | ,932                           |
| q52 TM S conducts effective meetings    | 66,31                      | 243,375                        | ,671                             | ,933                           |
| q56 TM S handles conflict well          | 66,58                      | 241,970                        | ,687                             | ,932                           |
| q59 TM S ensures same goals             | 66,31                      | 244,380                        | ,687                             | ,933                           |

Cronbach's alpha: 0,936

Cronbach's alpha if only non-missing cases are used (N= 9060): 0,938

Number of items : 13

Valid cases: 10626 (85,7%) Listwise deletion based on all variables in the procedure.

As can be seen from the footnote under the three tables, a Cronbach alpha analysis was also run on the database of 9060 cases where there were no missing values in any of the variables, as in all three scales the missing values exceeded the recommended 10% (Hair et al., 2010, pp. 47-48). However, this did not make a big difference as Cronbach's alpha only increased by 0,002 for any of the three scales when the missing values were excluded.

**Table 5.18. Reliability statistics – Benevolence scale**

| Item description                                | Scale mean if item deleted | Scale variance if item deleted | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| q15 A Cold-hearted vs Warm-hearted              | 55,33                      | 197,885                        | ,800                             | ,932                             |
| q16 A Unfriendly vs Friendly                    | 54,90                      | 199,792                        | ,792                             | ,932                             |
| q17 A Rude vs Tactful                           | 55,21                      | 199,254                        | ,793                             | ,932                             |
| q19 A Insensitive vs Sympathetic                | 55,23                      | 197,182                        | ,819                             | ,931                             |
| q21 A Mean vs Gentle                            | 55,24                      | 200,618                        | ,790                             | ,932                             |
| q22 A Opposing vs Cooperative                   | 55,19                      | 196,842                        | ,809                             | ,931                             |
| q36 TR Have open & trusting relationship with S | 58,09                      | 224,516                        | ,720                             | ,936                             |
| q39 TR S has good intentions                    | 58,09                      | 225,106                        | ,721                             | ,936                             |
| q42 CR S listens & clarifies                    | 58,20                      | 224,991                        | ,690                             | ,936                             |
| q44 WS S is there when needed                   | 58,13                      | 226,434                        | ,640                             | ,937                             |
| q46 CR S allows expression of feelings          | 58,11                      | 223,704                        | ,690                             | ,936                             |
| q65 WS S supports me when needed                | 58,14                      | 223,497                        | ,696                             | ,936                             |

Cronbach's alpha: 0,939

Cronbach's alpha if only non-missing cases are used (N= 9060): 0,941

Number of items: 12

Valid cases: 10797 (87,1%) Listwise deletion based on all variables in the procedure.

In all three tables containing the reliability statistics, the “*Corrected Item – Total Correlation*” was higher than the recommended 0,30 (Field, 2006, p. 672) or 0,50 (Hair et al., 2010, p. 125), which means that all the items correlated with their relevant scale’s overall score. According to this analysis, the deletion of items would not have improved the internal reliability of the scales either. In the case of the last scale, the *Integrity scale*, the situation is slightly different. For this scale the Cronbach alpha was calculated as just below 0,90, which is still above *the lower limit of acceptability* of 0,60 to 0,70 (Hair et al., 2010, p. 92), taking into consideration the number of items (more items in a scale increase the reliability value of the Cronbach alpha (Hair et al., 2010, p. 125)).

**Table 5.19. Reliability statistics – Integrity scale**

| Item description                   | Scale mean if item deleted | Scale variance if item deleted | Corrected item-total correlation | Cronbach's alpha if item deleted |
|------------------------------------|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| q02 C Undependable vs Dependable   | 35,44                      | 81,832                         | ,672                             | ,889                             |
| q06 C Dishonest vs Honest          | 35,06                      | 78,447                         | ,763                             | ,880                             |
| q18 AC Deceitful vs Trustworthy    | 35,29                      | 77,404                         | ,796                             | ,876                             |
| q38 TR Fair judging of performance | 38,28                      | 95,736                         | ,680                             | ,887                             |
| q40 TR Can believe what S says     | 38,21                      | 95,315                         | ,736                             | ,885                             |
| q58 TM S confronts culprits        | 38,37                      | 97,301                         | ,559                             | ,894                             |
| q60 TM Know what S expects         | 38,22                      | 96,295                         | ,649                             | ,889                             |
| q62 CR S keeps promises            | 38,43                      | 93,330                         | ,732                             | ,883                             |
| q67 CR S tells truth about future  | 38,49                      | 94,909                         | ,637                             | ,889                             |

Cronbach's alpha: 0,897

Cronbach's alpha if only non-missing cases are used (N= 9060): 0,901

Number of items: 9

Valid cases: 10746 (86,7%) Listwise deletion based on all variables in the procedure.

From the above analysis it can be deduced that most of the requirements for accepting the above scales as relatively unidimensional and reliable have been met, as all the major indicators (e.g. the *Corrected item-total correlation* and the *Cronbach alpha if item deleted*) are within the acceptable levels. Hence it is considered possible to develop the initial measurement model by combining the above empirical information with the qualitative theoretical SEM classification of the strongest items as listed below:

- Ability theoretical strong items =q03 q43\* q51 q56
- Benevolence theoretical strong items=q15 q19 q22 q39 q65\*
- Integrity theoretical strong items =q02 q06\* q18 q38 q60 q62 q67

(\* Item identified by all three SMEs as conceptually the strongest representation of the underlying construct.)

As Hair et al. (2010, p. 126) put it:

*[h]aving ensured that a scale (1) conforms to its conceptual definition, (2) is unidimensional, and (3) meets the necessary levels of reliability, the researcher must make one final assessment: scale validity.*

In the next section the nomological validity<sup>11</sup> of the model will be determined by adopting a structural equation modelling approach as discussed in Chapter 4. Attention will be paid to the measurement and the structural regression models that link personality and managerial practices to the construct of trust in the person to whom an employee reports.

## **5.6 ABI – Trust Structural Equation Model**

In the following sections the SEM models will be generated and their goodness of fit be evaluated. This process will firstly involve the testing of the measurement model to determine the validity of the model. Next the structural regression model will be generated and its goodness of fit will be determined. In the sections thereafter these models will be linked back to the literature and their implications for the practice of industrial and organisational psychology will be discussed.

As a general guideline, the following conventions will be followed when discussing the different measurement models (MM) and structural regression models (SRM) that will make up the structural equation model (SEM). The measurement models (MM) represent the confirmatory factor analysis (CFA) for the relevant latent constructs (Schreiber et al., 2006, p. 325) and are used to determine the reliability and construct validity of the proposed theoretical model (Hair et al., 2010, p. 708).

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<sup>11</sup> According to Hair et al. (2010, p. 126), “*nomological validity determines whether the scale demonstrates the relationships shown to exist based on theory or prior research*”.

With regard to the graphical representations of the various models, the normal SEM conventions are followed. The standardised values are given in the diagrams and the non-standardised values elsewhere – either in a table or an appendix, depending on the relevance. For the sake of consistency, all the following graphical representations will be uniformly represented in a standardised format.

Starting on the left-hand side of each diagram, the **squared multiple correlations** (SMCs) are represented in the graphical depiction of the models between the applicable indicator variable and its measurement error (or unique factors) (Schreiber et al., 2006, p. 323). These SMCs represent the *communalities* in the case of SEM where the values are “the extent to which a measured variable's variance is explained by a latent factor” (Hair et al., 2010, p. 692) and are sometimes referred to as “item reliability, communality, or variance extracted” (Hair et al., 2010, p. 708) or “the reliability of the observed variables in relationship to the latent constructs” (Schreiber et al., 2006, p. 331). A small SMC is indicative of a weak linear relationship between a latent construct and that particular observed indicator variable (Ho, 2014, p. 428). Conversely, the (1-SMC) value would indicate the variance that is not explained by the latent construct, but by something outside the model. This is the **standardised residual**, which represents “an estimate of the proportion of variance in each endogenous variable not predicted by its respective model” (Ho, 2014, p. 498). In short, the **residual** or **unexplained variance** = (1-SMC), in other words the percentage of error variance in the variable X, is approximately ((1-SMC)\*100) of the variance of X itself (Amos 22, 2013; Ho, 2014, p. 440).

The coefficient reported above or below the single-headed arrows (linear dependencies) between the latent variable and the indicators represent the standardised loadings or loading estimates, labelled **standardised regression weights** in Amos (Hair et al., 2010, p. 722) or  $\beta$  (Ho, 2014, p. 440). These loadings should be higher than 0,70 in the ideal case, but preferably not lower than the absolute value of |0,50| if we want to retain an item in the analysis (Hair et al., 2010, p. 708).

In the caption contained within each diagram itself, the following general information and measures of fit are inserted directly for ease of reference<sup>12</sup>. Firstly, a short model name is given, then in the second row, the  $\chi^2$  (*Chi-square*), the degrees of freedom (*df*), and the relevant level of significance (*p*). In the next row, two incremental fit indices that are Goodness-of-Fit indicators are first reported – in this instance the Comparative Fit Index (*CFI*) and Tucker Lewis Index (*TLI*) – and secondly the Akaike Information Criterion (*Akaike*) that can be used to compare models. The latter was specifically developed to compare models with a different number of constructs (Ho, 2014, p. 427). A lower *Akaike* indicates a better model fit and a more parsimonious model (Ho, 2014, p. 429).

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<sup>12</sup> The following text macro was inserted in each of the graphical interfaces for ease of interpretation.

Model: Model name

Chi-square= \cmin, df=\df, p=\p

CFI=\cfi, TLI=\tli, Akaike = \aic

RMSEA=\rmsea, p=\pclose

(SRMR was cut & paste directly from the plug in)

In the last two rows, the absolute fit indices – specifically the Root Mean Square Error of Approximation (*RMSEA*) and its significance ( $p$ ) and the Standardised Root Mean Residual (*Standardised RMR* or *SRMR* in the text) – are reported as so-called badness-of-fit measures. These indices are the minimum recommended GOF indicators (Hair et al., 2010, p. 678; Schreiber et al., 2006, p. 327).

## **5.7 Measurement model**

The first measurement model (01a MM 34 Items) that was generated was based solely on the items that the subject matter experts had identified as the strongest theoretical items to represent the ABI constructs (see Section 5.5.1 above). As discussed in Section 5.1.3, the reduced dataset of 2860 respondents that had no missing values for any variable, was used in this instance. This model with the key fit indices is represented in Figure 5.5.

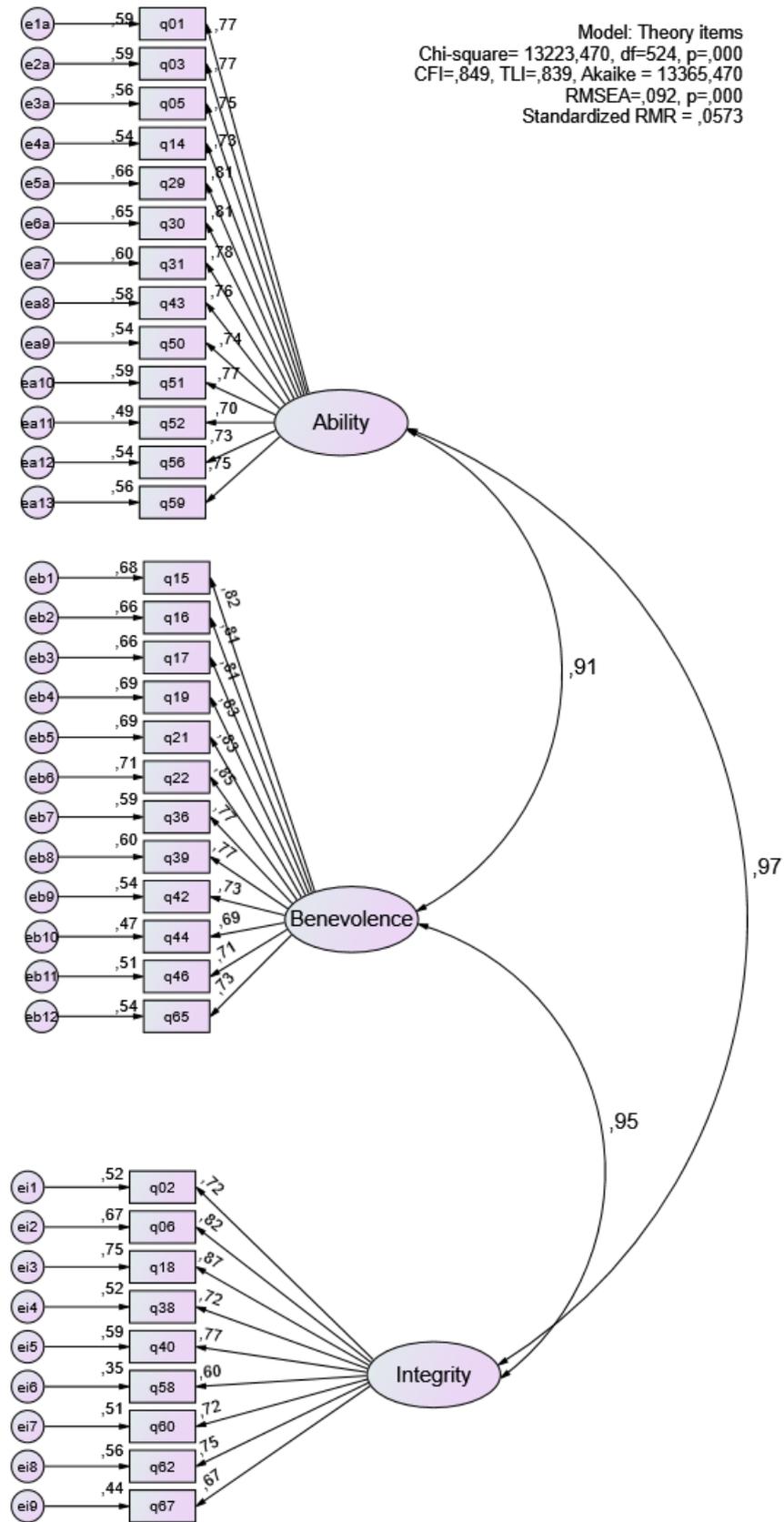


Figure 5.5. Model 01a: MM 34 Items – Measurement model with all 34 selected items (N= 2860)

As can be seen from Figure 5.5, all the indicators of model fit point to the fact that this model can be improved considerably. The squared multiple correlations (SMCs) are in many cases also below 0,50, indicating a low validity, as more than half of the variance is explained from outside the model.

The estimates indicate that the initial measurement model can be substantially improved; hence the first step was to allow for the fact that there is high inter-correlation between some indicators. The reason for this is that some of the items that on one factor under the FFM loaded, were now assigned as indicators of different latent constructs. For instance, items that previously all loaded on *Conscientiousness* were now split between *Ability* (items q1 and q3) and *Integrity* (item q2). These were consequently allowed to co-vary. The modification index (MI) confirmed as much. The results of this analysis can be seen in Figure 5.6 where the covariances (on the left-hand side of the graph) connecting the indicator variables show the correlations between the specific indicator variables. The highest correlation is that between item q30 and item q31 ( $r=0,44$ ).

The *Akaike* and  $\chi^2$  confirm that Model 01b is an improvement on Model 01a, but unfortunately the estimates for the CFI and TLI (lower than 0,90) indicate that Model 01b still has considerable problems with fit and needs to be improved substantially (see Figure 5.6).

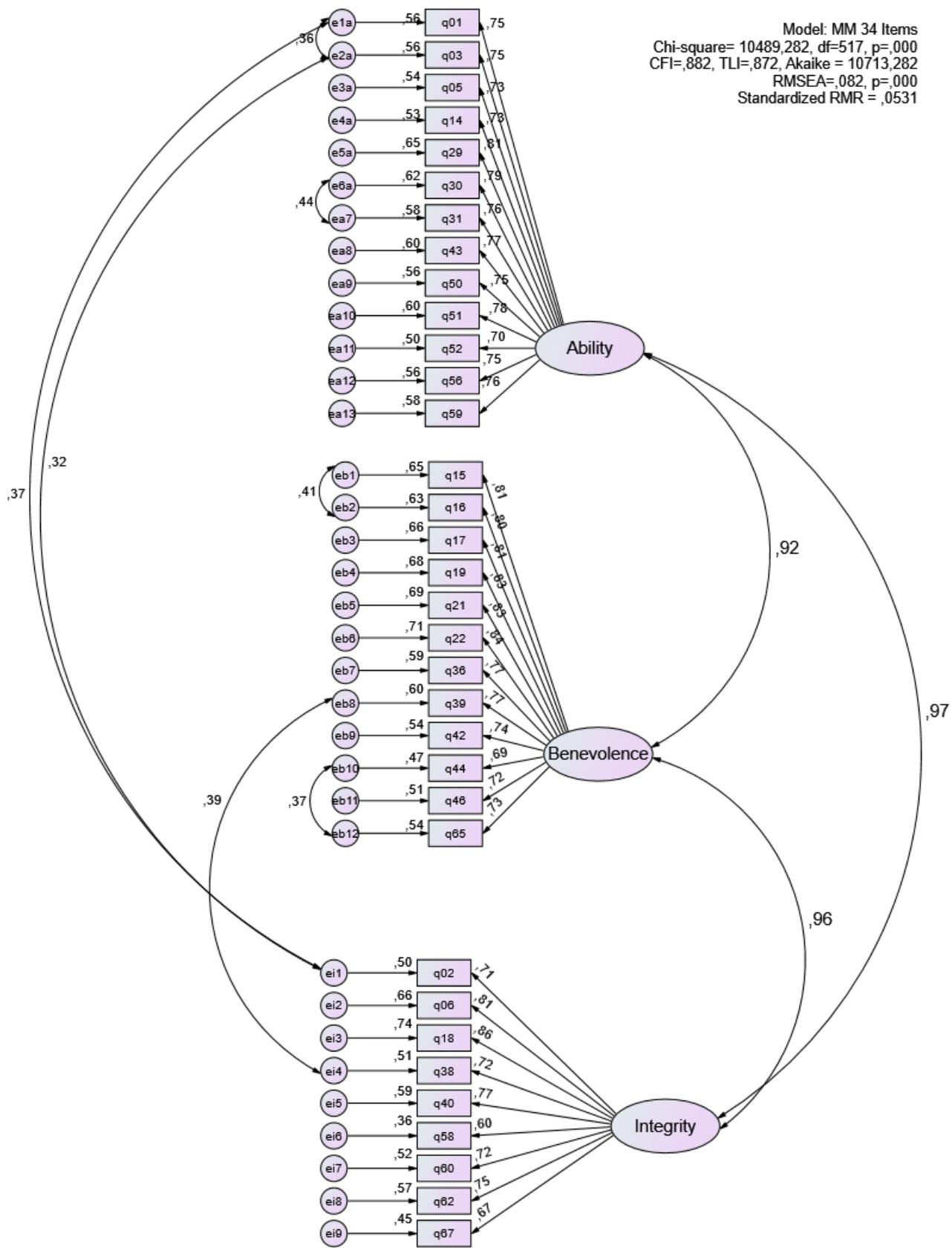


Figure 5.6. Model 01b: MM 34 items – Adapted measurement model with all 34 selected items

As a next step, the items that were ranked highest by the subject matter experts were left in the model and the other items were dropped for the purpose of parsimony. Hence 16 items remained as indicators of the three ABI latent variables. This procedure can still be considered a CFA as the selection and deletion procedure was based purely on theoretical reasons. Some of the items that had been dropped were statistically stronger items than the ones retained, for instance q29 and q30 in the case of *Ability*. In the case of *Benevolence*, the strongest items were retained (q19 and q22), while q21 was dropped. In the case of *Integrity* most of the items were retained.

From Figure 5.7 it is apparent that the above selection and deletion procedure improved the GOF indicators, but not sufficiently, as the TLI is below the suggested cut-off (0,90) and the RMSEA is above 0,10, which indicates a problem with fit. Considering that the replication of the Martins (2000) model and the exploratory factor analysis both resulted in a clear distinction between the FFM-linked personality items and the managerial practices items, it was decided to split these items into separate constructs. The logic behind this split of the model could be explained by referring to the theoretical foundation of the Martins (2000) model, which very clearly made this distinction between personality and managerial practices. In the case of the current model, this strategy can be applied as follows: Certain personality characteristics are antecedents of the person's trustworthiness as represented by the constructs *Ability*, *Benevolence* and *Integrity*. These are different from the *Ability*, *Benevolence* and *Integrity* constructs as manifested by certain actions that are seen as managerial practices. In the next sections, two measurement models will be specified and evaluated by way of separate confirmatory factor analyses – firstly, a measurement model representing personality-based trustworthiness as manifested through ABI; and secondly, a measurement model representing managerial practices-based trustworthiness as manifested through ABI.

Model: ABI Ranked items  
 Chi-square= 3423,720, df=101, p=.000  
 CFI=.903, TLI=.885, Akaike = 3525,720  
 RMSEA=.107, p=.000  
 Standardized RMR = .0490

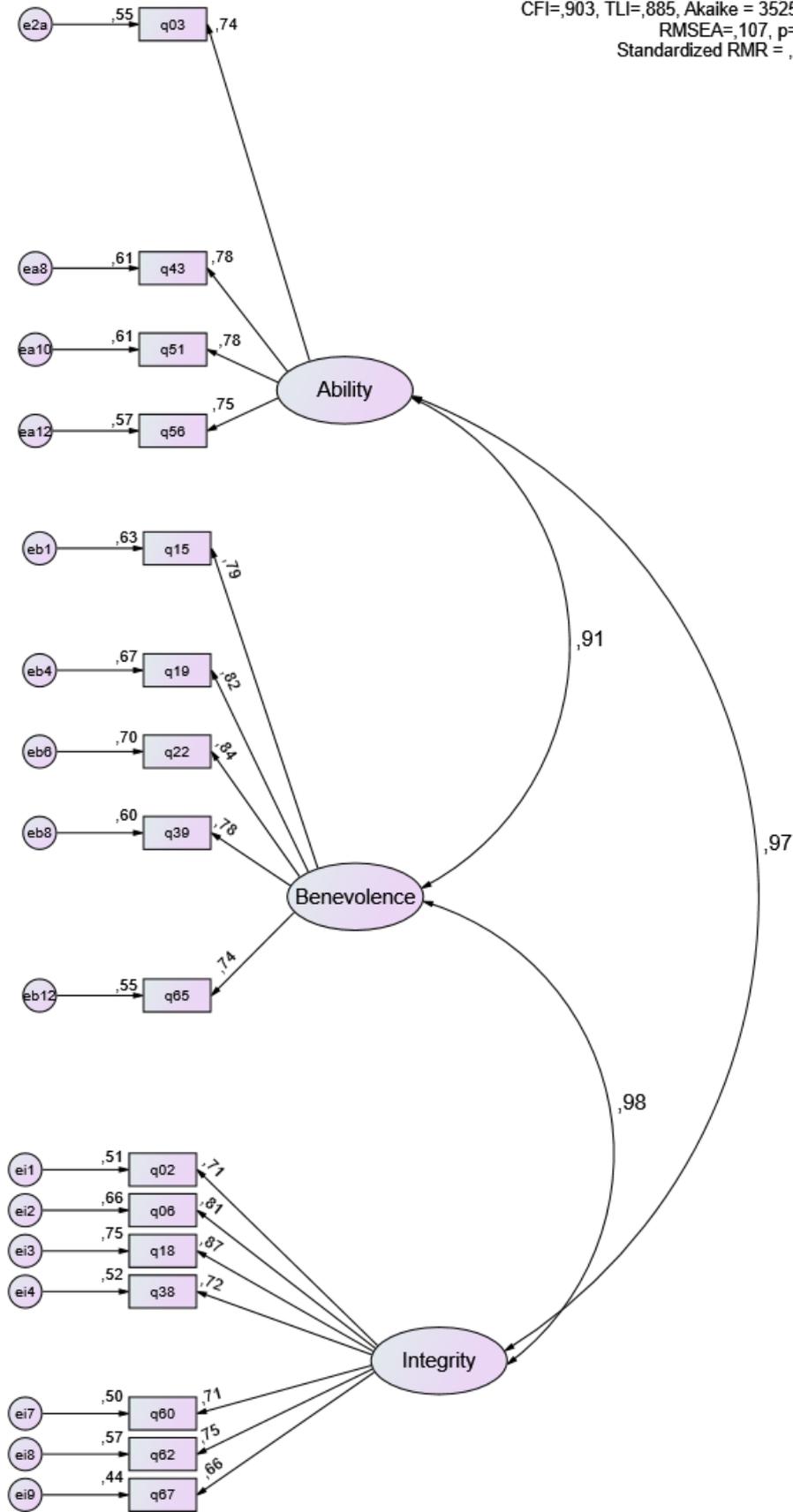


Figure 5.7. Model 02: MM 16 items ranked – Measurement model with items ranked by subject matter experts

### 5.7.1 *Personality-based measurement model*

The personality items that represented the five-factor model (FFM) were therefore used on their own, by stripping out the management practice items from the initial model (Model 01a, see Figure 5.5). The resulting model was further refined by retaining only those items that had an SMC higher or equal to 0,55. The items with a higher SMC would have a low residual and deleting them would improve parsimony. This resulted in a 12-item model as presented in Figure 5.8.

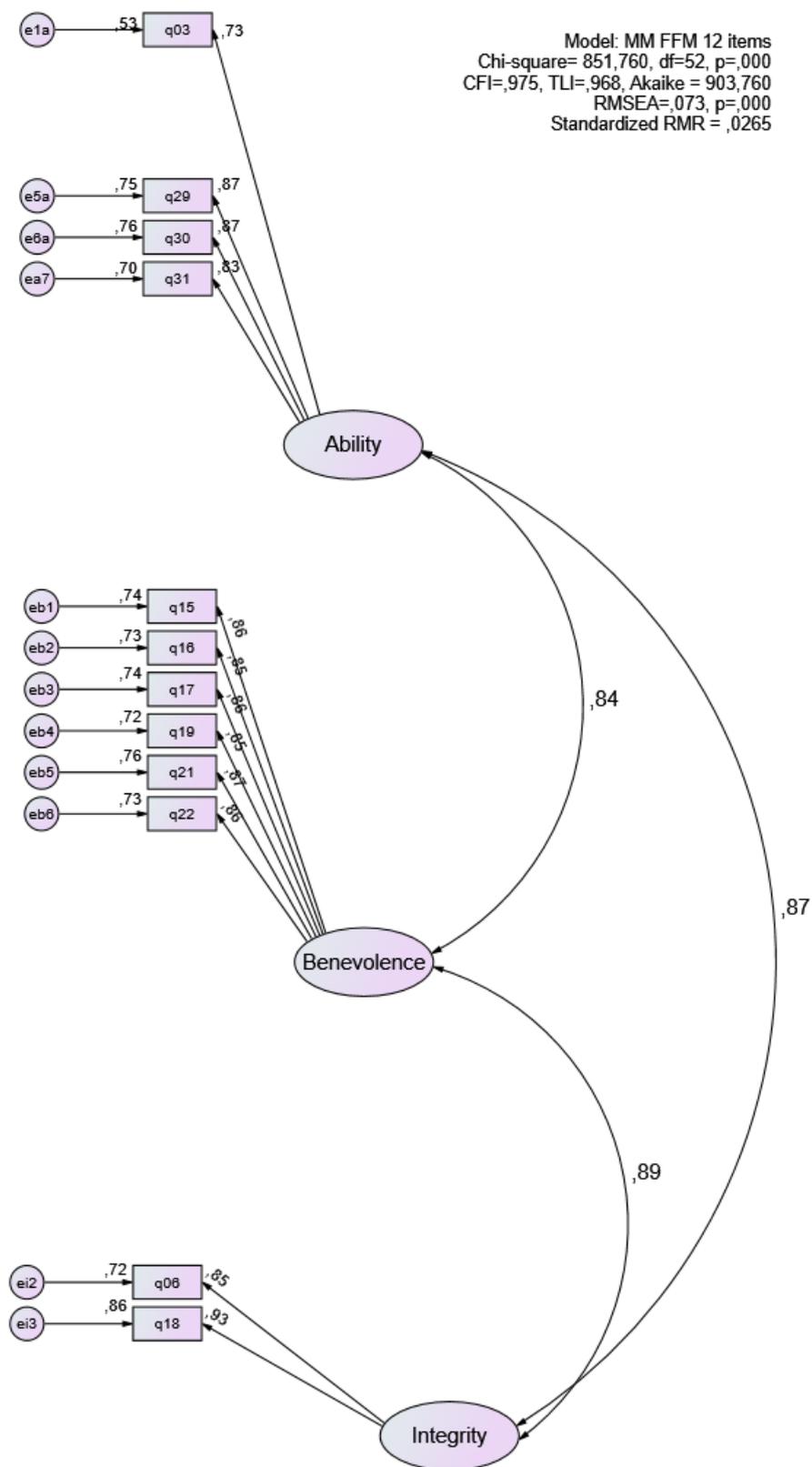


Figure 5.8. Model 03: MM FFM 12 items – Measurement model with 12 personality items

Although the model presented in Figure 5.8 is acceptable when considering the GOF overall, it became clear that all the indicators for *Integrity* and *Benevolence* had their origin in one specific construct in the FFM and by implication in the adapted Martins (2000) model as replicated in this study. Both *Integrity* indicators are indicators of *Conscientiousness*, while the indicators for *Benevolence* are all indicators of *Agreeableness*. The fact that all the indicator items for *Ability*, except q03, had their origin in the FFM construct of *Resourcefulness*, led to an exploratory model where q03 was deleted from the measurement model. Although the deletion of items may seem to be a hunt for better fit, it proved to be acceptable on methodological grounds as this decision was based on theoretical considerations (Schreiber et al., 2006, p. 330). This factorial clean model (based on the FFM) is presented in Figure 5.9.

Model: MM FFM ABI  
 Chi-square= 593,558, df=42, p=.000  
 CFI=.981, TLI=.975, Akaike = 641,558  
 RMSEA=.068, p=.000  
 Standardized RMR = .0191

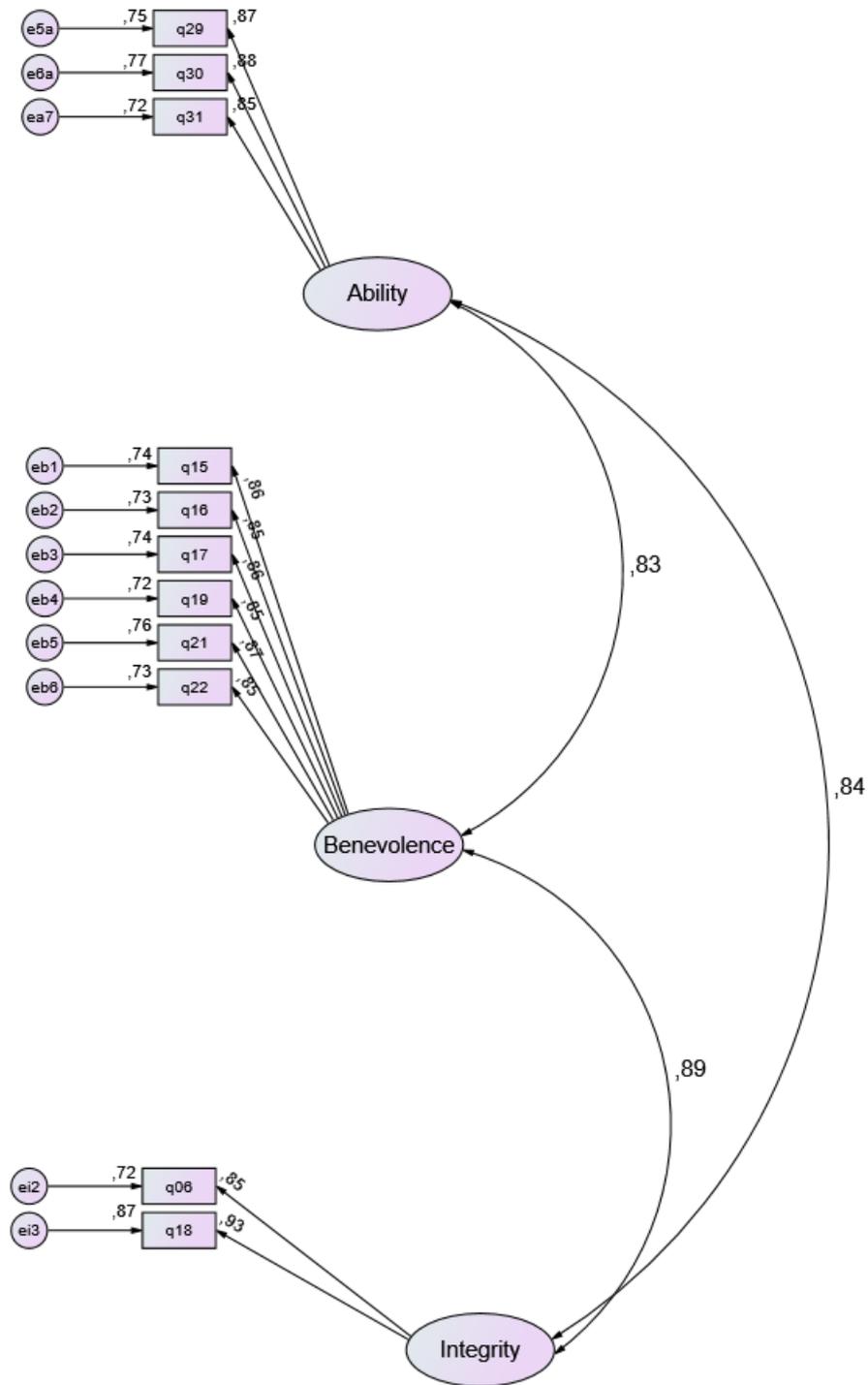


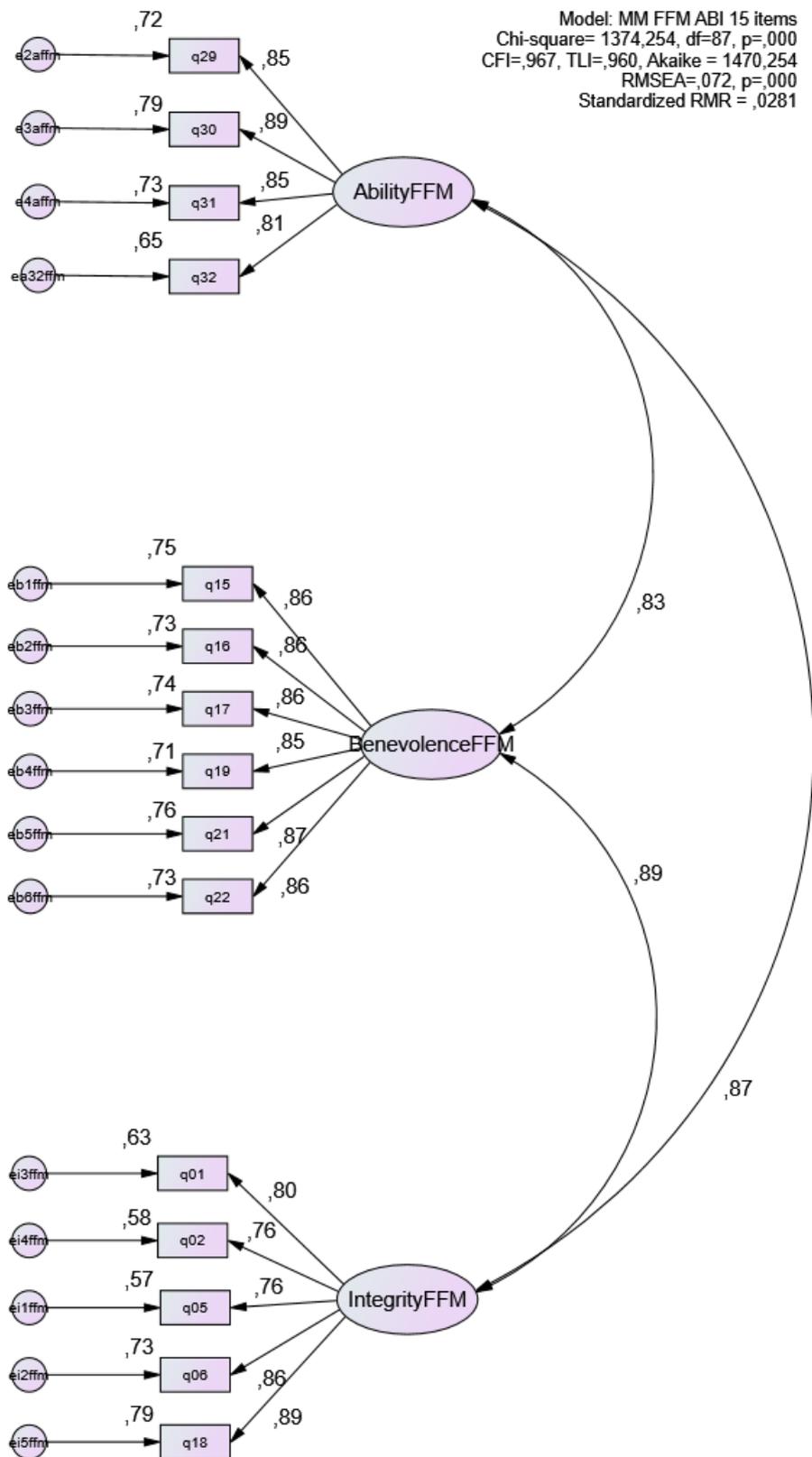
Figure 5.9. Model 04: MM FFM ABI – Measurement model with single personality factor linked to ability, benevolence and integrity

The model in Figure 5.9 complies with all the GOF guidelines and can be accepted as the final measurement model. However, the problem with this well-fitting model is that *Ability* only makes use of three indicators, while *Integrity* only has two indicators. In structural equation modelling this is a goal in itself – to have a model that is as parsimonious as possible – but Hair et al. (2010, p. 701) recommend the so-called *three-indicator rule* that advocates the use of at least four indicators per construct. If the other constructs in the model have more than three indicators, then it is reasonable to have one construct with only three indicators. On a more practical level, the reality of the world of work dictates that an organisational development practitioner-consultant prefers to have more variables to work with, as each of these observed variables or indicators contributes information that on its own is very valuable to the practitioner when diagnosing and choosing interventions. Although this runs against the axiom of SEM of striving for parsimony, these items were not added to improve fit, but rather to improve the practical use of the model in organisations – in a consulting environment the information from each individual item is used to give feedback to the stakeholders. The more items the survey has, the more possible sources of information the industrial psychologist could use. This practice can be motivated from a methodological point of view, as long as it is based on the applicable theory and the results of other empirical studies (Kline, 2011b, p. 358). Conversely, Hair et al. (2010, p. 671) argue that the restriction of the number of items per construct might have the unwanted effect of reducing the theoretical validity of the construct (although it could increase the reliability and model fit). The researcher therefore needs to maintain a theory-driven balance. From a purely methodological perspective, there is also concern when “the number of items per construct [is reduced to] only two or three” (Hair et al., 2010, p. 671).

As a result, the next step was to expand the above model with items that would add value in practice, but that would compromise neither the theoretical foundation nor the GOF of the measurement model. As the literature suggests, it is not always necessary to delete indicators if the model has achieved sufficient fit (Hair et al., 2010, p. 713), although pure statistics would suggest this (for instance low SMC or a high MI for a variable) (Schreiber et al., 2006, p. 327). Hair et al. (2010) argue that sometimes the fact that an item has high content or face validity or is needed to conform to the minimum item rules, overrides other criteria, in which case it is often advisable to retain the item. This same argument can be used to add variables if for some reason the final model was very frugal (parsimonious) with its use of observed variables. According to Hair et al. (2010, p. 671) it is preferable to have multiple measures to represent a construct rather than just a small subset of items.

The researcher subsequently used the original classification that the subject matter experts had identified, the scale reliability analysis (Cronbach’s alphas) and the first CFA of the measurement model (see Figure 5.5) as guidelines for carrying out the next set of model modifications. These modifications mainly consisted of adding items that not only represented the ABI constructs, but also had their origin in one specific personality construct. From a theoretical point of view, this underscores the link between the way the FFM is incorporated in the Martins (2000 as replicated model) and the ABI model. In the final

measurement model for personality-based ability, benevolence and integrity, all the indicators for *Ability* have their origin in *Resourcefulness*, *Benevolence* in *Agreeableness*, and *Integrity* in *Conscientiousness*.



**Figure 5.10. Model 05: MM FFM ABI 15 Items – Final measurement model for personality-based ability, benevolence and integrity**

From Figure 5.10 it is clear that the measures of model fit are within the specified range associated with good fit and that the estimated model will reproduce the sample covariance matrix reasonably well. This model will be accepted as the final measurement model that uses items from the FFM to determine the three trustworthiness constructs of *Ability*, *Benevolence* and *Integrity* and will next be discussed in more detail.

As can be seen in Figure 5.10 and Table 5.25 (the summary table of the measurement models), the *df* is positive ( $df=87$ ) and the  $\chi^2$  test is significant ( $p < 0,000$ ) – as was anticipated. Nevertheless, both TLI and CFI are  $\geq 0,960$  and the SRMR at 0,0281 is far below 0,080. The *Akaike* index is nearly double the value of the previous minimalist model, which is to be expected as parsimony was exchanged for a larger multi-item measurement. With reference to the SMCs, all are above 0,55 with the majority exceeding 0,70. The highest variance that is explained by influences outside the model is in the case of *Integrity* as a latent construct. *Benevolence* has values higher than a substantial 0,70 throughout. Although the estimated value for the RMSEA in this model is slightly above the value suggested by Hair et al. (2010, p. 672) – in other words 0,072 versus the suggested 0,070 – this is still acceptable as both the SRMR (also a badness-of-fit index) and the CFI/TLI are well within the levels considered relevant for good fit of a model. Ho (2014, pp. 427-428, p. 443) warns that, while helpful, blindly following “rules of thumb” is strongly discouraged, since sample size, model complexity and other factors would influence the validity of any model. In answer to the question of whether the REMSEA of 0,072 is satisfactory, Ho (2014, p. 492) suggests that an acceptable value would be between 0,05 and 0,08. For the purpose of investigating the detail of this model, the necessary critical information is summarised next in Table 5.20.

**Table 5.20. Model 05: Standardised regression weights and variances**

|     |      |                 | SRW   | SMC   | Residual |
|-----|------|-----------------|-------|-------|----------|
| q29 | <--- | Ability FFM     | 0,848 | 0,719 | 28,1%    |
| q30 | <--- | Ability FFM     | 0,887 | 0,787 | 21,3%    |
| q31 | <--- | Ability FFM     | 0,854 | 0,730 | 27,0%    |
| q32 | <--- | Ability FFM     | 0,807 | 0,651 | 34,9%    |
| q15 | <--- | Benevolence FFM | 0,864 | 0,746 | 25,4%    |
| q16 | <--- | Benevolence FFM | 0,856 | 0,732 | 26,8%    |
| q17 | <--- | Benevolence FFM | 0,858 | 0,735 | 26,5%    |
| q19 | <--- | Benevolence FFM | 0,845 | 0,714 | 28,6%    |
| q21 | <--- | Benevolence FFM | 0,874 | 0,763 | 23,7%    |
| q22 | <--- | Benevolence FFM | 0,855 | 0,731 | 26,9%    |
| q01 | <--- | Integrity FFM   | 0,797 | 0,635 | 36,5%    |
| q02 | <--- | Integrity FFM   | 0,761 | 0,579 | 42,1%    |
| q05 | <--- | Integrity FFM   | 0,757 | 0,573 | 42,7%    |
| q06 | <--- | Integrity FFM   | 0,855 | 0,731 | 26,9%    |
| q18 | <--- | Integrity FFM   | 0,887 | 0,788 | 21,2%    |

SRW= Standardised Regression Weights

SMC= Squared Multiple Correlations

From Table 5.20 it is clear that all the standardised regression weights are above the more stringent 0,70 level, which is an indication of convergent validity (Kline, 2011b, p. 116). Consequently no indicators that

were added should by rights be deleted. This is confirmed when the variance explained (SMC) and residuals (1-SMC) are investigated, although in this case it is clear that the added indicators do not explain as much of the variance as the original indicators. Especially in the case of the additional indicators for *Integrity*, approximately 40% of the variance is error or unexplained variance. Nonetheless, the model has acceptable fit and with the added indicators complies not only with the methodological but also with the practical and theoretical requirements of a good model.

#### 5.7.1.1 Construct validity

Two aspects need to be covered to determine the validity of a measurement model – firstly, determining if the model has acceptable goodness-of-fit (which was attended to in the sections above), and secondly, confirming construct validity (Hair et al., 2010, p. 664). The latter involves determining the convergent validity and discriminant validity, as the nomological and face validity were already covered in Chapter 4 and the classification of the items by the subject matter experts is dealt with in Chapter 5 as evidence of content validity (Hair et al., 2010, pp. 709-711; Kline, 2011b, p. 72).

#### 5.7.1.2 Convergent validity

Based on the formula provided by Hair et al. (2010, p. 709), the *average variance extracted* (AVE)<sup>13</sup> was calculated (in a separate spreadsheet) for the three constructs in order to determine convergent validity. Values of AVE above 0,50 are considered sufficient evidence of convergent validity (Hair et al., 2010, p. 709 & 722). In the case of the above model the AVE values for the different latent constructs in the measurement model were all satisfactory:

- Ability FFM: 0,72
- Benevolence FFM: 0,73
- Integrity FFM: 0,66

#### 5.7.1.3 Discriminant validity

In the context of SEM, discriminant validity refers to the uniqueness of a construct. It attempts to answer the question: does a construct measure something that no other construct in the model measures? (Hair et al., 2010, p. 689) and is determined by comparing “the AVEs for each construct with the square of the estimated correlation between these constructs” (Hair et al., 2010, p. 715).

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<sup>13</sup> AVE is nothing more than the *average SMC*, or “the sum of squared standardised factor loadings ... divided by the number of items” (Hair et al., 2010, p. 709).

**Table 5.21. Discriminant validity – measurement model FFM**

|           | Inter-construct correlation (r) | r <sup>2</sup> | AVE  | r <sup>2</sup> <AVE |
|-----------|---------------------------------|----------------|--|---------------------|
| <b>AB</b> | 0,83                            | 0,69           | Ability FFM: 0,72<br>Benevolence FFM: 0,73   | Supported           |
| <b>BI</b> | 0,89                            | 0,79           | Benevolence FFM: 0,73<br>Integrity FFM: 0,66 | Not supported       |
| <b>AI</b> | 0,87                            | 0,76           | Ability FFM: 0,72<br>Integrity FFM: 0,66     | Not supported       |

An explanation of the low discriminant validity for this measurement model as shown by the results in Table 5.21 can perhaps be found in the fact that the correlation between the constructs is very high, as they all consist of personality-based factors. The low discriminant validity of *Integrity* was expected, as it also has low SMC values. Hence there is only limited evidence of discriminant validity in this measurement model.

From the above it can be concluded that the FFM-based items that were selected measure the constructs of ABI quite well, although another combination of items might do this even better. The fact that the above model is founded on a conceptually strong theoretical base allows us to suffice with this model (Hair et al., 2010, p. 727).

### 5.7.2 Managerial practices-based measurement model

*And so it often goes in CFA that an initial model does not fit the data very well.*  
(Kline, 2011b, p. 240)

As was the case with the FFM items, the first step was to use all the items that had been selected by the subject matter experts as the best items to represent the three different constructs of ABI. The resultant measurement model consisted of 15 items, with only four items loading on *Benevolence*. Although the resulting estimates seemed to indicate reasonable model fit (see Figure 5.11), the perfect correlation between the latent constructs of *Benevolence* and *Integrity* did not make theoretical sense. This was confirmed by the following warning in the output:

**The following covariance matrix is not positive definite**

Amos can produce estimates of variances and covariances that yield covariance matrices that are not positive definite (Wothke, 1993). Such a solution is said to be inadmissible. Amos does not attempt to distinguish between a solution that is outside the admissible region and one that is on or near its boundary.

For more, see the discussion of the message: "This solution is not admissible".

***This solution is not admissible***

*This message indicates that some variance estimates are negative, or that some exogenous variables have an estimated covariance matrix that is not positive definite. It suggests either that your model is wrong or that the sample is too small (Jöreskog & Sörbom, 1984).*

*It is possible to prevent the occurrence of negative variance estimates, and it may even be possible to prevent the occurrence of inadmissible solutions in general, by restricting the search for a solution to admissible parameter values. However, Amos does not do this.*

As can be seen, the estimated inter-construct correlations between *Ability* and *Integrity* and *Ability* and *Benevolence* are both 0,97, but the correlation between *Benevolence* and *Integrity* is 1,00. This discrepancy needs to be investigated as a possible reason for the error message.

Model: MM MP Theory Items  
 Chi-square= 1607,218, df=87, p=.000  
 CFI=.951, TLI=.941, Akaike = 1673,218  
 RMSEA=.078, p=.000  
 Standardized RMR = .0298

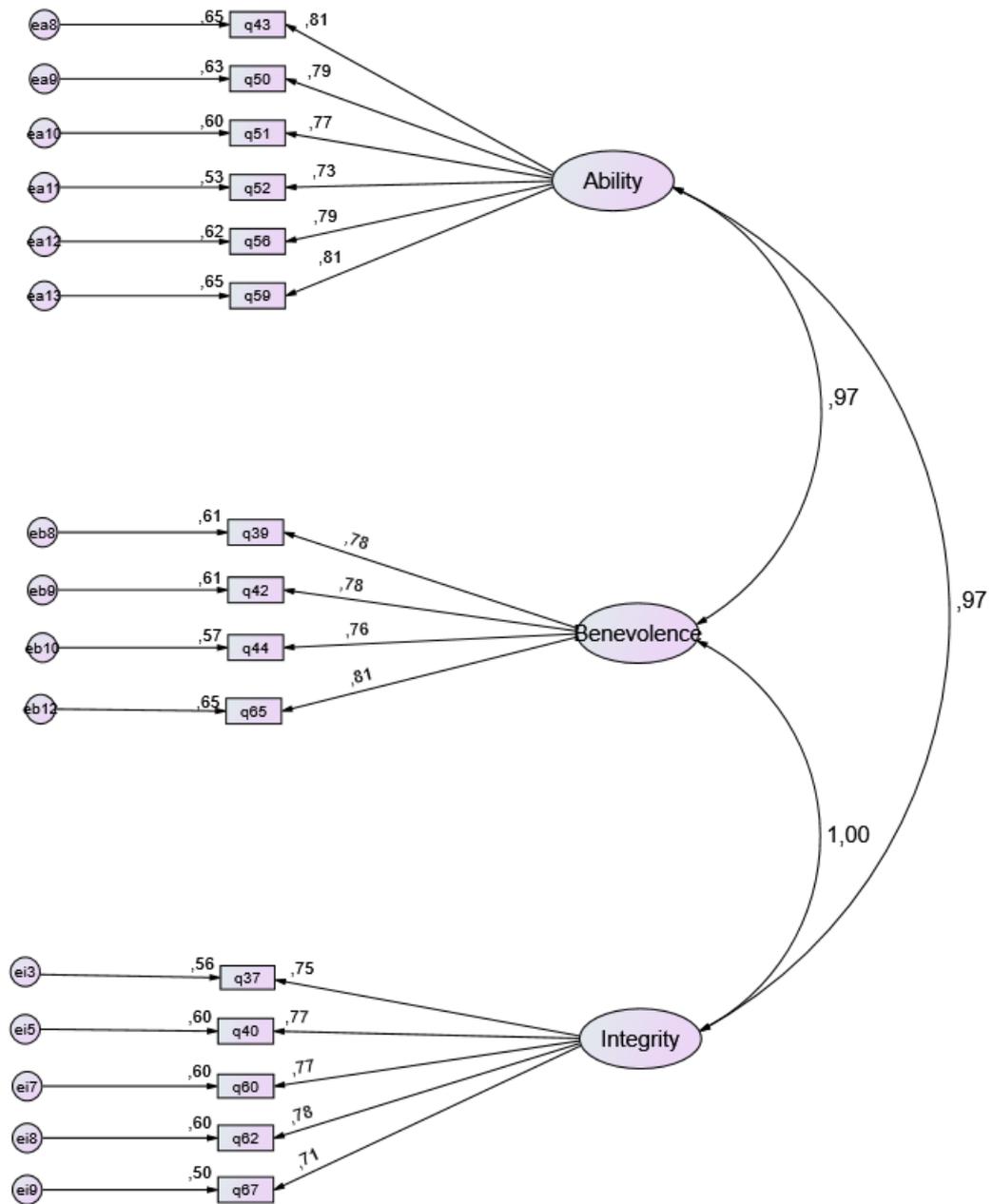


Figure 5.11. Not admissible measurement model for managerial practices

The first step in this investigation was to determine if the modification indices could help to find the reason for the inadmissibility of the model solution.

**Table 5.22. Modification indices: Model 09a MM MP theory items**

|      |      |      | M.I.    | Par<br>Change |
|------|------|------|---------|---------------|
| ei5  | <--> | eb8  | 329,066 | 0,171         |
| eb8  | <--> | ei3  | 175,714 | 0,133         |
| ea13 | <--> | ei7  | 174,419 | 0,127         |
| ei5  | <--> | ei3  | 142,415 | 0,121         |
| eb10 | <--> | eb12 | 133,763 | 0,123         |

Table 5.22 shows that the three highest MI scores all linked up to the unexplained variances of the *Integrity* items and other latent constructs. The measurement errors were then allowed to covary as it seems that these indicators “share something that is unique to them” (Kline, 2011b, p. 240). The effect of this can be seen in the next estimation of the measurement model for managerial practices (see Figure 5.12). From a methodological point of view, though, Nachtigall, Kroehne, Funke and Steyer (2003, p. 13) warn that it is not advisable to let errors correlate because of a suggestion from the modification index, as the correlation needs to be based on a theoretical reason for suspecting a common factor that explains the error measurement.

Model: MM MP Theory items Corr  
 Chi-square= 947,649, df=84, p=.000  
 CFI=.972, TLI=.965, Akaike = 1019,649  
 RMSEA=.060, p=.000  
 Standardized RMR = .0226

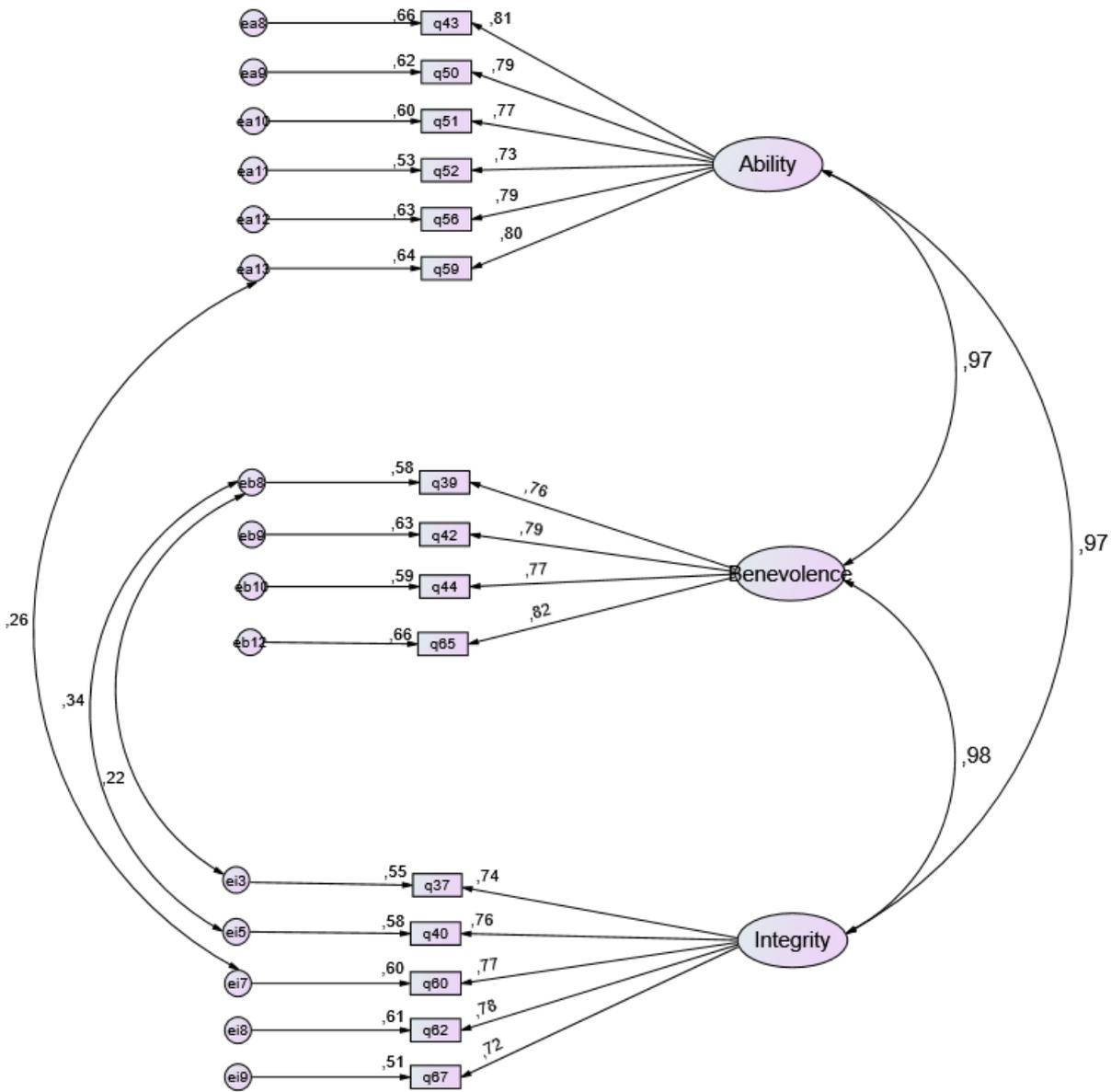


Figure 5.12. Model 09: MM MP Theory Items MI adjusted: Measurement model for managerial practices with modification index adjustment

This model did converge and successfully estimated the parameters ( $\chi^2 = 947,649$ ;  $df = 84$ ;  $p = 0,000$ ), although the very high inter-correlations were still a cause for concern. To investigate this, the average variance extracted (AVE) and the inter-construct squared correlation estimates (Hair et al., 2010, p. 723) were calculated to determine their influence on the discriminant validity of the proposed model (Table 5.23).

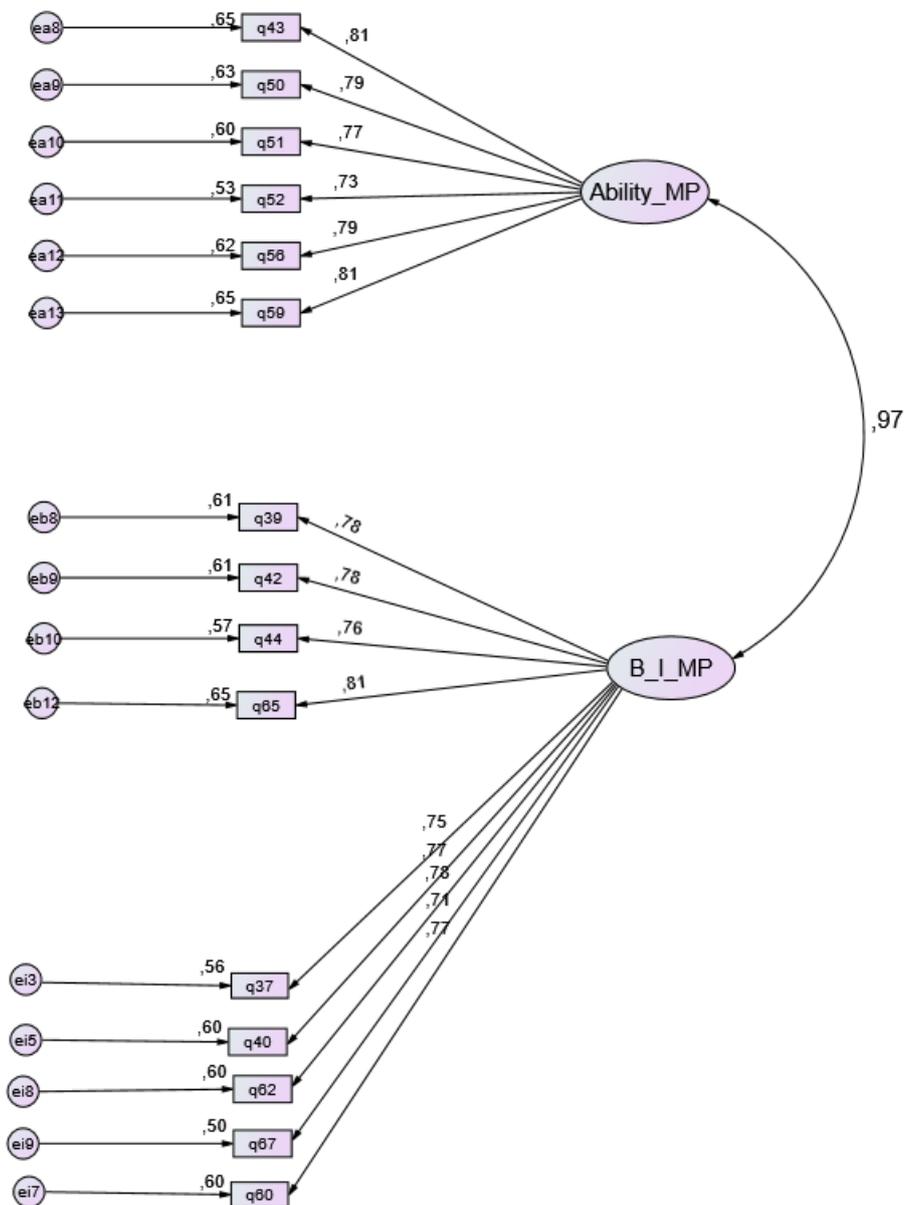
**Table 5.23. Discriminant validity – Measurement model MP**

|           | Inter-construct correlation (r) |      | r <sup>2</sup> | AVE  | r <sup>2</sup> <AVE |
|-----------|---------------------------------|------|----------------|--|---------------------|
| <b>AB</b> | 0,97                            | 0,94 | 0,94           | Ability MP: 0,78<br>Benevolence MP: 0,78   | Not supported       |
| <b>BI</b> | 0,98                            | 0,96 | 0,96           | Benevolence MP: 0,78<br>Integrity MP: 0,76 | Not supported       |
| <b>AI</b> | 0,97                            | 0,94 | 0,94           | Ability MP: 0,78<br>Integrity MP: 0,76     | Not supported       |

Kline (2011b, p. 240) suggests that poor discriminant validity is a sign that there might be too many factors in the model. Furthermore, the estimated correlation of 1,00 between *Benevolence* and *Integrity* in the original measurement model of managerial practices indicators, the inter-construct squared correlation estimate for the pairing *Benevolence-Integrity* of 0,96, and the fact that *Integrity* has the lowest average variance explained (0,76), led to the decision to combine the *Benevolence* and *Integrity* constructs as one construct as part of an exploratory (not confirmatory anymore) step. To avoid the “naming fallacy” (Kline, 2011b, p. 230), this construct was labelled the BI-construct, since only when the complete structural regression model has been finalised can the correctness of a construct name be verified. Even though the resultant BI-construct would consist of nine items, it was decided not to drop q67 (Supervisor tells the truth about the future) because of the low SMC of the item<sup>14</sup>. It was felt that this item has very high face validity and would be extremely valuable in a consulting environment. Moreover, the convergent validity values, as deduced from the AVE values, are all above 0,75 (see Table 5.23) and as a result more than satisfactory. The resultant model is represented in Figure 5.13.

<sup>14</sup> This decision proved to be meaningful as an exploratory measurement model was run without q67, which revealed increased badness-of-fit indices – RMSEA (0,080) and SRMR (0,0305).

Model: MM MP 2 Factor  
 Chi-square= 1607,432, df=89, p=.000  
 CFI=.951, TLI=.942, Akaike = 1669,432  
 RMSEA=.077, p=.000  
 Standardized RMR = .0298



**Figure 5.13. Model 12: MM MP Two Factor – Managerial practices two-factor measurement model**

While the base indices for this model do not fit as well as the goodness-of-fit indices of the previous model, from a theoretical standpoint this last model is more acceptable (compare Model 09 and Model 12 – see Table 5.25). As these are not nested models, it was not possible to determine if there is a statistically significant difference between the two models using Amos.

This final measurement model for management practice indicators shows acceptable fit ( $\chi^2=1607,432$ ,  $df=89$ ,  $p<0,000$ ) in respect of the incremental fit measures, and both the CFI (0,951) and the TLI (0,942)

show acceptable goodness of fit. The absolute fit indices are below the critical values as described in the literature (RMSEA = 0,077; SRMR= 0,0298), whereas the RMSEA (as was the case with the measurement model for the personality-based indicators (see Section 5.7.1)) can be considered as acceptable seeing it that it falls within the range 0,050 to 0,080 (Ho, 2014, p. 425). A value below 0,070 would have been preferable (Hair et al., 2010, p. 672). When considering the 90% confidence interval for the RMSEA, any concerns are reduced as even the upper bound is only 0,081. This indicates that the possibility of the real RMSEA in the population exceeding 0,080 is very low. The SRMR value is also below the conservative cut-off value of 0,05 (Hair et al., 2010, p. 721), which indicates a reasonably well-fitting model that can be investigated further. For the purpose of investigating the detail of this model, the necessary critical information for this model is summarised in Table 5.24.

**Table 5.24. Model 12: Standardised regression weights and variances**

|                                      |      |            | SRW   | SMC          | Residual |
|--------------------------------------|------|------------|-------|--------------|----------|
| q43                                  | <--- | Ability MP | 0,809 | 0,654        | 34,6%    |
| q50                                  | <--- | Ability MP | 0,791 | 0,625        | 37,5%    |
| q51                                  | <--- | Ability MP | 0,772 | 0,596        | 40,4%    |
| q52                                  | <--- | Ability MP | 0,730 | 0,534        | 46,6%    |
| q56                                  | <--- | Ability MP | 0,789 | 0,622        | 37,8%    |
| q59                                  | <--- | Ability MP | 0,807 | 0,651        | 34,9%    |
| <b>AVE Ability MP</b>                |      |            |       | <b>0,614</b> |          |
| q37                                  | <--- | B_I_MP     | 0,749 | 0,561        | 43,9%    |
| q39                                  | <--- | B_I_MP     | 0,779 | 0,607        | 39,3%    |
| q40                                  | <--- | B_I_MP     | 0,772 | 0,596        | 40,4%    |
| q42                                  | <--- | B_I_MP     | 0,782 | 0,612        | 38,8%    |
| q44                                  | <--- | B_I_MP     | 0,758 | 0,574        | 42,6%    |
| q60                                  | <--- | B_I_MP     | 0,774 | 0,600        | 40,0%    |
| q62                                  | <--- | B_I_MP     | 0,777 | 0,603        | 39,7%    |
| q65                                  | <--- | B_I_MP     | 0,809 | 0,654        | 34,6%    |
| q67                                  | <--- | B_I_MP     | 0,710 | 0,504        | 49,6%    |
| <b>AVE B_I_MP</b>                    |      |            |       | <b>0,590</b> |          |
| SRW= Standardised Regression Weights |      |            |       |              |          |
| SMC= Squared Multiple Correlations   |      |            |       |              |          |

According to Table 5.24 the measurement model for the managerial practices does not explain as much variance as the measurement model for the personality-based indicators. The average variance explained (AVE) for *Ability* MP is 61,4% and for the new construct *BI\_MP* it is 59,0% (see Table 5.24). This satisfies the guideline suggested by Hair et al. (2010), namely that the figure should be at least above 50% to show evidence of convergent validity. In contrast, the lowest AVE for the personality-based constructs was for *Integrity* FFM, which was a substantial 66%. On the other hand, the factor loadings or standardised regression weights (SRW) are all above the conservative 0,70 level, with only two of the 15 values below 0,75, which is additional evidence of convergent validity (Kline, 2011b, p. 116). The high inter-construct correlation of 0,97 on the other hand is additional supporting evidence of a lack of discriminant validity, as the two latent variables do not seem to be measuring two statistical distinct constructs (Kline, 2011b, p. 116). All of the above indicate that the majority of measures are within an acceptable range and can be

associated with a good model fit. The above estimated model also reproduces the sample covariance matrix reasonably well. As a last step (which according to SEM theory should have been the first step), the above two measurement models need to be combined into one measurement model before we can proceed to fitting the structural regression model.

### 5.7.3 Five-factor measurement model

Since the first measurement model did not have acceptable fit and with the information gained from the replication of the Martins (2000) model, it became clear that a split was needed between the measurement models for the personality items and the managerial practices items as indicators of the latent ABI constructs. Following this re-specification approach, the original model was split into a six-factor model. This model consistently either did not converge or was not admissible – even with various respecifications<sup>15</sup>. A step-wise non-nested approach was then followed to discover the reasons for the inadmissibility of the models. When the personality model was split from the managerial practices model, it became clear that managerial practices in the current configuration at most loaded only on two factors – one representing the *Ability* component and the other the items that are linked to the ‘softer side’ of managerial practices, in other words the items that had been identified as indicators of either *Benevolence* or *Integrity*. To confirm that this was the original problem, these two models were combined and a confirmatory factor analysis was run on this five-factor measurement model as represented in Figure 5.14.

As was expected, the final measurement model again did not fare well when it came to the  $\chi^2$ -test ( $\chi^2 = 3998,364$ ,  $df = 395$ ,  $p < 0,000$ ). Nonetheless, the supplementary baseline measures are indicative of a good fit. Although this combined model is a much more complex model (see the *df* and *Akaike* index), both the incremental and the absolute fit indices compare well to the two submodels. This becomes apparent when the final measurement models for the personality and managerial practices constructs (Model 05 and Model 12 in Table 5.25) are compared to this model (Model 17 in Table 5.25). Concerning the incremental fit, both the CFI (0,951) and the TLI (0,947) are above the suggested values, which is indicative of a good model fit. However, when it comes to absolute fit, this combined model had the lowest estimates from any model for RMSEA (0,056), with even the upper bound of the RMSEA 90% confidence interval falling below 0,070 at 0,058. This was confirmed by the Standardised RMR of 0,0292, which also falls substantially below 0,08.

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<sup>15</sup> This explains the non-consecutive numbering of the measurement and structural regression models reported in this chapter, as all the models are not reported.

**Table 5.25. Summary table of measurement models**

| Model name                                  | 01a MM 34<br>Items | 01b MM 34<br>Items | 02 MM 16<br>Items ranked | 03 MM FFM<br>12 Items | 04 MM FFM<br>ABI | 05 MM FFM<br>ABI 15 Items | 09 MM MP<br>Theory Items<br>MI adjusted | 12 MM MP<br>Two-Factor | 17 Five-<br>Factor MM |
|---|--------------------|--------------------|--------------------------|-----------------------|------------------|---------------------------|---|------------------------|-----------------------|
| Sample Size                                 | 2860*              | 2860*              | 2860*                    | 2860*                 | 2860*            | 2860*                     | 2860*                                   | 2860*                  | 2860*                 |
| Missing Data                                | Listwise           | Listwise           | Listwise                 | Listwise              | Listwise         | Listwise                  | Listwise                                | Listwise               | Listwise              |
| $\chi^2$                                    | 13223              | 10489              | 3432                     | 851                   | 593              | 1374                      | 948                                     | 1607                   | 3998                  |
| Distinct parameters to be estimated         | 71                 | 112                | 51                       | 26                    | 24               | 48                        | 36                                      | 31                     | 70                    |
| <i>df</i>                                   | 524                | 517                | 101                      | 52                    | 42               | 87                        | 84                                      | 89                     | 395                   |
| Probability level                           | 0.000              | 0.000              | 0.000                    | 0.000                 | 0.000            | 0.000                     | 0.000                                   | 0.000                  | 0.000                 |
| CFI   | 0.849              | 0.882              | 0.903                    | 0.975                 | 0.981            | 0.967                     | 0.972                                   | 0.951                  | 0.951                 |
| TLI   | 0.839              | 0.872              | 0.885                    | 0.968                 | 0.975            | 0.960                     | 0.965                                   | 0.942                  | 0.947                 |
| AIC ( <i>Akaike</i> )                       | 13365              | 10645              | 3525                     | 904                   | 642              | 1470                      | 1020                                    | 1669                   | 4138                  |
| RMSEA                                       | 0.092              | 0.082              | 0.107                    | 0.073                 | 0.068            | 0.072                     | 0.060                                   | 0.077                  | 0.056                 |
| RMSEA 90% Confidence Intervals: Lower bound | 0.091              | 0.081              | 0.104                    | 0.069                 | 0.063            | 0.069                     | 0.057                                   | 0.074                  | 0.055                 |
| RMSEA 90% Confidence Intervals: Upper bound | 0.093              | 0.084              | 0.110                    | 0.078                 | 0.073            | 0.075                     | 0.063                                   | 0.081                  | 0.058                 |
| RMSEA Probability level                     | 0.000              | 0.000              | 0.000                    | 0.000                 | 0.000            | 0.000                     | 0.000                                   | 0.000                  | 0.000                 |
| Standardised RMR                            | 0.0573             | 0.0531             | 0.0490                   | 0.0265                | 0.0191           | 0.0281                    | 0.0226                                  | 0.0298                 | 0.0292                |
| Standardised Residuals                      | N/A                | N/A                | N/A                      | N/A                   | N/A              | Table<br>5.20             | N/A                                     | Table<br>5.24          | Table<br>5.26         |
| Acceptable GOF attained                     | No                 | No                 | No                       | Yes                   | Yes              | Yes                       | Yes                                     | Yes                    | Yes                   |

\* Satisfies guideline  $N > 10$  times number of distinct parameters

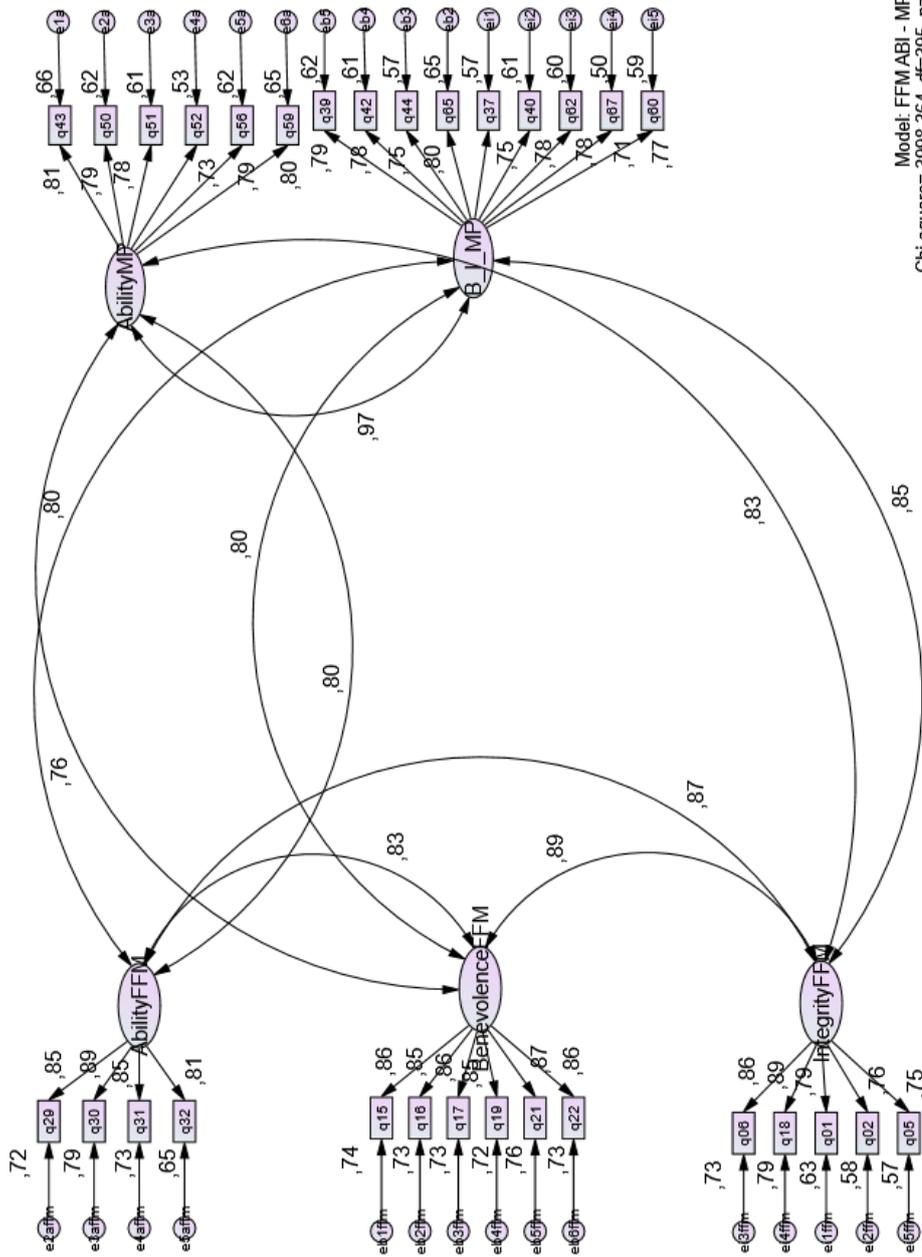


Figure 5.14. Model 17: Five-factor measurement model

All the standardised factor loadings (SRW) in model 17 are above the conservative level of 0,70, which is a sign of construct validity, while an inspection of the residuals reveals that except for the items added for theoretical reasons (q67, q02 and q05) as discussed above, all values are acceptable (see Table 5.26). The residual for item q67 is just below 0,50, marking this item for special investigation when evaluating the structural regression model. From a purely statistical and methodical standpoint, this item should be deleted in a re-specification.

**Table 5.26. Model 17: Standardised regression weights and variances**

|     |      |                 | SRW   | SMC   | Residual |
|-----|------|-----------------|-------|-------|----------|
| q29 | <--- | Ability FFM     | 0,850 | 0,723 | 27,7%    |
| q30 | <--- | Ability FFM     | 0,886 | 0,786 | 21,4%    |
| q31 | <--- | Ability FFM     | 0,854 | 0,729 | 27,1%    |
| q32 | <--- | Ability FFM     | 0,806 | 0,650 | 35,0%    |
| q43 | <--- | Ability MP      | 0,810 | 0,656 | 34,4%    |
| q50 | <--- | Ability MP      | 0,789 | 0,623 | 37,7%    |
| q51 | <--- | Ability MP      | 0,778 | 0,606 | 39,4%    |
| q52 | <--- | Ability MP      | 0,731 | 0,534 | 46,6%    |
| q56 | <--- | Ability MP      | 0,786 | 0,617 | 38,3%    |
| q59 | <--- | Ability MP      | 0,804 | 0,647 | 35,3%    |
| q37 | <--- | B_I_MP          | 0,755 | 0,570 | 43,0%    |
| q39 | <--- | B_I_MP          | 0,787 | 0,620 | 38,0%    |
| q40 | <--- | B_I_MP          | 0,780 | 0,608 | 39,2%    |
| q42 | <--- | B_I_MP          | 0,783 | 0,612 | 38,8%    |
| q44 | <--- | B_I_MP          | 0,753 | 0,568 | 43,2%    |
| q60 | <--- | B_I_MP          | 0,767 | 0,588 | 41,2%    |
| q62 | <--- | B_I_MP          | 0,777 | 0,603 | 39,7%    |
| q65 | <--- | B_I_MP          | 0,804 | 0,646 | 35,4%    |
| q67 | <--- | B_I_MP          | 0,706 | 0,499 | 50,1%    |
| q15 | <--- | Benevolence FFM | 0,863 | 0,745 | 25,5%    |
| q16 | <--- | Benevolence FFM | 0,855 | 0,731 | 26,9%    |
| q17 | <--- | Benevolence FFM | 0,856 | 0,733 | 26,7%    |
| q19 | <--- | Benevolence FFM | 0,846 | 0,717 | 28,3%    |
| q21 | <--- | Benevolence FFM | 0,874 | 0,763 | 23,7%    |
| q22 | <--- | Benevolence FFM | 0,857 | 0,734 | 26,6%    |
| q01 | <--- | Integrity FFM   | 0,794 | 0,630 | 37,0%    |
| q02 | <--- | Integrity FFM   | 0,759 | 0,576 | 42,4%    |
| q05 | <--- | Integrity FFM   | 0,754 | 0,569 | 43,1%    |
| q06 | <--- | Integrity FFM   | 0,855 | 0,732 | 26,8%    |
| q18 | <--- | Integrity FFM   | 0,891 | 0,794 | 20,6%    |

SRW= Standardised Regression Weights

SMC= Squared Multiple Correlations

Convergent validity as determined by the AVE is considered satisfactory, as all the AVE values are above 0,50 (see Table 5.27). The new combined construct of *B\_I\_MP* explains the lowest average variance (AVE= 0,59) and *Benevolence FFM* explains the highest amount of variance (AVE= 0,74).

In relation to discriminant validity, Table 5.27 improves on the results of the two separate measurement models as in this case two of the squared inter-construct correlations are lower than the respective AVEs, while in three of the ten there is a mixed result. This suggests that there is more evidence of discriminant validity in the combined model than in the separate models.

**Table 5.27. Discriminant validity – Measurement model five factors**

| Construct 1     |      | Construct 2     | <i>r</i> | <i>r</i> <sup>2</sup> | AVE         |             | <i>r</i> <sup>2</sup> <AVE |
|-----------------|------|-----------------|----------|-----------------------|-------------|-------------|----------------------------|
|                 |      |                 |          |                       | Construct 1 | Construct 2 |                            |
| Ability MP      | <--> | B_I_MP          | 0,97     | 0,93                  | 0,61        | 0,59        | N                          |
| Ability FFM     | <--> | Benevolence FFM | 0,83     | 0,68                  | 0,72        | 0,74        | Y                          |
| Benevolence FFM | <--> | Integrity FFM   | 0,89     | 0,78                  | 0,74        | 0,66        | N                          |
| Ability MP      | <--> | Ability FFM     | 0,80     | 0,65                  | 0,61        | 0,72        | NY                         |
| Ability FFM     | <--> | Integrity FFM   | 0,87     | 0,76                  | 0,72        | 0,66        | N                          |
| B_I_MP          | <--> | Ability FFM     | 0,80     | 0,64                  | 0,59        | 0,72        | NY                         |
| Ability MP      | <--> | Benevolence FFM | 0,76     | 0,58                  | 0,61        | 0,74        | Y                          |
| B_I_MP          | <--> | Integrity FFM   | 0,85     | 0,72                  | 0,59        | 0,66        | N                          |
| Ability MP      | <--> | Integrity FFM   | 0,83     | 0,68                  | 0,61        | 0,66        | N                          |
| B_I_MP          | <--> | Benevolence FFM | 0,80     | 0,64                  | 0,59        | 0,74        | NY                         |

Since all the evidence above indicates that the fit of the combined model is satisfactory and that neither methodological requirements for SEM nor the theoretical basis of either trust research or personality research has been violated, the next step would be to proceed with the estimation of the structural regression model that culminates from this final measurement model.

#### 5.7.4 Moving from a measurement model to a structural regression model

Once an acceptable overall fit of the measurement model(s) (MM) is confirmed by using a CFA, the next step is to investigate the “latent-variable structural models” (Ho, 2014, p. 449). This two-step method firstly isolates and determines adequacy of the measurement model of the original proposed structural regression model (SRM) (Thompson, 2000, p. 273) and in the second step the structural equation model is tested. Nachtigall et al. (2003, pp. 4-5) see a structural (regression) model as a combination of various measurement models, which include the relationship to their own indicator or observed variables, joined together to

explain the relationship between the latent variables contained in the measurement model(s). Thereafter, equivalent models should also be evaluated (Kline, 2010, p. 159; Kline, 2011b, footnote a, p. 289; Thompson, 2000, p. 278) as the nature of structural modelling at best only provides “evidence against a poor model but never a proof of a good one” (Nachtigall et al., 2003, p. 14).

Hair, Black, Babin and Anderson, (2009, p. 25) describe the technical process that needs to be followed when changing from a graphical CFA measurement model to a graphical structural regression model. The steps concerned include ensuring that the corresponding error terms are added, that two-headed covariance arrows between constructs are replaced by directional arrows representing a relationship, and that unnecessary paths are deleted. After this, the resulting structural regression model can be estimated.

### **5.8 Structural Regression Model for Trust**

As the original postulated measurement model did not fit, and neither did the first measurement model for the managerial practices, two measurement models were tested separately in the previous sections. This practice moved the research from the realm of a confirmatory factor analysis into somewhat of an exploratory mode. This step was necessary as the high inter-construct correlations and the resultant low discriminant validity would have necessitated the removal of so many indicators that the original goal of this research – to adapt or rather ‘translate’ the Martins (2000) model for use in the ABI terminology – would have been totally negated. This uniquely South African model, which was developed and validated over the years, has the unique approach of using two distinctly separate inputs of information to determine the level of trust in organisations.

Because the core assumptions of the original model as proposed in Chapter 4 had to be modified due to restrictions in the underlying measurement models, the structural regression model also had to be adapted. Instead of the proposed three factors, the measurement model identified five factors that are related to trust in direct supervisors and managers. This adapted model is represented graphically in Figure 5.15. For theoretical consistency, the personality-related indicators with their corresponding latent constructs are grouped on the left-hand side of the model, while the managerial practices are represented on the right-hand side. In this model, the five latent constructs are all inter-correlated as dictated by the measurement model.



### 5.8.1 Fit indicators for Structural Regression Model (SRM)

This model successfully estimated the parameters ( $\chi^2 = 4144,686$ ,  $df = 449$ ,  $p < 0,000$ ) and as expected, this  $\chi^2$  indicates a poor fit for reasons of parsimony and sample size. The other indicators are all within the limits expected of a well-fitting model. The incremental indicators exhibit good fit as both CFI (0,952) and TLI (0,947) are well above the suggested value of 0,90.

With regard to the absolute fit indices, the RMSEA of 0,054 is an improvement on the measurement model and even the upper bound of the RMSEA 90% confidence interval is 0,055. This implies that there is a high level of probability ( $p < 0,000$ ) that the real population value of RMSEA is below the stricter value of 0,07 (Hair et al., 2010, p. 672). Lastly, the SRMR of 0,0281 also indicates that (considering the residuals of the model) there is good fit, as lower values indicate better fit.

From an investigation into the factor loadings in Table 5.28, it is apparent that all the indicators except b84 (I trust my immediate manager) reach values above the 0,70 cut-off. As only item b84 does not reach this strict cut-off value, yet it is still above 0,65, this is not a reason to discard the item, especially considering that this would leave one indicator for the model's critical estimation of *Trust*. As expected, the residual for this item (b84) is the lowest and item b84 is subsequently the only item that does not reach the suggested value of 0,50 (it is just 0,059 too low). The other residuals all exceed the 0,50 level, with the most important construct, *Trust*, with an SMC of 0,636 performing satisfactorily – only around 36% of the variance is explained by factors not measured in the model.

**Table 5.28. Model 18a: Standardised regression weights and variances**

|     |      |             | SRW   | SMC   | Residual |
|-----|------|-------------|-------|-------|----------|
| q29 | <--- | Ability FFM | 0,850 | 0,723 | 27,7%    |
| q30 | <--- | Ability FFM | 0,886 | 0,786 | 21,4%    |
| q31 | <--- | Ability FFM | 0,854 | 0,729 | 27,1%    |
| q32 | <--- | Ability FFM | 0,806 | 0,650 | 35,0%    |
| q43 | <--- | Ability MP  | 0,810 | 0,656 | 34,4%    |
| q50 | <--- | Ability MP  | 0,789 | 0,622 | 37,8%    |
| q51 | <--- | Ability MP  | 0,779 | 0,607 | 39,3%    |
| q52 | <--- | Ability MP  | 0,731 | 0,534 | 46,6%    |
| q56 | <--- | Ability MP  | 0,786 | 0,618 | 38,2%    |
| q59 | <--- | Ability MP  | 0,804 | 0,646 | 35,4%    |
| q37 | <--- | B_I_ MP     | 0,754 | 0,569 | 43,1%    |
| q39 | <--- | B_I_ MP     | 0,788 | 0,621 | 37,9%    |

|       |      |                 |       |       |       |
|-------|------|-----------------|-------|-------|-------|
| q40   | <--- | B_I_ MP         | 0,782 | 0,612 | 38,8% |
| q42   | <--- | B_I_ MP         | 0,781 | 0,610 | 39,0% |
| q44   | <--- | B_I_ MP         | 0,751 | 0,564 | 43,6% |
| q60   | <--- | B_I_ MP         | 0,765 | 0,586 | 41,4% |
| q62   | <--- | B_I_ MP         | 0,778 | 0,606 | 39,4% |
| q65   | <--- | B_I_ MP         | 0,802 | 0,644 | 35,6% |
| q67   | <--- | B_I_ MP         | 0,709 | 0,502 | 49,8% |
| q15   | <--- | Benevolence FFM | 0,863 | 0,745 | 25,5% |
| q16   | <--- | Benevolence FFM | 0,855 | 0,730 | 27,0% |
| q17   | <--- | Benevolence FFM | 0,856 | 0,733 | 26,7% |
| q19   | <--- | Benevolence FFM | 0,846 | 0,717 | 28,3% |
| q21   | <--- | Benevolence FFM | 0,874 | 0,763 | 23,7% |
| q22   | <--- | Benevolence FFM | 0,857 | 0,734 | 26,6% |
| q01   | <--- | Integrity FFM   | 0,793 | 0,629 | 37,1% |
| q02   | <--- | Integrity FFM   | 0,758 | 0,575 | 42,5% |
| q05   | <--- | Integrity FFM   | 0,753 | 0,568 | 43,2% |
| q06   | <--- | Integrity FFM   | 0,856 | 0,732 | 26,8% |
| q18   | <--- | Integrity FFM   | 0,892 | 0,795 | 20,5% |
| b84   | <--- | Trust           | 0,664 | 0,441 | 55,9% |
| b85   | <--- | Trust           | 0,912 | 0,831 | 16,9% |
| Trust |      |                 |       | 0,636 | 36,4% |

SRW= Standardised Regression Weights

SMC= Squared Multiple Correlations

The fact that the theoretically more important indicator of the latent construct *Trust*, item b85 (I trust my immediate supervisor), only has a residual of 17% is encouraging, as this means that more than 80% of the variance extracted is explained by this item. Item b84 (I trust my immediate manager) measures something additional, as 56% (SMC = 0,44) can be attributed to factors outside this model. This makes practical sense since aspects other than personality and managerial practices motivate and influence the perception of employees concerning the trustworthiness of their managers, as managers also have to take into account the interests of other stakeholders such as shareholders and government. Nonetheless, these measures overwhelmingly point to an acceptable model fit.

The five latent constructs all explained an acceptable average variance, with the following AVE values obtained that suggest an acceptable level of divergent validity:

- Ability FFM 0,72
- Ability MP 0,61
- B\_I\_MP 0,59
- Benevolence FFM 0,74
- Integrity FFM 0,66

The above values are the same as for the measurement model and the results pertaining to the discriminant validity of this model stay the same.

Paradoxically, it seems that the sampling sufficiency can only be determined after the completed model has been accepted, as the literature seems to agree on 10 respondents per estimated parameter (Schreiber et al., 2006, p. 326, 334). Because the sample that was used to develop the model consisted of 2860 respondents, the sample seems to be sufficiently large in all the models (see Table 5.32 for the detail). It is not only the sample size that is important, but also the distribution of the data, which will be investigated in the next section.

### 5.8.2 Non-normality of SRM data

The main concern from a methodological point of view is the fact that the multivariate normality of the data seemed questionable (see Section 5.1.4 in this chapter). As a first step, an analysis of normality was repeated, but this time only the items used as indicators in this model were used to determine the skewness, kurtosis and their associated critical ratios (c.r.) (see Table 5.29).

**Table 5.29. Assessment of normality – Model 18a: SRM indicator variables**

| Variable | Skewness |         | Kurtosis |         | Non-normality range |
|----------|----------|---------|----------|---------|---------------------|
|          | Skewness | c.r.    | Kurtosis | c.r.    |                     |
| b84      | -0,35    | -7,635  | -0,998   | -10,891 | severe              |
| q56      | -0,495   | -10,799 | -0,75    | -8,192  | moderate            |
| q67      | -0,556   | -12,14  | -0,719   | -7,848  | moderate            |
| q62      | -0,605   | -13,199 | -0,581   | -6,338  | moderate            |
| b85      | -0,654   | -14,274 | -0,511   | -5,583  | moderate            |
| q43      | -0,667   | -14,553 | -0,466   | -5,089  | moderate            |
| q42      | -0,598   | -13,056 | -0,458   | -4,998  | moderate            |
| q65      | -0,708   | -15,449 | -0,433   | -4,724  | moderate            |
| q44      | -0,659   | -14,384 | -0,403   | -4,398  | moderate            |
| q52      | -0,77    | -16,813 | -0,307   | -3,356  | moderate            |
| q50      | -0,701   | -15,31  | -0,28    | -3,054  | moderate            |
| q60      | -0,781   | -17,047 | -0,197   | -2,154  | moderate            |
| q59      | -0,734   | -16,023 | -0,188   | -2,056  | moderate            |
| q37      | -0,844   | -18,421 | 0,013    | 0,147   | <b>negligible</b>   |
| q39      | -0,838   | -18,291 | 0,051    | 0,56    | <b>negligible</b>   |

|                       |        |         |        |        |          |
|-----------------------|--------|---------|--------|--------|----------|
| q02                   | -0,923 | -20,144 | 0,187  | 2,045  | moderate |
| q51                   | -1,013 | -22,106 | 0,218  | 2,376  | moderate |
| q40                   | -0,891 | -19,452 | 0,241  | 2,626  | moderate |
| q31                   | -0,925 | -20,197 | 0,244  | 2,659  | moderate |
| q18                   | -1,036 | -22,621 | 0,408  | 4,451  | moderate |
| q15                   | -0,962 | -20,992 | 0,446  | 4,872  | moderate |
| q19                   | -1,073 | -23,435 | 0,529  | 5,776  | moderate |
| q17                   | -1,058 | -23,103 | 0,565  | 6,164  | moderate |
| q21                   | -1,006 | -21,963 | 0,582  | 6,352  | moderate |
| q22                   | -1,14  | -24,881 | 0,622  | 6,795  | moderate |
| q32                   | -1,043 | -22,771 | 0,716  | 7,818  | moderate |
| q30                   | -1,106 | -24,156 | 0,805  | 8,786  | moderate |
| q06                   | -1,198 | -26,155 | 0,823  | 8,988  | moderate |
| q01                   | -1,221 | -26,661 | 1,061  | 11,578 | severe   |
| q05                   | -1,305 | -28,487 | 1,409  | 15,383 | severe   |
| q16                   | -1,33  | -29,029 | 1,432  | 15,634 | severe   |
| q29                   | -1,357 | -29,629 | 1,55   | 16,919 | severe   |
| Multivariate Kurtosis |        |         | 744,07 | 426,52 |          |

---

c.r. = critical ratio

This assessment of normality, using the current non-missing values dataset (N=2860), confirmed the departures from normality that were found previously (see Section 5.1.4). From Table 5.29 it becomes clear that there are only two variables that fall within the critical ratio for kurtosis (q37 and q39), while two fall just outside the limits of [2.00]. This is at most two of the 32 (or 6.25%) indicators that fall within the *negligible* non-normality range, as the majority of items (25 items or 78,13%) fall into the range that is described as *moderate* non-normal (values between |1 and 10|). The remaining 5 items (15,6%) with critical kurtosis ratios larger than ten are classified as *severe* non-normal ([ssc.utexas.edu/software-faqs/amos](http://ssc.utexas.edu/software-faqs/amos)). The multivariate kurtosis (Mardia coefficient = 744,07 ) that is far above its critical value (426,52) also indicates that the data is not multivariate normally distributed. On the positive side, Byrne (2001, p. 268) argues that one of the consequences of non-normality is that the TLI and CFI are “modestly underestimated” – considering the values for this study, the implications are that the model fit is even better than reported above.

To determine if this non-normal distribution had any effect on the model, a Bollen-Stine “empirical  $\chi^2$ -test” (Blunch, 2008, p. 230; Byrne, 2001, p. 268) was performed, using the same structural regression model (Model 18) and data as above. As was discussed in the

beginning of this chapter, this test compensates for the fact that, in contrast to the  $\chi^2$ , no multivariate normality is assumed. Of the 2000 samples, not one bootstrap sample failed because of a singular covariance matrix or because a solution could not be found, and all 2000 bootstrap samples fit the model better. This led to the same conclusion as the  $\chi^2$ , namely that the model does not fit (Bollen-Stine bootstrap  $p = 0,000$ ). The conclusion was however expected, as the Bollen-Stine bootstrap is very susceptible to sample size differences; so much so that when Byrne (2001, p. 284) discusses this index in conjunction with her example sample size of 1096, she exclaims that there are more appropriate realistic model fit indicators and that she just reported these results for completeness. Blunch (2008, p. 97) goes so far as to say that "... this section of the output is of limited value", as with the large samples that are commonly used in SEM it is inevitable that the null hypotheses will be rejected. The value of this procedure lies in the fact that it can give an indication of specification errors if bootstrap samples are discarded, due to the fact that a singular covariance matrix was encountered (which was not the case in this study) ([ssc.utexas.edu/software-faqs/amos](http://ssc.utexas.edu/software-faqs/amos)).

As a third step, the Mahalanobis distance ( $D$ ) (see Kline, 2011b, p. 51) was used to identify the 100 cases with the highest  $D^2$  (the distance from the centroid) to explore if this would have any impact on the analysis. These cases were removed one by one, resulting in a dataset that consisted of 2760 cases. The results of this analysis are presented in Table 5.32 under *Model 18b SRM -100 D<sup>2</sup>* and when a comparison is made with the original *Model 18a SRM*, it is clear that this deletion had a negligible effect on all the indicators listed.

### 5.8.3 *Alternative theoretical minimalist model*

Because of the nature of SEM methodology, it is always possible to develop alternative models that can and most probably will "out-perform" the current model from a statistical viewpoint when it comes purely to model fit. Alternative models needed to be developed from a purely theoretically plausible foundation. As the current model is very complex (low parsimony), the quick remedy would be to test a sequence of nested models by simply deleting items, for instance deleting all indicators with SMC <0,60 or any other arbitrary selected value. This procedure is however not acceptable, as some of these items were especially added in Model 05 (see Figure 5.10) for theoretical reasons and a theoretical approach of testing a non-hierarchical model was followed to arrive at a more parsimonious model (Kline, 2011b, p. 290). The first alternative model was developed by retaining the five-factor structure, and then by including only the indicators that were selected (on a theoretical

basis) by at least two SMEs as the best items (refer to column “Frequency of selection as best representation” in Table 5.15). This was done even if it resulted in only two indicators per construct, ignoring the “three-indicator rule” on purpose (Hair et al., 2010, p. 692). This was necessary to address Kline’s (2011b, p292) comment that better fit can be achieved by “overparameterizing” and “chasing sample-specific (chance) variation”. To be consequent, item q84 “I trust my immediate manager’ (SMC = 0.43) unfortunately also had to be removed as it was one of the worst indicators in the model. This left only one item (q85 “I trust my immediate supervisor”) as indicator of the latent construct *Trust*. Although this practice seems to contradict all theory that trust consists of various types or dimensions, various authors have investigated this problem in the work environment (Uslaner, 2012 as discussed in Section 4.7.2). Six et al. (2010, p. 298), for instance, use only one question and motivate their action on the basis that they wanted a general indication of trust, irrespective of the underlying dynamics or reasons. In addition, they believed that the respondents would have problems discriminating between the different dimensions in any case. Although Kline (2011b, pp. 358-359) states that two indicators per factor are a minimum technical requirement, other authors indicate that in some cases a single item is for practical reasons the only one available or even necessary, provided that the construct is uncomplicated and straightforward (Hair et al., 2010, p. 710).

The statistical implication of using only a single measure is that the loadings and error terms cannot be estimated because the critical construct of *Trust* had only one indicator (Hair et al., 2010, p. 735), and for Amos (or any SEM programme) to perform an estimation, these have to be set based on prior knowledge. To overcome this problem, the latent unobserved construct of *Trust* was replaced by an observed variable in the form of q85 itself, considering its high communality (SMC =0,94). This in effect meant that various items had to be deleted from Model 18, while item q38 had to be added to the model as indicator of the new construct B\_I\_MP.

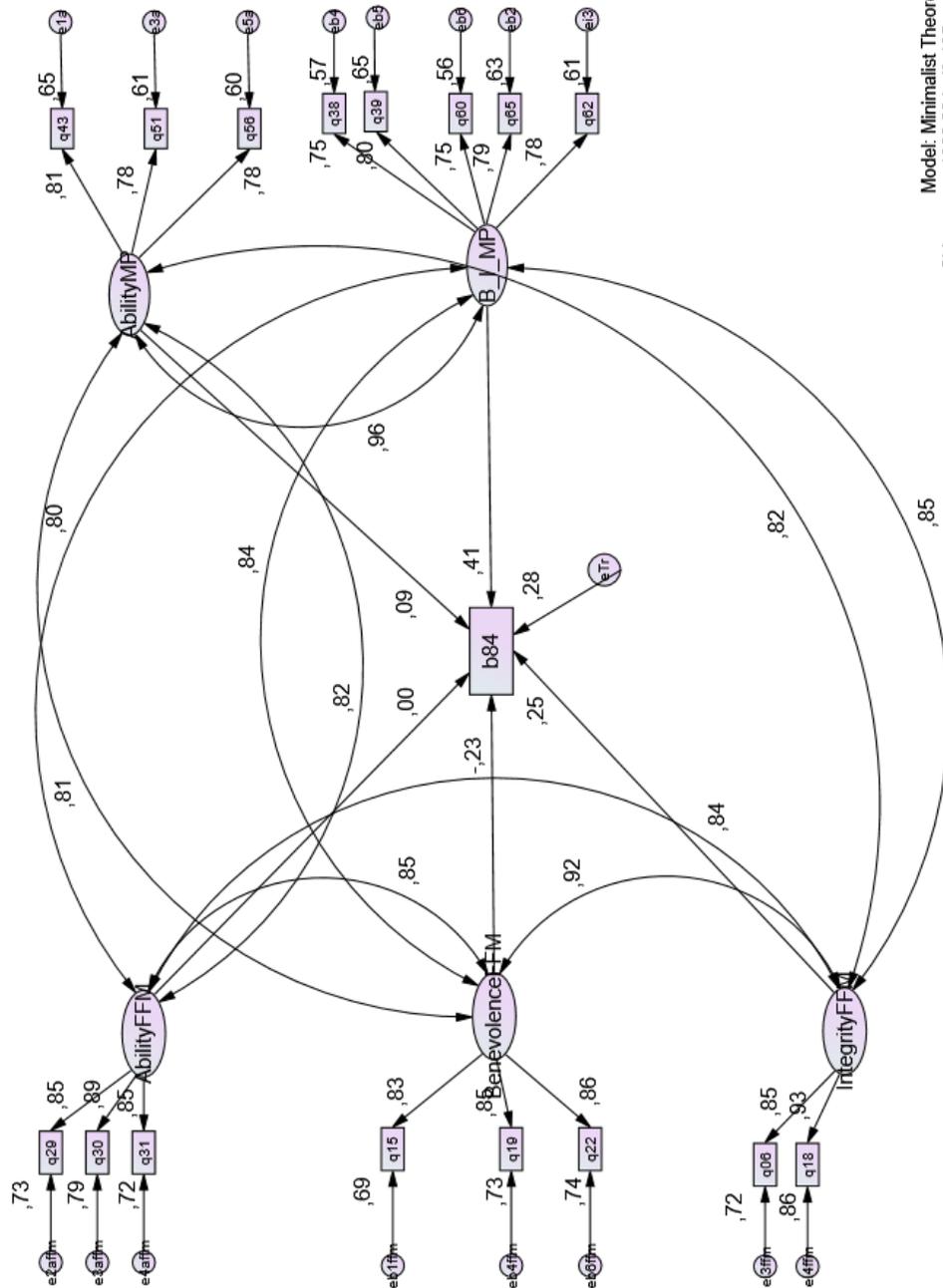
For the sake of quality assurance it was decided to ascertain why item q38 had been dropped in the first place and now had to be re-entered. Further investigation showed that q38 was dropped from all further analyses in the first stages (see Figure 5.6: *Model 01b MM 34 Items*) as a weak indicator (SMC= 0,52) of *Integrity*. However, most significantly, this item had a loading of 0,39 with item q39 that was classified under *Benevolence* in the early stages. Seeing that these two constructs were now combined, it made sense to include the item.

After a preliminary estimation it appeared that item q67 needed to be dropped as it only had an SMC of 0,50, meaning half of its variance explained came from outside the model, which is represented in Figure 5.16. From the diagram and the summary table (Table 5.32) it becomes apparent that this model did not fit (as was expected) according to the  $\chi^2$  test ( $\chi^2 = 1066,294$ ,  $df = 105$ ,  $p < 0,000$ ), but the other indices show remarkable fit. The incremental fit shows slightly higher values than the previous model (CFI = 0,974; TLI = 0,967) and are well above the suggested value of 0,90. With regard to the absolute fit indices, both the RMSEA (0,057) and the SRMR (0,0229) are indications of good model fit. The standardised regression weights all exceed 0,70, which is indicative of high construct validity (see Table 5.30). Moreover, as with the other models, the new combined factor explains the least variance which can be seen from the high residuals. Unfortunately, the two items (q38 and q60) that are responsible for the highest residuals of over 40% are both indicators of *Integrity* and by deleting them, the theoretical integrity of the model would be compromised.

**Table 5.30. Model 19a: Standardised regression weights and variances**

|     |      |                 | SRW   | SMC   | Residual |
|-----|------|-----------------|-------|-------|----------|
| q29 | <--- | Ability FFM     | 0,853 | 0,728 | 27,2%    |
| q30 | <--- | Ability FFM     | 0,890 | 0,792 | 20,8%    |
| q31 | <--- | Ability FFM     | 0,847 | 0,718 | 28,2%    |
| q43 | <--- | Ability MP      | 0,809 | 0,654 | 34,6%    |
| q51 | <--- | Ability MP      | 0,781 | 0,610 | 39,0%    |
| q56 | <--- | Ability MP      | 0,777 | 0,603 | 39,7%    |
| q38 | <--- | B_I_MP          | 0,754 | 0,569 | 43,1%    |
| q39 | <--- | B_I_MP          | 0,803 | 0,645 | 35,5%    |
| q60 | <--- | B_I_MP          | 0,750 | 0,562 | 43,8%    |
| q62 | <--- | B_I_MP          | 0,780 | 0,608 | 39,2%    |
| q65 | <--- | B_I_MP          | 0,794 | 0,630 | 37,0%    |
| q15 | <--- | Benevolence FFM | 0,833 | 0,694 | 30,6%    |
| q19 | <--- | Benevolence FFM | 0,854 | 0,728 | 27,2%    |
| q22 | <--- | Benevolence FFM | 0,861 | 0,741 | 25,9%    |
| q06 | <--- | Integrity FFM   | 0,851 | 0,725 | 27,5%    |
| q18 | <--- | Integrity FFM   | 0,928 | 0,860 | 14,0%    |

SRW= Standardised Regression Weights  
SMC= Squared Multiple Correlations



Model: Minimalist Theoretical  
 Chi-square= 1066,294, df=105, p=.000  
 CFI=.974, TLI=.967, Akaike = 1162,294  
 RMSEA= 0,57, p=.000  
 Standardized RMR = ,0229

Figure 5.16. Model 19a: Minimalist solution for the structural regression model

As with the previous model, the average variance extracted (AVE) was determined and these values seem to be relatively the same as previous models:

- Ability FFM (0,75)
- Benevolence FFM (0,72)
- Integrity FFM (0,79)
- Ability MP (0,62)
- B\_I\_ MP (0,60)

If it was not for the fact that the AVE for the managerial practices items was nearly 0,10 lower than the personality-based indicators, the discriminant validity of this model would have been even higher. As can be seen from Table 5.31, the number of times that the squared inter-construct correlation was higher than the associated AVE is higher for this model than for any of the previous models.

**Table 5.31. Discriminant validity – Model 19a: Minimalist solution**

|                 |      |                 | r    | r <sup>2</sup> | AVE1 | AVE2 | r <sup>2</sup> <AVE |
|-----------------|------|-----------------|------|----------------|------|------|---------------------|
| Ability MP      | <--> | B_I_ MP         | 0,96 | 0,92           | 0,62 | 0,60 | N                   |
| Ability FFM     | <--> | Benevolence FFM | 0,85 | 0,72           | 0,75 | 0,72 | Y                   |
| Benevolence FFM | <--> | Integrity FFM   | 0,92 | 0,85           | 0,72 | 0,79 | N                   |
| Ability MP      | <--> | Ability FFM     | 0,82 | 0,67           | 0,62 | 0,75 | NY                  |
| Ability FFM     | <--> | Integrity FFM   | 0,84 | 0,71           | 0,75 | 0,79 | Y                   |
| B_I_ MP         | <--> | Ability FFM     | 0,80 | 0,64           | 0,60 | 0,75 | NY                  |
| Ability MP      | <--> | Benevolence FFM | 0,81 | 0,65           | 0,62 | 0,72 | NY                  |
| B_I_ MP         | <--> | Integrity FFM   | 0,85 | 0,72           | 0,60 | 0,79 | NY                  |
| Ability MP      | <--> | Integrity FFM   | 0,82 | 0,68           | 0,62 | 0,79 | NY                  |
| B_I_ MP         | <--> | Benevolence FFM | 0,84 | 0,71           | 0,60 | 0,72 | NY                  |

NY: AVE1<r<sup>2</sup> but AVE2>r<sup>2</sup>

Although this minimalist model was tried in earlier stages, the fact that the theoretical premises led to models with either just three or six factors that either did not converge or resulted in a covariance matrix that was not positive definite, led to the abandonment of the proposed model. Fortunately, the realisation that a five-factor model might be a better model seems to have been vindicated as, in retrospect, this confirmatory approach verified the theoretical model based on the strictest subject matter expert classification.

As the above model again exhibits good fit, the conclusion can be drawn that Model 18a did not benefit from “over parameterisation” to achieve satisfactory fit. It then remains to be seen if Model 18a benefited from the effects of the relatively large sample size.

#### 5.8.4 *Small sample test*

Concerning the effect of sample size, the TLI and CFI should not vary much with sample size, but the RMSEA and the SRMR should decrease as the sample size decreases (Kenny, 2014). Marsh, Balla and McDonald (1988) tested the sensitivity of various Goodness-of-Fit indicators that were available in those days and found that of the GOF indicators still in use, only the TLI is not affected by sample size to the same extent as other incremental fit indices. Regarding the SRMR, Hooper, Coughlan and Mullen (2008, p. 55) came to the conclusion that the larger the sample size, the lower the value for the SRMR (better fit) when testing models with relatively many parameters. This would be the case with *Model 18a*. Conversely, in the case of a smaller sample size and the minimalist model, an increased SRMR is to be expected.

To determine if the model fit was based on the effect of sample size, a random sample of approximately 10% was drawn from the current sample using the random sample function in SPSS (the ideal would have been to use an independent sample). This sample of 274 cases was used as a basis for the following two estimation runs, firstly for the full model (*Model 18a*) and secondly for the minimalist model (*Model 19a*). For a comparison, see Table 5.32. When comparing Model 18a (N= 2860) with Model 18c (N= 274) and Model 19a (N= 2860) and Model 19c (N= 274), it is noticeable that both the incremental indices (CFI and TLI) decreased as the sample size decreased. The influence exerted on the RMSEA by the number of parameters and sample size can also be seen in Table 5.32 when the different model estimations are compared. When Model 18a (N=2860) was compared to the same model but with a smaller sample (Model 18c; N= 274), the RMSEA value deteriorated from 0,054 to 0,073 (change is 0,019) and the 90% confidence interval increased from 0,003 to 0,022 (more than seven times the original range). The Standardised RMR on the other hand improved as expected, dropping from 0,0392 to 0,0324. Although the sample size had an effect on the estimates, the model fit was still acceptable, thus countering the criticism that the model fit was merely an artefact of sample size. As a last analysis, an alternative model that was based on a possible explanation of the negative path loadings needed to be investigated.

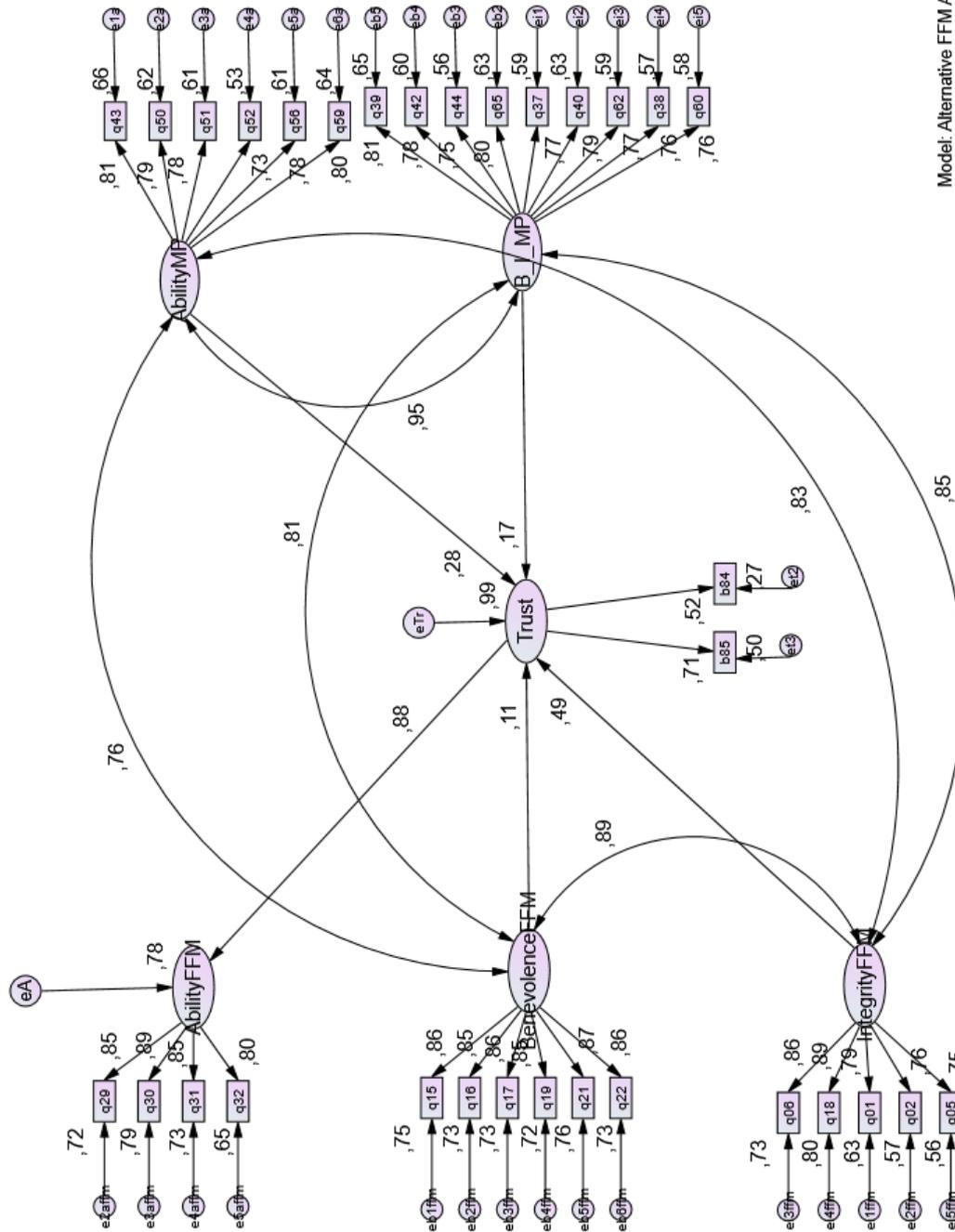
#### 5.8.5 *Alternate exploratory model*

While testing *Model 18a*, the fact that *Ability* had negative loadings on *Trust* led to some questions concerning the structure of the model. In the literature, *Ability* is described as an antecedent of trustworthiness, while in this model this description seemed to be not this

straightforward. The personality-linked *Ability* items were concerned with a third-party assessment of a target's personality (see Chapter 4 for a discussion on the implications of this). The question that needed to be answered was whether the perceived ability of the supervisor as manifested by managerial practices was an antecedent to trust as postulated in the Mayer et al. (1995) model, and whether the perceived personality aspects linked to competence (ability) were a consequence of trust. In other words – if I trust my direct supervisor or manager, then I tend to rate them as more intelligent, creative, innovative and curious. This higher rating on their perceived resourcefulness represents the *Ability* construct in this model. To test this, *Model 18a* was adapted in Figure 5.17 as is represented in *Model 21a* below.

Inspection of Table 5.32 reveals that this model displays acceptable fit, according to the criteria set by Hair et al. (2010, p. 672). According to this model, the score of *Ability FFM* would increase by approximately 0,88 standard deviations (SRW= 0,885) if the score of *Trust* increases by one standard deviation. However, upon further investigation it seemed unrealistic that the SMC of *Trust* itself is 0,99, meaning that the five latent variables in the model account for 99% of the variance in Trust and “the error variance of Trust is approximately 1 per cent of the variance of Trust itself” (AMOS 22, 2013). As Nachtigall et al. (2003, p. 13) warn, “[o]ffending estimates should always be regarded with suspicion”. This extreme SMC value for *Trust* and the fact that all the other path loadings had changed quite dramatically, led to the decision to undertake further testing of this model.

To start with, the small sample was used to determine the fit (*Model 21b*, N=274), and this model resulted in an inadmissible solution (negative variance). Then the minimalist model was tested with the responses of both the sample of 2860 (*Model 22a*) and the subsample of 274 (*Model 22b*). As can be seen from Table 5.32, both these models resulted in weak to mediocre fit and had to be re-specified. The fact that Model 21a subsequently showed acceptable fit can probably be attributed to an interaction between sample size, parsimony and probably chance. As these alternative models did not show sufficient fit and are not accepted, the next section will discuss a model that can be accepted from both a statistical and a theoretical perspective.



Model: Alternative FFM Ability  
 Chi-square= 5156.322, df=453, p= .000  
 CFI=.940, TLI=.934, Akaike = 5306.322  
 RMSEA=.060, p= .000  
 Standardized RMR = .0336

Figure 5.17. Model 21a SRM: Ability and Trust as unobserved, endogenous variables.

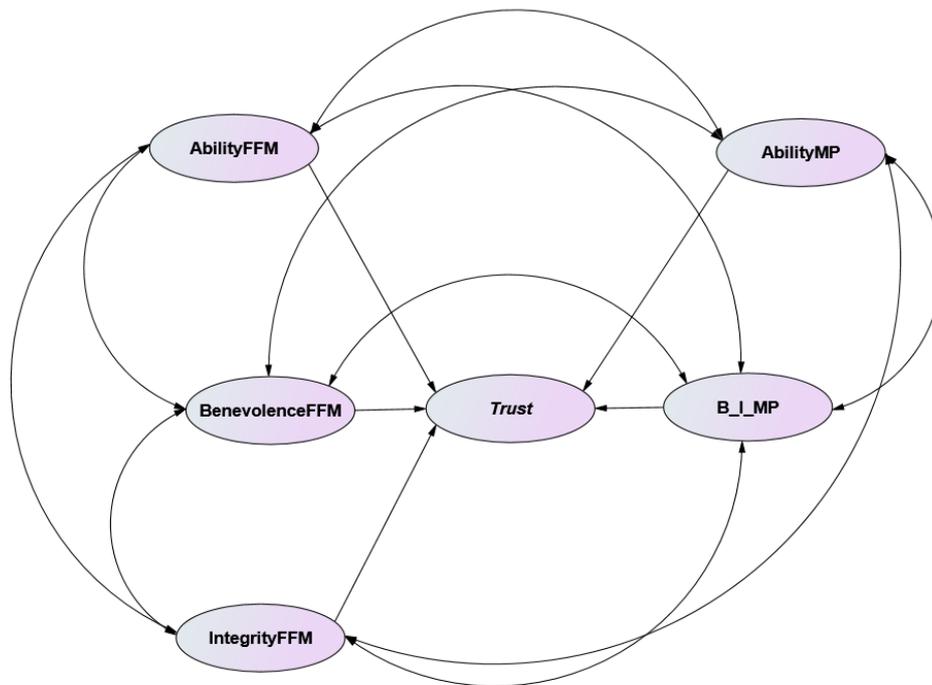
**Table 5.32. Summary table of structural regression models**

| Model name   | 18a SRM       | 18b SRM<br>-100 D <sup>2</sup> | 18c SRM<br>10% N | 19a SRM<br>Minimalist | 19b SRM<br>Mini 10% | 21a SRM  | 21b SRM  | 22a SRM  | 22b SRM |
|--|---------------|--------------------------------|------------------|-----------------------|---------------------|----------|--|----------|---------|
| Sample size  | 2860*         | 2760*                          | 274              | 2860*                 | 274                 | 2860*    | 274  | 2860*    | 274     |
| Missing data (Dropped Pairwise, Listwise, Estimated) | Listwise      | no high<br>D <sup>2</sup>      | N/A              | Listwise              | N/A                 | Listwise | N/A  | Listwise | N/A     |
| $\chi^2$   | 4144.686      | 4136.127                       | 1097,502         | 1066.294              | 273.835             | 5156.322 | Solution is not admissible<br>Negative variance for eTr. | 3678.444 | 538.382 |
| Distinct parameters to be estimated                  | 79            | 79                             | 79               | 48                    | 48                  | 75       |  | 44       | 44      |
| <i>Df</i>  | 449           | 449                            | 449              | 105                   | 105                 | 453      |  | 109      | 109     |
| Probability level                                    | 0.000         | 0.000                          | 0.000            | 0.000                 | 0.000               | 0.000    |  | 0.000    | 0.000   |
| CFI  | 0.952         | 0.954                          | 0.917            | 0.974                 | 0.953               | 0.940    |  | 0.905    | 0.881   |
| TLI  | 0.947         | 0.950                          | 0.908            | 0.967                 | 0.939               | 0.934    |  | 0.881    | 0.851   |
| AIC ( <i>Akaike</i> )                                | 4302.686      | 4294.127                       | 1319.502         | 1162.294              | 369.835             | 5306.322 |  | 3766.444 | 626.382 |
| RMSEA  | 0,054         | 0.055                          | 0.073            | 0.057                 | 0.077               | 0.060    |  | 0.107    | 0.120   |
| RMSEA 90% Confidence Intervals: Lower bound          | 0.052         | 0.053                          | 0.067            | 0.054                 | 0.066               | 0.059    |  | 0.104    | 0.110   |
| RMSEA 90% Confidence Intervals: Upper bound          | 0.055         | 0.056                          | 0.078            | 0.060                 | 0.088               | 0.062    |  | 0.110    | 0.130   |
| RMSEA Probability level                              | 0.000         | 0.000                          | 0.000            | 0.000                 | 0.000               | 0.000    | 0.000  | 0.000    |         |
| Standardised RMR                                     | 0.0281        | 0.0264                         | 0.0392           | 0.0229                | 0.0324              | 0.0336   | 0.2236   | 0.2227   |         |
| Standardised Residuals                               | Table<br>5.28 | N/A                            | N/A              | Table<br>5.30         | N/A                 | N/A      | N/A  | N/A      | N/A     |
| Acceptable GOF attained                              | Yes           | Yes                            | Yes              | Yes                   | Yes                 | Yes      | No   | No       | No      |

\* Satisfies guideline  $N > 10$  times number of distinct parameters

### 5.8.6 Generalised model

As the proposed initial theoretical measurement model did not empirically exhibit sufficient model fit, various adaptations had to be made. The structure of a generalised model that can be proposed following the evaluation of various models is graphically depicted in Figure 5.18 and then briefly discussed. The proposed model is based on the measurement models that were validated and the structural regression models that were accepted, especially Model 18a and Model 19a. From this model and the detailed information in Figure 5.15 (Model 18a) and Figure 5.16 (Model 19a), certain relationships can be generalised. The fact that the various sample sizes and models each gave slightly different results, makes it difficult to propose a specific multiple regression equation.



**Figure 5.18. Model of trust in direct supervisor/manager**

The above generalised model can be seen as a successful attempt to use the items from the Trust Relationship Audit and consequently the Martins (2000) model of trust, and to integrate these into the Maier et al. (1995) model of organisational trust – especially the acknowledged antecedents of trustworthiness, ability, benevolence and integrity. The initial confirmatory factor analysis involving the measurement models already confirmed the suspicion that the indicator variables would split along their original classification between

personality-based and managerial practices items. The results of the principal component analysis and the exploratory factor analysis that were attained when replicating the Martins (2000) model, clearly indicated the split. For clarity's sake, the personality-linked latent constructs are represented on the left-hand side of the model, while the right-hand side represents the managerial practices that predict the trust in a direct supervisor or manager. The fact that managerial practices are represented by only two constructs evolved from the measurement models. Managerial practices are represented by ability on the one hand and the "softer side" of benevolence and integrity (combined) on the other hand. The detailed functioning of the model will be discussed in the following paragraphs, starting from the left-hand side (for clarity reasons), but the reader should always keep in mind that this model functions as a holistic unit and not in a stepwise fashion.

On the personality side, integrity loads directly on trust, while the other two constructs either have little effect (ability) or a negative loading in the case of benevolence. *Ability FFM* and *Benevolence FFM* correlate highly (all above 0,80) with *Integrity FFM*, which in turn has a SRW of 0,27 (or 0,25 in the minimalist model) when it comes to its contribution to the explanation of *Trust* – "[w]hen *Integrity FFM* goes up by 1 standard deviation<sup>16</sup>, *Trust* goes up by 0,269 standard deviations" (AMOS 22, 2013). *Ability* as measured by the personality-linked items does not really contribute directly to the *Trust* score, while *Benevolence* has an inverse direct effect on trust – "[w]hen *Benevolence FFM* goes up by 1 standard deviation, *Trust* goes down by 0,11 standard deviations" (AMOS 22, 2013). In the case of the minimalist model that predicts only trust in the direct supervisor and not also in the direct manager, this standardised regression weight is even higher (-0,23). This would mean that for every one standard deviation the *Benevolence FFM* score increases, *Trust* in the direct supervisor decreases by a ¼ standard deviation.

Depending on the circumstances (sample size and number of parameters), the model indicates that the managerial practices linked to ability either have very little direct effect on trust or even a negative relationship. *Ability MP* seems to be exerting its effect on *Trust* via the combined *Benevolence / Integrity* managerial practices construct (*B\_I\_MP* – *Ability MP*;  $r > 0,95$ ). The *Benevolence / Integrity MP* construct has the most direct relationship with *Trust* scores, as for each standard deviation that the *B\_I\_MP* score increases, the *Trust* score increases by 0,90 standard deviations (in the case of the expanded Model 18a). The interdependence between all these constructs is clearly indicated by the fact that each one

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<sup>16</sup> As all the above models report standardised values for conceptual reasons, standard deviation units are used.

of them is inter-correlated with the other. In the next chapter the implications of this interdependence and the link to the theory will be discussed. This will be followed by the summary and conclusions that will bring all of the above together.

## 5.9 Conclusion

In this chapter core results were reported on. Firstly, these concerned the characteristics of the data itself, and secondly, the factor structure of the data as a foundation to a confirmatory factor analysis aimed at replicating the Martins (2000) model. As part of the data description, the various samples involved over time were described. Since each subsample was linked to a different research project or organisational intervention, different bespoke versions of the Trust Relationship Audit questionnaire were used. This brought with it the need to merge alternative versions of the questionnaire and the associated quality assurance dilemmas in attempt to ensure the integrity of the data used.

Concerning the integrity of the data, it was important to attend to inconsistencies in the composition of the dataset itself and to questions about the nature of the missing values, for instance if they could be assumed to be missing at random. Following the critical missing value analysis, the distribution of the data was discussed. The handling of non-normal data in SEM is critical and was discussed in depth, as SEM is based on the assumption that the data is multivariate normal distributed. Most of the values for skewness and kurtosis fell outside what is considered normal, and especially the criterion values were negatively skewed. It was found that most respondents gave a positive evaluation of their direct supervisors in particular. An aspect that was discussed in more detail was the use of the Mahalanobis  $D^2$  indicator of how far the data is removed from a centroid and how this could be used at a later stage to eliminate cases that were significantly non-normal.

As the Martins (2000) model is the foundation upon which the current model is built, it was necessary to evaluate whether this model held true for the data collected for the current study.

The next major task involved classifying the items from the Trust Relationship Audit in the database under the theory-based taxonomy developed by subject matter experts and reported on in Chapter 4. These groupings of indicator variables to predict the latent variables representing *Ability*, *Benevolence* and *Integrity* were evaluated on the basis of inter-rater agreement. The items with the highest inter-rater scores were subsequently selected for model development. To determine the reliability of the resultant scales, this

classification was then evaluated for inter-rater agreement and internal consistency. The latter analysis of Cronbach's alphas would also confirm unidimensionality.

As a next phase, the structural equation modelling (SEM) process was described in detail. This consisted of developing and then testing various measurement models, followed by a quest for the appropriate structural regression models and determining their model fit. From this a general model of trust in organisations was developed.

To replicate Martins (2000), the steps that Martins had followed were repeated. Firstly, a principal component analysis revealed one factor for the managerial practices and only four factors for personality, with *Agreeableness* and *Emotional Stability* loading on the same factor. Furthermore, a principal axis factor analysis confirmed that two items loaded on different personality items in this study. Exploratory factor analysis then confirmed the factor structure from the principal component analysis, as the items representing the Five-Factor Model of Personality, the Managerial Practices and the Trust items were analysed as a unit and then separately.

As the exploratory factor analysis seemed to load on similar factors as in Martins (2000), a confirmatory factor analysis was conducted using the newly constituted item parcels. This structural regression model had to be modified, as the absolute fit indices indicated bad fit. An adapted structural model needed to be specified, but this model in essence confirmed the basic premises on which the Martins (2000) model was based.

The main section of the chapter was devoted to testing the measurement and structural regression models proposed in Chapter 4. After the failed attempts to fit the initially proposed model, it became clear that – as was indicated by the initial factor analysis – the measurement model had to be split into a personality and a managerial practices component. The initial personality-based measurement model that displayed acceptable model fit was modified for reasons of theoretical elegance to use only items originating from one personality factor to predict one antecedent of trustworthiness. In this model, all the indicators for *Ability* have their origin in *Resourcefulness*, the indicators for *Benevolence* have their origin in *Agreeableness*, and those for *Integrity* derive from *Conscientiousness*.

In the case of the Managerial Practices-based Measurement Model, the unfortunate reality that not all models fit as anticipated became true and this study was not spared a negative variance matrix. Once various alternatives had been investigated, the best measurement model that could be identified combined the items that theoretically represented

*Benevolence* and *Integrity* as one latent construct, while *Ability* remained separate. From this a final five-factor measurement model was specified that yielded acceptable model fit and this model was consequently used as the basis for the structural regression model.

Seeing that the newly proposed structural regression model suggested that the model fits the data well, it was deemed necessary to not only test this model with other data, but also to test alternative models so as to minimise the possibility that the initial SRM fit was due to chance. To determine if the large sample size or the non-normality of the data had an effect on the results, the model fit had to be verified – this required a repetition of the analysis using a 10% random sample of the dataset to counter the effect of the large sample. To negate the effect of underlying distribution, the 100 cases with the largest Mahalanobis  $D^2$  were removed. In addition, an alternative theoretical model was developed that used the minimum number of items. This minimalist and parsimonious model was again tested against the larger and 10% datasets. In all of the above alternative cases, an acceptable goodness of fit was attained.

To test an alternate theoretical structural regression model, an additional model was developed which postulated that personality-based assessment of ability is not an antecedent, but rather a consequence of trust. This model could not be accepted unequivocally, as neither the small sample nor the minimalist models reached an acceptable level of fit. The fact that this model managed to replicate the original data could in all possibility be attributed to capitalisation on chance, based on the unique characteristics of the sample.

As a concluding step, a generalised model was developed from the above. This model attempted to explain the five-factor model of trustworthiness as it manifests through the latent constructs of *Ability*, *Benevolence* and *Integrity*, based on personality and managerial practices. The actual findings were also presented in this chapter, and the next task is to bring meaning to these results, link them back to the literature and come to a conceptual conclusion (Trafford & Leshem, 2012). To achieve this, the next chapter will be devoted to evaluating the models and linking them back to the literature. The limitations and resultant opportunities for further research will also be addressed, as will the practical utility of this research for the field of industrial and organisational psychology.

## Chapter 6: Findings, Conclusions, Limitations and Recommendations

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It is important to remember that the study in hand specifically investigates the composition of the antecedents to trust in a dyadic relationship, with the target (or focus) of that trust being the direct supervisor or manager (the person to whom the respondent reports). As mentioned in Chapter 1, the general aim of this research is to *develop a unified conceptual model of organisational trust relationships with specific reference to the structure of the antecedents of trust within the construct of subordinates' trust* (see Section 1.6.2). On a practical level, this study attempts to explore the link between the Martins (2000) model of trust and the Mayer et al. (1995) *Integrative model of organisational trust*. Mayer et al. (1995, p. 712) defined trust as:

*... the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.*

Various references to this definition will be made in this chapter, especially the vulnerability aspects that are concerned with the willingness of trustors to expose themselves to risk.

The integrated findings offered here constitute the basis of the factual conclusions that will be presented, and finally the fundamental theoretical (conceptual) conclusions will be discussed, followed by some limitations of the current investigation. Moving from the theoretical to the practical, some implications of the findings for the building and maintenance of trust in an organisational context will be considered and some recommendations will be made for future trust research. In the next section, the link back to Chapter 1 is made, specifically to Section 1.6.2 where the original research question and aims of this study are stated.

**Table 6.1. Research question and aims of the study**

|  |  |              |
|--|--|--------------|
| <b>Research question (RQ):</b>   | How does trust as a psychological and sociological concept in an organisational context link to perceived personality traits and managerial practices; more specifically how can the (1) perceived personality characteristics, and (2) perceived managerial practices of the direct supervisor or manager be used to determine ability, benevolence and integrity as components of trustworthiness or antecedents of trust in the person to whom the employee reports?  | Chapter<br>1 |
| <b>General aim (GA):</b>   | The general aim of this research is to develop a unified conceptual model of organisational trust relationships with specific reference to the structure of the antecedents of trust within the construct of subordinates' trust.  |              |
| <b>Literature aim (L<sub>A</sub>):</b>   | <p>(L<sub>A</sub>1): Describe the concept of trust (as found in the scientific literature).</p> <p>(L<sub>A</sub>1a): the increased importance of trust in the academic literature and also the importance of trust on a macroeconomic and organisational level</p> <p>(L<sub>A</sub>1b): how the academic literature defines trust and the supported models of trust (This includes the different types of trust that have been described and the process of trust development and destruction.)</p>  | Chapter<br>2 |
| To investigate the trust literature so as to assess the viability of, and procedure of how to, integrate the Martins (2000) and Mayer et al. (1995) models | <p>(L<sub>A</sub>2): Describe the practical implications of trust in organisations (as found in the scientific literature).</p> <p>(L<sub>A</sub>2a): the process of maintaining, enhancing and repairing trust relationships in organisations and specifically trust in leaders and other foci of trust</p> <p>(L<sub>A</sub>2b): the Martins (2000) model for managing trust and its components of personality and managerial practices as antecedents of trust</p> <p>(L<sub>A</sub>2c): South African trust research and the influence of different cultures on organisational trust relationships</p>   | Chapter<br>3 |
| <b>Empirical aim (E<sub>A</sub>):</b>  | <p>(E<sub>A</sub>1) investigate the trust relationship between employees and their supervisors as measured by an adapted version of the Trust Relationship Audit (Martins &amp; Von der Ohe, 2005) to re-examine any significant relationships and determine the internal consistency of the adapted Trust Relationship Audit</p> <p>(E<sub>A</sub>2) confirm the validity of the Martins (2000) model by means of a confirmatory factor analysis</p> <p>(E<sub>A</sub>3) re-classify the Trust Relationship Audit (Martins &amp; Von der Ohe, 2005) item pool into the three Mayer et al. (1995) antecedents of trust by determining which questions from the item pool focus on ability, benevolence and integrity as components of trustworthiness in the organisational trust relationship</p> <p>(E<sub>A</sub>4) empirically test a unified trust model by way of structural equation modelling (specifically structural regression) to find support for the theoretical model by way of conceptualising a unified trust relationship model that incorporates both the Martins (2000) antecedents of trust and the Mayer et al. (1995) components of trustworthiness</p> | Chapter<br>5 |

## 6.1 Revisiting the aims of the study

As a first step in this chapter, the aims set originally in Chapter 1 are revisited to assess whether they have been addressed as promised. For the sake of clarity,

Table 6.1 was compiled to organise into a convenient format the information pertaining to the research question, the general aim and the specific aims as stated in Chapter 1. This overview can serve as a hierarchical and integrated outline of the current study.

In short, the literature aim ( $L_A$ ), namely to investigate the trust literature and assess the viability of, and procedure of how to, integrate the Martins (2000) and Mayer et al. (1995) models was addressed in chapters 2 and 3. More specifically: the first literature sub-aim, namely to describe organisational trust as a concept found in the scientific literature ( $L_{A1}$ ), was addressed in Chapter 2. This aim again consisted of two specific aims – ( $L_{A1a}$ ) and ( $L_{A1b}$ ). The increased importance of trust in the academic literature and the importance of trust on a macroeconomic and organisational level ( $L_{A1a}$ ), as well as the definitions and accepted models, and the process by which trust is built or broken ( $L_{A1b}$ ) were addressed in Chapter 2. In Chapter 3, this information was used as the basis for addressing the next literature aim, namely to describe the practical implications of trust in organisations as found in the scientific literature – i.e. the manifestation of organisational trust in the real-world working environment ( $L_{A2}$ ). The aims that were specifically addressed concerned the process of maintaining, enhancing and repairing trust relationships in organisations and specifically trust in leaders and other foci of trust ( $L_{A2a}$ ); the Martins (2000) model for managing trust and its components of personality and managerial practices as antecedents of trust ( $L_{A2b}$ ); and lastly, South African trust research and the influence of different cultures on organisational trust relationships ( $L_{A2c}$ ).

These two literature chapters prepared the theoretical foundation for the conceptual framework on which the coding guidelines and the structural equation models were based. The coding guidelines were used to address the third specific empirical aim, which entailed “re-classify the Trust Relationship Audit (Martins & Von der Ohe, 2005) item pool into the three Mayer et al. (1995) antecedents of trust by determining which questions from the item pool focus on ability, benevolence and integrity as components of trustworthiness in the organisational trust relationship” ( $E_{A3}$ ; see Section 5.5 for evidence). However, this step could only take place after the first empirical aim had been addressed in Chapter 5 (see Section 5.4), namely to “investigate the trust relationship between employees and their

supervisors as measured by an adapted version of the Trust Relationship Audit (Martins & Von der Ohe, 2005) to re-examine any significant relationships and determine the internal consistency of the adapted Trust Relationship Audit” (E<sub>A1</sub>; see Section 5.3 for the detail).

The theoretical trust literature mentioned above will be integrated in subsequent sections of this chapter. This will serve as the critical foundation upon which the conceptual model is developed and the empirical findings are ratified. Structural equation modelling (SEM) (i.e. confirmatory factor analysis (E<sub>A2</sub>; discussed in Section 5.4 and further) and structural regression analysis (E<sub>A4</sub>; discussed in Section 5.7 and further) as addressed in Chapter 5) cannot be used responsibly if the above theoretical justification is not present. This because SEM is theory driven and all model specifications have to be subservient to this theory-based approach (Ho, 2006, p. 283). Furthermore, as SEM is considered a theory-testing approach, it is considered unacceptable to improve model fit via a statistical “manipulation” such as being guided by modification indices (Arbuckle, 2012, p. 110; Hair et al., 2010, p. 714; Hooper et al., 2008, p. 56; Kline, 2011b, pp. 216-217), as such an approach could be considered as capitalising on chance.

## **6.2 The way forward**

The theoretical foundation is furthermore incorporated into the sections that are to follow in this chapter, and the empirical results from the previous chapters – although also theory based to a lesser degree – are integrated in greater detail and brought into context. Next, these integrative findings are used as a basis for the factual and conceptual conclusions. Where these latter sections address the aims as set in Chapter 1 and summarised in

Table 6.1, specific reference to them will be made. In summary, the literature aims as addressed in chapters 2 and 3 constitute the basis for all specifications in Chapter 5. These are incorporated into the integrated findings, factual conclusions and fundamental theoretical (conceptual) conclusions in Chapter 6 that address the findings of the empirical study (chapters 4 and 5). Seeing that this study also entails the development of a conceptual model based on the empirical study, the sections subsequent to the integrative findings address the factual, interpretive and conceptual conclusions as suggested by Trafford and Leshem (2012).

As the various models proposed in Chapter 5 differ from the original conceptual framework and the model proposed in Chapter 4, the next section will link this empirical structural regression model back to the literature. This will ensure that no theoretically unfounded

assumptions are represented in the final model as represented in Model 18a (see Figure 5.15) and conceptualised in Figure 5.18, where the “Model of trust in direct supervisor/manager” is presented graphically. This conceptual model represents the hypothetical relationships that need to be confirmed through a scientific theoretical appraisal based on the relevant literature. The proposed model also has implications for human resources processes that fall under personnel psychology – specifically aspects of recruitment and selection and human resources development.

### **6.3 Integrated findings**

In this section the different models reported in previous research and the new suggested model are compared in terms of general underlying trends. If general relationships are replicated and there are no substantial contradictions between the loading patterns in the different structural equation models, then this would be an indication of the theoretical validity of the model. This would be a comprehensive indication that the specific empirical aims as stated in Table 6.1 have been addressed.

One aspect that stands out when inspecting Model 18a is the fact that there are very high intercorrelations between the latent variables that represent the ability, benevolence and integrity dimensions. In their meta-analysis of 132 independent samples, Colquitt et al. (2007, p. 919) encountered the same phenomenon. In both Colquitt et al. (2007) and the current study, these dimensions of trustworthiness still had significant relationships with trust, but low or negative regression weights. This might be an indication that although the ABI measures are conceptually different, they might not be that different in the minds of the respondents (Colquitt et al., 2007, p. 920). This is supported by the fact that the integrity and benevolence dimensions combined in the case of managerial practices to form the more affective behavioural dimension (B\_I\_MP).

The Martins model as adapted (Figure 5.4) and the new model (Model 18a in Figure 5.15) are both based on the same data, and when a comparison is drawn between them, it becomes clear that in both cases managerial practices explain more of the trust construct than of personality. This relationship also holds for the minimalist model (Model 19a in Figure 5.16) and the original Martins (2000) data. In all cases, the standardised regression weights (SRW) for the personality items are between half to a third of the value of the SRW for managerial practices. This would mean that managerial practices in general explain around double the amount of variance in trust when compared to personality. The residual of the trust construct is furthermore relatively stable in all the studies at around a third of the

variance in trust, which is attributed to measurement error or influences from other variables or constructs outside the models under consideration. Table 6.2 contains a short summary of the main values discussed above. Seeing that all the studies used different samples, the warning by Grace and Bollen (2005, p. 291), namely that the standardised coefficients are dependent on sample variances that may differ from sample to sample or even from the population values as such, needs to be taken into account when comparing these values.

**Table 6.2. Comparison of standardised regression weights (SRW) between models**

| <b>Model</b>                          | <b>SRW main personality construct</b> | <b>SRW main management practice construct</b> | <b>Residual in Trust constructs</b> |
|---------------------------------------|---------------------------------------|---|-------------------------------------|
| Martins (2000)                        | 0.24<br><i>Big Five</i>               | 0.56<br><i>Managerial Practices</i>           | 0.21                                |
| Martins (2014)<br>adapted replication | 0.28                                  | 0.60  | 0.27                                |
| Model 18a                             | 0.27<br><i>Integrity FFM</i>          | 0.69<br>(0.90-0.21)                           | 0.36                                |
| Model 19a                             | 0.25<br><i>Integrity FFM</i>          | 0.50<br>(0.41+0.09)                           | 0.28                                |

The SRW values reported in Table 6.2 can be used to compare basic regression equations for the various models. Using the independent variables by way of the indicator variables, the SRW can be used to replace the traditional  $\beta$  values (Cunningham & Wang, 2005, p. 2) to predict the criterion or dependent variable (*Trust*). From this, a regression prediction equation can be developed. When interpreting the results of a structural regression model, the researcher must remember that a good model fit does not imply strong prediction or causality. Nachtigall et al. (2003, p. 15) point out that a good model fit might even indicate that the variables used have a low predictive validity with regard to the latent construct we want to predict.

Most of the studies by Martins and colleagues (Martins, 2000; Martins, 2002; Van der Berg & Martins, 2013; Von der Ohe et al., 2004) display the same pattern, where Management Practices load on Trust to a higher degree than the FFM (also true for Model 18a). In the next sections, these loading patterns between MP and FFM and Trust will be examined separately. An interesting aspect that has not been touched on in this study concerning perceived trustworthiness was investigated by Lapierre (2007), who was concerned about the (indirect) effect of a supervisor's perceived benevolence towards the trustors' peers or co-workers. A laboratory experiment confirmed the indirect and secondary role of supervisor

*ability* on trust – in this case a less significant impact was identified than perceived benevolence of the supervisor and perceived benevolence of the supervisor towards the trustors' peers (Lapierre, 2007, pp. 289-290).

At this point, the research question (**RQ**) is answered as the above structural regression weights are a direct indication of how the item pool of the Trust Relationship Audit can be recoded and used to predict the trustworthiness of direct supervisors or managers, in other words “how can the (1) perceived personality characteristics, and (2) perceived managerial practices of the direct supervisor or manager be used to determine ability, benevolence and integrity as components of trustworthiness or antecedents of trust in the person to whom the employee reports.”

Yakovleva et al. (2010, pp. 85-86) make some interesting observations based on the unexpected interaction effects they witnessed in their study on virtual co-worker trust. These effects can explain certain findings in the current study. Perceptions of *ability* are probably based on more objective criteria and are likely more cognitively based than perceptions of integrity and benevolence. The latter depend more on perceptions of reciprocity and as such are probably related to the affective dimension of trust since it is relationship based. The concepts of sharing important information and ideas, discussing problems and expressing care and concern through interpersonal directed citizenship behaviour are all classified as indicative of an affective type of trust (Gausdal, 2012, p. 11). This is confirmed when the specific content of the nine items that represent the combined *Benevolence* and *Integrity* managerial practices construct (B\_I\_MP) are considered:

- ... reveals important facts\*
- ... has good intentions
- ... listens and clarifies\*
- ... is there when needed
- ... supports me when needed
- ... keeps promises,
- ... tells the truth about the future\*
- I can believe what ... says
- I know what ... expects\*

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\*represents items with an information-sharing or communication content

As the above items are very affective in nature, the factor could be seen as relating to **managerial concern** or engagement. The latter term has become somewhat of a buzz word (Schaufeli & Bakker, 2010, pp. 10-11) and is used in the more restrictive traditional sense of the term as defined in the Merriam-Webster Dictionary – “emotional involvement or commitment” – which is the traditional definition of engagement and must not be confused with work engagement or employee engagement as organisational psychological concepts. In this context it concerns only the affective component.

A calculation based on Model 18a reveals that the average unexplained variance for this factor is 41%, which could be error or attributable to another factor that has not yet been identified. In the original Martins (2000) model, the information-sharing factor related specifically to feedback associated with the performance of the trustor (q47) or the trustee (q69) and the honesty of feedback (q55), while in the current model this aspect is not present. Nevertheless, at least five items in the list above seem to be related to some form of **communication** or information sharing (see items marked with \* above). This will be discussed in more detail in Section 6.1.5 where the link is made to the findings related to managerial trustworthy behaviour by Reiche et al. (2014).

In the case of the two managerial practices factors, the affective/cognitive split could possibly explain why the *B\_I\_MP* items loaded on one factor (while the more cognitive *Ability MP* factor had its own unique loadings) but not directly on *Trust*, where the loading was negative.

The negative loading of the ability-linked management behavioural factor on Trust probably has its origin in the nature of the items selected by the subject matter experts to represent *Ability MP*. Most of the *Ability MP* items had their origin in the team management factor in the Martins (2000) model. These items are strongly directed on organisational performance and could be equated to the direct managers' or supervisors' **managerial ability** (see Table 6.4). If this person to whom the respondent reports is rated high on these items, it does not follow that the trustor should trust him/her to a higher degree. Most likely, the high rating would only indicate that the trustee is doing his/her job well and is looking after the welfare of the organisation and not the trustor. This becomes clear when looking at the items themselves:

- ... analyses problems
- ... ensures acceptable performance
- ... is self-disciplined
- ... conducts effective meetings

- ... handles conflict well
- ... ensures same goals

From the number of active verbs included in the items it is clear that behaviour is a key to this component. In terms of Gausdal (2012, p. 11), **behaviour** such as the above is seen as reliable and dependable role performance by a superior, in other words indicative of cognitive trust. In contrast – if the above behaviour is rated as unlikely to occur, as is often the case in highly bureaucratic environments, the trustor feels that there is external control and hence there is a lower trust-commitment relationship (Gellatly & Withey, 2012, pp. 42-43). Even when there is little possibility for self-determination by employees, the manner in which managers act (all the more so in highly bureaucratic environments) still leaves the way open for trust in the organisation and in its representatives (the latter in the form of the supervisors and managers).

Another possible explanation of the negative loading for managerial ability could be that if a supervisor ensures acceptable performance and is self-disciplined, it might not directly encourage trustors to make themselves more vulnerable and expose themselves to higher risk (in other words trust). However, according to Model 18a the fact that a supervisor is considered competent is a **co-requisite** for a high level of *B\_I\_MP* ( $r = 0,97$ ). This could be explained as follows: if the trustor is under the impression that the person to whom he/she reports has the necessary management ability, then management behaviour based on the more affective or emotive issues can be present. Causality might not become clear from this model, but it seems that a manager's ability alone can lead to low trust. However, management ability via *B\_I\_MP* has the major predictive loading on trust (SRW= 0,90).

Conceptually it makes sense to split Model 18a into the perceived personality characteristics of the direct supervisor or manager on the one hand and the latter's managerial practices on the other, although statistically there is no such difference. While the five antecedents of trust are all on the same level, for clarity's sake the personality aspects will be discussed first, followed by the managerial practices. This split into personality traits as representative of character (McCrae et al., 2013, p. 832) and behaviour also enables the practicing industrial psychologist to target specific trust-enhancing or trust-building interventions according to the specific group or individual profile.

On another level – when it comes to the explanation of the split between FFM and MP antecedents, Saunders et al. (2014, pp. 659-660) realised that different foci can influence trustors in dissimilar ways. They found that even in situations where there was distrust in

others and the organisation, the personality (*conduct and character*, Saunders et al., 2014, p. 660) of an immediate line manager or colleague (FFM) could sustain high trust levels in that specific relationship in a high distrust environment. They do however warn that actions (*behaviour*) by more senior management can have a negative impact on and weaken this relationship. This highlights the behavioural dimensions of the split in antecedents.

### 6.3.1 *Perceived personality characteristics as antecedent of trust*

In the FFM measurement model in Chapter 5, all the indicators for *Ability* have their origin in *Resourcefulness*, the indicators for *Benevolence* originate in *Agreeableness*, and the indicators of *Integrity* in *Conscientiousness*. The important aspect to keep in mind when linking the personality-based antecedents of trust (as found in this study) to the general personality literature is that although *Ability FFM* is only represented by *Resourcefulness* items, *Benevolence FFM* by *Agreeableness* items and *Integrity* by *Conscientiousness* items, these items were specifically included for their capacity to represent the antecedents of trust. The items do not represent the personality factor as such anymore, but rather a specific facet of the relevant personality factor.

In agreement with the current study where *Conscientiousness* (as represented by *Integrity FFM*) has the strongest direct predictive power of trust, Furumo, de Pillis and Green (2009, p. 44) found that besides *Conscientiousness*, the dimensions of *Agreeableness* and *Extraversion* also predicted trust for individuals in virtual teams, while only *Extraversion* predicted trust in co-located teams.

As discussed in Chapter 3, Mooradian et al. (2006, p. 534) empirically related *Agreeableness* to interpersonal trust in management (SRW = 0,43), while Matzler et al. (2011, p. 305) found a high relationship between *Agreeableness* and affective commitment (SRW = 0,48). In the case of *Conscientiousness*, Matzler et al. (2008, p. 308) did not include interpersonal trust itself but found additional relationships between *Conscientiousness* and *Openness*, and Matzler et al. (2011, p. 305) found a high relationship between *Conscientiousness* via “Documentation of knowledge” to knowledge sharing. The latter again proved to be a strong indicator of interpersonal trust. In considering this series of studies from a holistic perspective, they confirmed the importance of both *Agreeableness* and *Conscientiousness* for interpersonal trust in a manager.

Lee and Selart (2011, p. 9) link trust to emotional intelligence as the latter has a positive relationship with *Agreeableness*, and Mooradian et al. (2006) associate *Agreeableness* with

trust. Employing the same argument, the current unified trust model can link *Benevolence* to emotional intelligence by inference, seeing that the items that represent *Benevolence FFM* in the unified trust model were originally indicators of *Agreeableness* in the Martins (2000) model (see Table 6.3). In an organisation where benevolence has been identified as a problem, management could engage the services of a person high in emotional intelligence to take this position. This information could also be used for selection decisions in this context – for instance when creating project teams.

**Table 6.3. Personality-based items in the unified trust model**

| Model 18a       | Martins (2000) Factor | Item number and content          |
|-----------------|-----------------------|----------------------------------|
| Ability FFM     | Resourcefulness       | q29 Dull vs Intelligent          |
| Ability FFM     | Resourcefulness       | q30 Unimaginative vs Creative    |
| Ability FFM     | Resourcefulness       | q31 Conventional vs Innovative   |
| Ability FFM     | Resourcefulness       | q32 Indifferent vs Curious       |
| Benevolence FFM | Agreeableness         | q15 Cold-hearted vs Warm-hearted |
| Benevolence FFM | Agreeableness         | q16 Unfriendly vs Friendly       |
| Benevolence FFM | Agreeableness         | q17 Rude vs Tactful              |
| Benevolence FFM | Agreeableness         | q19 Insensitive vs Sympathetic   |
| Benevolence FFM | Agreeableness         | q21 Mean vs Gentle               |
| Benevolence FFM | Agreeableness         | q22 Opposing vs Cooperative      |
| Integrity FFM   | Conscientiousness     | q01 Irresponsible vs Responsible |
| Integrity FFM   | Conscientiousness     | q02 Undependable vs Dependable   |
| Integrity FFM   | Conscientiousness     | q05 Lazy vs Hardworking          |
| Integrity FFM   | Conscientiousness     | q06 Dishonest vs Honest          |
| Integrity FFM   | Conscientiousness     | q18 Deceitful vs Trustworthy     |

In Table 6.3 it is interesting to note that in the structural regression model, item *q18 Deceitful vs trustworthy* again loaded on *Conscientiousness* and not on the *Agreeableness* personality factor as was the case in the initial replication of the Martins (2000) model in Chapter 5. It has ‘moved back’ to the original Martins (2000) factor. This is contrary to the findings in the literature, for instance Rammstedt and John (2007, p. 207) who report correlations between *Trust* and *Agreeableness* of between 0,60 and 0,63.

Concerning the negative loadings of both *Ability* antecedents, an explanation may be found in Costigan, Insinga, Berman, Kranas and Kureshov (2013, p. 101) who contend that if a direct leader is deemed incompetent, the affected employee as a subordinate could feel more vulnerable and afraid of negative consequences (and might even resign). On the other hand, if the direct supervisor or manager is seen as competent (high ability), then these risks

become less and the employee can concentrate on the direct supervisor's integrity and benevolence.

Colquitt et al. (2007, p. 918) found that only *Integrity* showed a significantly stronger relationship with trust in the leader, compared to other antecedents and outcomes and co-workers as foci. This confirms the relative importance of *Integrity* when it comes to the relationship with trust in the direct supervisor or manager in the current study. In contrast to this, Wasti et al. (2011) found in a qualitative study that *Benevolence* was more important in both China and Turkey, as it had more affective indicators – not only work-related culture-specific indicators. The implications of this finding will be discussed in the next section where the influence of culture on trust will be examined in greater detail.

#### 6.3.1.1 *FFM across cultures*

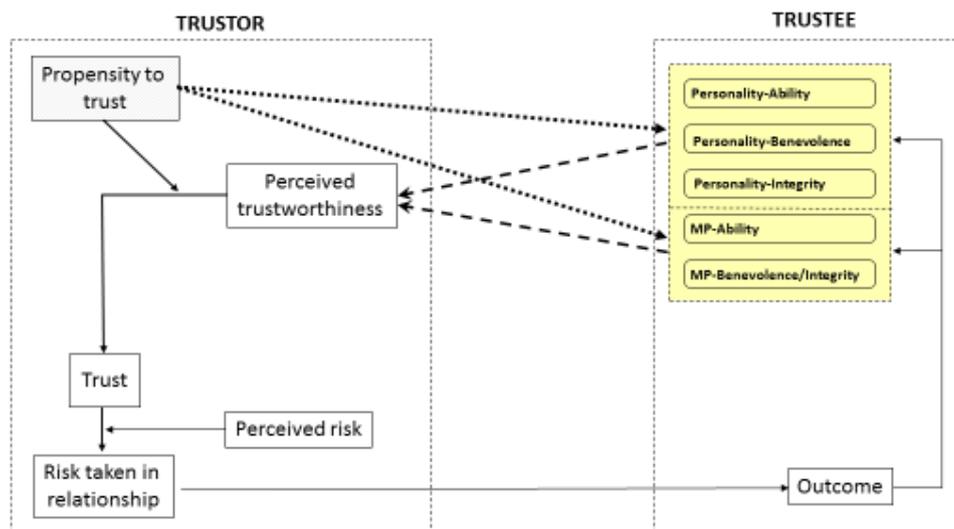
As discussed in previous chapters, the FFM was found to be stable across cultures (Zecca et al., 2013, p. 685). In the African context it was found that there is no significant difference between the personality structure of a francophone African sample and a Swiss sample. In the nine French-speaking countries concerned, the five-factor structure replicated itself although "Agreeableness and Extraversion were recombined in two factors that can be interpreted as Love versus Hate and Submission versus Dominance" (Zecca et al., 2013, p. 691). In general, the personality trait patterns are more stable across geography (Allik & McCrae, 2004, p. 20) and gender in Africa than in Europe (Schmitt et al., 2007, p. 178). Compared to nine other world regions, African nations have been found to score significantly higher than other regions on Agreeableness and Conscientiousness and significantly lower on Neuroticism (in other words high Emotional Stability) and lower on Openness (Schmitt et al., 2007, pp. 198-199). The score on Conscientiousness needs to be interpreted with caution as it is a very broad factor with many facets (Möttus, Allik & Realo, 2010, p. 639) and it is related to criteria such as corruption (Oishi & Roth, 2009, p. 108).

#### 6.3.1.2 *Propensity to trust*

As was seen in the initial literature chapters and the unified trust model (see Section 2.5.1 and Figure 6.2), a fundamental component of the Mayer et al. (1995) integrative model of organisational trust is the propensity to trust, in other words a trustor's "general willingness to trust" (Mayer et al., 1995, p. 715). In the above unified trust model, the propensity to trust is clearly identified as another probable influence on workplace trust. Propensity to trust is a "generalized belief about the trustworthiness of others" (Knoll & Gill, 2011, p. 314) and is a

situational stable trait that is associated with the trustor (Markovic, McAtavey & Fischweicher, 2014, p. 105). As such, it is determined by personality type and the trustor's background (for instance cultural and developmental background).

The Trust Relationship Audit does not measure the propensity to trust, since it is an inherent characteristic of the trustor and the instrument concentrates on the characteristics of the trustee. The original premise when developing the instrument was that practitioners in the field are concerned about the personality and behaviour of the line manager or direct supervisor of the trustee, as these are the variables that an industrial psychologist could legitimately address through interventions based on the performance contract of the line manager. The focus is on the unit we can change – the trustee as represented on the right-hand side of Figure 6.1.



**Figure 6.1. Model of organisational trust generation**

Adapted from Parra et al. (2011, p. 608)

The current study investigated the impact of the trustee's characteristics (as perceived by the trustor) on the perceived trustworthiness of the trustee. The heavy dotted arrowline leading from the trustor's propensity to trust to the perceived characteristics of the trustee on the right is what needs to be included in future research. The propensity to trust is given in most cases and if known by other stakeholders such as supervisors and the industrial psychologist, then they can design their trust-building or enhancement interventions accordingly. On the other hand, if new teams need to be formed, the appropriate level of

propensity to trust can be taken into account when selecting the team members. This would for instance differ between co-located teams and virtual teams, as in the latter case agreeableness, conscientiousness and extraversion seem to indicate higher levels of resulting trust (Furumo et al., 2009, p. 36).

### 6.3.1.3 Future research about the propensity to trust

A suggestion for future research would be to combine one of the newer and reliable propensity-to-trust scales (such as the one developed by Ashleigh et al. (2012)) with the Trust Relationship Audit (Martins & Von der Ohe, 2005) to determine the interaction between the trustors' characteristics and their consequent evaluation of the trustworthiness of different trustees (or foci of trust) from a personality as well as a managerial practices viewpoint. Mooradian et al. (2006, p. 3) define propensity to trust as "a generalised and enduring trait, related to temperament and genetics, which is not person, context or lifetime dependent". As Ashleigh et al. (2012) used this definition when developing their measure of propensity to trust, it is an important tool to isolate the effect of personality versus the environment on the current trustworthiness model (Markovic et al., 2014, p. 105).

In the context of selection, it would be of value to investigate the influence of the propensity to trust on job success for different occupational groups. For instance, one could examine whether a lower propensity to trust would make for more successful auditors and security personnel (Ashleigh et al., 2012, p. 372)?

As the propensity to trust has personality, experience and culture as antecedents, this effect might not be easy to isolate, but it might manifest through the differences between task-oriented and relationship-oriented cultures and the cultural differences concerning uncertainty avoidance (Schoorman et al., 2007, p. 351). On the other hand, as mentioned in Chapter 4 (section 4.2.9), Yakovleva et al. (2010, p. 85) found that there is a reciprocal relationship between the propensity to trust and trustworthiness. Integrity and benevolence showed a higher reciprocal effect in a virtual team context, while ability was important in the context of face-to-face teams. An additional benefit of measuring propensity to trust in future would be that this trait can be used as a control variable. Such follow-up study should include indicator variables that could mediate between ABI as antecedents of trust and the propensity to trust with *Trust* itself. The effect that propensity to trust (as a moderator variable) has on all the other latent variables can then be investigated via structural equation modelling (Fricker, Kulzy & Combs, 2014, p. 17).

Although Bergman, Small, Bergman and Rentsch (2010, p. 389) investigated the personality of the trustors – and not the perceived personality of the trustees as is the case in this study – their results are still of value as they found that high *Extraversion* and *Emotional Stability* (together with high propensity to trust) on the part of the trustor was associated with higher ratings of trustworthiness of others in temporary teams. Although interpersonal theories would suggest that high *Agreeableness* on the part of the trustor would correlate with a tendency to rate team members as trustworthy, this was not the case (Bergman et al., 2010, p. 384 & p 389). In the case of Model 18a, this link exists via the Martins (2000) model, where the perceived *Extraversion* of the person being reported to has the highest loading (0,84). With a factor loading of 0,76, *Emotional stability* also contributed significantly to the prediction of *Trust*. Interestingly, these two personality factors are precisely the two factors that are absent from the current model and are not used to predict the trustworthiness indicators of ABI. A hypothesis that could be investigated is whether *Resourcefulness* (Ability FFM), *Agreeableness* (Benevolence FFM) and *Conscientiousness* (Integrity FFM) as perceived characteristics of the trustee are strong representations of the antecedents of trust, while *Extraversion* and *Emotional Stability* as characteristics of the trustor are antecedents of *Propensity to trust*.

### 6.3.2 Managerial practices: Affective and cognitive?

In the case of the personality-based antecedents of trust, each of the components or elements representing ability, benevolence and integrity could be identified as separate latent constructs as postulated in Mayer et al.'s (1995) *Integrative Model of Organizational Trust*. When it comes to the managerial practices, in other words the more behaviour-based components, this was not the case. *Ability* had a negative loading while *Benevolence* and *Integrity* combined to form the single strongest predictor of trust.

This clustering of benevolence and integrity has however been found before in various settings such as between co-workers in virtual teams (Jarvenpaa et al., 1998, p. 26; Yakovleva et al., 2010, p. 85), while in the case of trust in a supervisor, Knoll and Gill (2011, p. 326) found that “benevolence and integrity were significantly more important than ability”. Fricker et al. (2014, p. 22) confirm the findings of Jarvenpaa et al. (1998) and Mayer and Gavin (2005) and report that they also could not separate the trustworthy factors aimed at benevolence and integrity in their study. However, they concede that their results could have been tainted by problems with their survey items. Even the original model by Mayer et al. (1995, p. 720) referred to Gabarro's bases of trust, which included a concept called “character” of the trustee – a concept that includes integrity, according to Mayer and

colleagues. If the trustworthiness dimensions are highly correlated (as is the case in this study), Colquitt et al. (2007, p. 917) argue that Gabarro’s work from 1978 suggests that benevolence and integrity can be combined into one “character variable” on a conceptual level. Colquitt et al. (2007, p. 909) also refer to the fact that literature has often defined trustworthiness as “a multifaceted construct that captures the **competence** and **character** of the trustee” (emphasis added). In the unified trust model this is reflected by the split in the managerial practices between *Ability MP* (competence) on the one hand and *B\_I\_MP* (character) on the other hand. The latter latent managerial practices construct representing integrity and benevolence. On an item level, it is apparent that the managerial ability items are very performance orientated and as such fall under the management of teams in the Martins (2000) model (see Table 6.4 below).

**Table 6.4. Managerial practices-based items in the unified trust model**

| Model 18a  | Martins (2000) factor | Item content                           |
|------------|-----------------------|--|
| Ability MP | Credibility           | q43 S analyses problems                |
| Ability MP | Team management       | q50 S ensures acceptable performance   |
| Ability MP | Team management       | q51 S is self-disciplined              |
| Ability MP | Team management       | q52 S conducts effective meetings      |
| Ability MP | Team management       | q56 S handles conflict well            |
| Ability MP | Team management       | q59 S ensures same goals               |
| B_I_MP     | Trust                 | q37 S reveals important facts          |
| B_I_MP     | Trust                 | q39 S has good intentions              |
| B_I_MP     | Trust                 | q40 I can believe what S says          |
| B_I_MP     | Credibility           | q42 S listens & clarifies              |
| B_I_MP     | Work support          | q44 S is there when needed             |
| B_I_MP     | Team management       | q60 I know what S expects              |
| B_I_MP     | Credibility           | q62 S keeps promises                   |
| B_I_MP     | Work support          | q65 S supports me when needed          |
| B_I_MP     | Credibility           | q67 S tells the truth about the future |

S = The person I report to

In contrast to the *managerial ability* items (Ability MP), the *managerial concern* items (B\_I\_MP) had their origin in numerous different factors in the Martins (2000) model. From Table 6.4 it is apparent that the items representing managerial concern had their origin in factors that represented the credibility of the direct supervisor or manager and an underlying trust. These items seem to refer to the “softer” issues such as intentions, believes, promises and needs. This finding links back to the original work published by McAllister in 1995 that proposed a cognitive and affective dimension of trust (see Chapter 2). Yakovleva et al. (2010, p. 86) also suggest that “[i]t seems likely that perceptions of integrity and

benevolence are more closely related to the affective dimension of trust, whereas ability is more closely related to the cognitive dimension of trust”.

In a study concerning trust in government that was conducted in four West-African countries, Fricker et al. (2014, pp. 22-23) did not find a clear split between the elements or constructs of trustworthiness either. In their case they found second-order latent variables representing ability and a **combined** benevolence and integrity factor. In their view, the fact that benevolence and integrity do not make a unique contribution to trust confirms the findings of Jarvenpaa et al. (1998) and Mayer and Gavin (2005). These two earlier studies found that *Ability* became a weaker predictor over time and that *Integrity* best predicted virtual team trust, while benevolence hardly made any unique contribution (Jarvenpaa et al., 1998, p. 29). In the case of Mayer and Gavin (2005, p. 882) only ability and benevolence predicted trust in top management.

It is interesting to note that both the study by Jarvenpaa et al. (1998) and by Yakovleva et al. (2010) involved virtual teams, while Jarvenpaa et al. (1998) and Fricker et al. (2014) covered more than one country. The question that needs to be asked in this case is whether the fact that benevolence and integrity clustered together is an effect of the nature of the relationship (virtual or co-located) or culture. Another possibility is that the referent trustee (*focus of trust*) could effect this clustering since various studies recorded different contributions to trust by the three components of trustworthiness (Knoll & Gill, 2008; Mayer & Gavin, 2005).

Tables 6.2 and 6.3 are at the core of addressing the third empirical sub-aim (E<sub>A3</sub>), namely to re-classify the Trust Relationship Audit (Martins & Von der Ohe, 2005) item pool into the three Mayer et al. (1995) antecedents of trust by determining which questions from the item pool focus on ability, benevolence and integrity as components of trustworthiness in the organisational trust relationship.

### 6.3.3 *The role of ability in the unified trust model: The necessary evil?*

As already mentioned in Chapter 5, integrity loads directly on trust, the judgement of a supervisor’s personality-based ability has little effect, and a negative loading is found in the case of benevolence. In an indirect manner the findings by Knoll and Gill (2011) seem to support the current finding that *Ability* as an antecedent of trust in the supervisor is a prerequisite for trust. As a result of the differential loadings they found between ability, benevolence and integrity as antecedents of trust in different foci, Knoll and Gill (2011, p.

326) suggested that for peer and subordinate trust relationships it is important that the referent demonstrate his/her competence (ability). However in the case of trust in the supervisor, integrity and benevolence are the crucial antecedents and ability plays a subordinate role. In contrast to the current study where ability is a “necessary but insufficient condition for fostering trust”, Poon (2013, p. 396, pp. 402-403) found that if benevolence was high, ability and integrity predicted trust in the supervisor but not when benevolence was low. The study also found that the interaction effect indicated that ability and integrity could compensate for each other as long as benevolence was high. Poon (2013, p. 403) subsequently suggests that researchers should always investigate both affective and cognitive aspects of trust.

A further explanation for the high loading on the affective factor (and negative or low loading on ability as a more cognitive factor as is the case in the current study) can be found in the literature concerned with emotions in organisations. According to these theories, affect-based attitudes are stronger than cognitive attitudes and also predict future behaviour to a higher degree than attitudes based on cognitive processing – summarised by Elfenbein as “we trust our gut instincts better when that gut is better informed” (Elfenbein, 2007, p. 38; Weiss, 2002, p. 177). In terms of the unified trust model, this could be re-interpreted as “we can judge the affective trustworthiness of a trustee better if we have solid information about his/her competence”. This would also imply that if there is low perceived competence or ability, no high trustworthiness evaluation is possible – because in this context, a cognitive evaluation (managerial ability) is a prerequisite for an affective evaluation.

Regarding the relative importance of the different behaviours by leaders (or supervisors by implication) that either build or erode trust, Lapidot et al. (2007, p. 24) report that in the case of military commanders only 12,3% of behaviours that build trust were linked to *Ability*. Furthermore, 42,6% of trust-building behaviours were linked to *Benevolence*, and 28,8% were linked to *Integrity*. In the case of trust-eroding behaviours, Lapidot et al. (2007) found that behaviours linked to *Ability* and *Benevolence* occurred about equally frequently (21%) while in a reversal of importance, *Integrity* featured in nearly double as many incidents (37,9%). This indirectly confirms the relative less important direct effect of *Ability* on trust. It also shows that when it comes to building trust, benevolent behaviour is most important, while *Integrity* (and *Ability*) are linked to most types of trust-eroding behaviour. In contrast to the current study, in situations where the trustors’ welfare or health and safety is at risk (for instance in combat), the trustors are extremely vulnerable and *Ability* (or competence) contributes most to trust in the leader (Sweeny, 2010, p. S70).

The main implication of the above for the trust literature lies in the fact that the level of perceived ability in the supervisor is not a direct positive antecedent of trust, but rather has an effect on trust through the affective managerial practices in more relationship-directed societies.

#### 6.3.4 *Trust construct as criterion*

Although some authors recommend that the word “trust” itself should not be used in a trust questionnaire (Dietz & Den Hartog, 2006, p. 566), the analysis in Section 5.1.4 and especially in Section 5.3.3 negates this criticism somewhat, as the correlation and (more importantly) the communalities point to a large overlap. On the other hand, Colquitt et al. (2007, p. 920) as well as De Jong and Elfring (2010, p. 541) found very few systematic differences between their “indirect measures” and “direct measures” that would include the word *trust*. The advantage of including direct measures is that the researcher is sure that they are not contaminating their measurement by measuring perceptions of trustworthiness. In Model 18a the error variance of the unobserved endogenous variable that represents Trust is 36,4%, meaning that the predictors of *Trust* used in this model explain 63,6% of its variance – which is more than acceptable. According to Matzler et al. (2008, p. 309) an explained variance of 27% is generally seen in organisational research that investigates the effect of personality traits on diverse constructs such as job performance, organisational citizenship behaviour or job satisfaction.

Concerning internal consistency, Cronbach’s alpha for the two items that were used as indicators of the level of *Trust* in the direct supervisor and or manager (item b84; item b85) was reported as 0,752 (N= 2860) and is acceptable, since it corresponds with other trust scales.

In contrast to the current study, Martins (2000) originally used a separate scale to measure trust, but this was not used in the current study. The reason is that the direct measures were available and the subject matter expert classified these items as representing antecedents of trust, in other words indications of trustworthiness. As can be seen from Table 5.10, the Martins “trust items” (q36 to q40) once more loaded on one factor, which included the “I trust my immediate supervisor” item (b85). This makes sense as all the items focus on trust of the supervisor and on *Integrity*, as is clear from the previous section where the classification is reported (see especially Table 6.4).

Similarly, Mayer et al. (1995) originally defined trust as a voluntary willingness to be vulnerable to another party or take this risk; they had to use a unique set of items to measure what they defined as trust. Schoorman et al. (2007) describe the process to achieve satisfactory results on the basis of a four-item measure that in different settings had a Cronbach's alpha that varied from a high 0,82 to 0,59. Concerning evidence that theirs is a measure of a complex construct with high validity, they point to test-retest reliabilities of 0,75 (five-month period) and 0,66 (nine-month period), an average inter-item correlation of  $r=0,32$  and finally an average correlation of 0,38 between the individual items and a composite of the remaining three items. When this was expanded to ten items, they obtained higher alpha values, but discovered that they were now measuring two factors. A seven-item scale as reported in Schoorman et al. (2007) seemed more promising (Cronbach's alpha = 0,84) as it avoided redundant items that did not relate to their conceptual definition.

Based on these results, the criterion measure can be considered as reliable when compared to the original measures that were used to develop and refine the Mayer et al. (1995) model.

Determining criterion reliability is the last step to address the first empirical sub-aim (EA1), namely to investigate the trust relationship between employees and their supervisors as measured by an adapted version of the Trust Relationship Audit (Martins & Von der Ohe, 2005), to re-examine any significant relationships and to determine the internal consistency of the adapted Trust Relationship Audit.

### 6.3.5 *Factor structure*

The original objective as stated in Section 1.6.2 was as follows: "How can the components of trustworthiness, namely ability, benevolence and integrity as postulated by Mayer et al. (1995) be extracted from the item pool of the Trust Relationship Audit (Martins & Von der Ohe, 2005) that measures the five main personality dimensions; four managerial practices and the trust relationship according to Martins (2000) using a South African secondary database?" In practical terms, this meant that the Martins (2000) model (consisting of two constructs ("Big Five" and Managerial Practices) and nine subdimensions) had to be fitted into the three-factor model by Mayer et al. (1995). The nine subdimensions were to be reduced to the three components of trustworthiness (ability, benevolence and integrity) to function as observed endogenous variables that predict trust in the supervisor or direct manager.

An indirect validation of the unified trust model is provided by Reiche et al. (2014, p. 88) who “developed a new scale to measure the five-dimensional construct of managerial trustworthy behavior proposed by Whitener et al. (1998)”. Their multi-national study that covered 18 cultures also identified a five-factor model of which only one dimension, “sharing and delegation of control”, did not manifest in all the cultures. When the remaining four robust dimensions are compared to the dimensions in the current study, certain parallels can be drawn. The dimensions that Reiche et al. (2014) identified are listed below in Table 6.5, with the dimension from the unified trust model listed next to them. For ease of reference, item level information is reported for both the *Managerial Trustworthy Behavior Scale* by Reiche et al. (2014) and the present unified trust model.

**Table 6.5. Comparison of trustworthiness dimensions**

| <b>Managerial Trustworthy Behavior Scale</b>  | <b>Unified Trust Model Items</b>  |
|---|---|
| <b>Behavioural consistency</b><br>The behavior of ... is predictable.<br>The behavior of ... follows a logic.<br>... reacts in a similar way every time he/she faces the same type of problem.  | Not represented   |
| <b>Integrity</b><br>... always fulfills his/her promises.<br>... deals with me honestly.<br>... always tells the truth.   | <b>Integrity FFM (Conscientiousness)</b><br>Irresponsible vs Responsible<br>Undependable vs <i>Dependable</i><br>Lazy vs Hardworking<br>Dishonest vs <i>Honest</i><br><i>Deceitful</i> vs Trustworthy (Antonym for “truth”) |
| <b>Communication</b><br>... asserts his/her opinions in a convincing way.<br>... presents the ideas in an organized manner.<br>... explains his/her decisions with transparency.  | <b>Managerial concern (Benevolence/ Integrity)</b><br>... reveals important facts*,<br>... listens and clarifies*,<br>... tells the truth about the future*,<br>I know what ... expects*.                                   |
| <b>Concern</b><br>... actively searches for the well-being of his/her people.<br>... takes into account the interests of other people in his/her job.<br>... shows concern for the problems of his/her subordinates.  | <b>Managerial concern (Benevolence/ Integrity)</b><br>... has good intentions,<br>... is there when needed,<br>... supports me when needed,<br>... keeps promises,<br>I can believe what ... says                           |
| <b>Delegation</b><br>... gives his/her people autonomy in their job.<br>... does not exercise an excessive control over my work.<br>... lets me participate in decision making.<br>(Delegation - excluded)<br>... gives his/her people autonomy in their job.<br>... does not exercise an excessive control over my work.<br>... lets me to participate in decision making. | <b>Managerial ability (Ability)</b><br>... analyses problems<br>... ensures acceptable performance<br>... is self-disciplined<br>... conducts effective meetings<br>... handles conflict well<br>... ensures same goals     |
| <i>Not represented</i>  | <b>Ability FFM (Resourcefulness)</b><br>Dull vs Intelligent<br>Unimaginative vs Creative<br>Conventional vs Innovative<br>Indifferent vs Curious  |

---

*Not represented*

**Benevolence FFM (Agreeableness)**

Cold-hearted vs Warm-hearted

Unfriendly vs Friendly

Rude vs Tactful

Insensitive vs Sympathetic

Mean vs Gentle

Opposing vs Cooperative

---

Words in italics relate directly to concepts in the opposite column

... = my supervisor/ the person I report to.

\*represents items with an information-sharing or communication content.

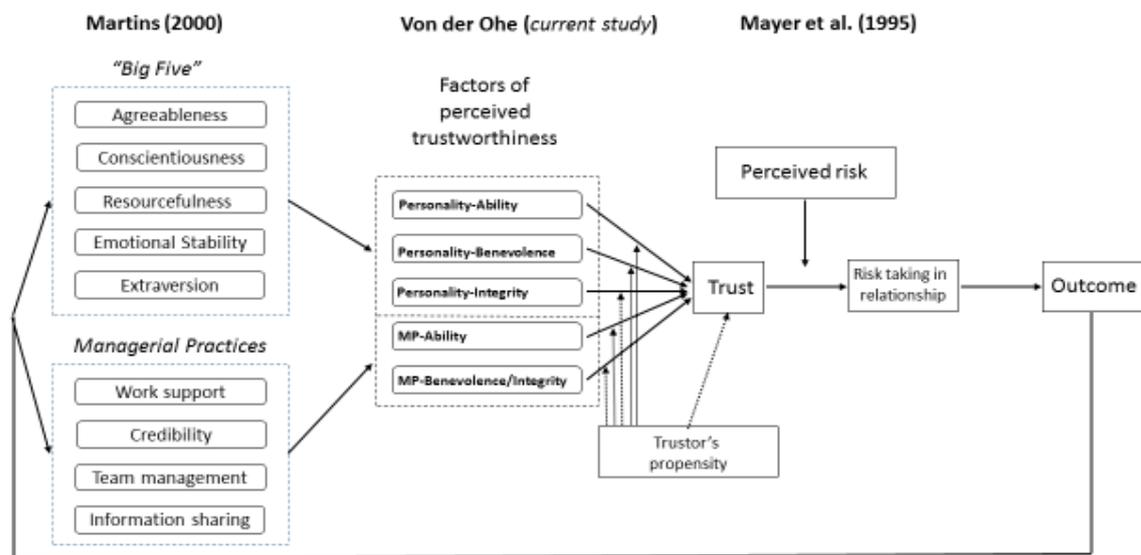
From Table 6.5 it becomes clear that certain dimensions overlap better than others, for instance communication, integrity and concern. In the case of delegation, which was not relevant in any of the 18 cultures Reiche et al. (2014) investigated, the problem might be linked to the fact that their items were too specific and only targeted the delegation aspect of managerial practices. If they had perhaps targeted broader behaviour, this factor might have been more robust. This is also probably due to the fact that their items are written very much from a task-driven paradigm, which would explain their findings relating to high collectivist cultures where managerial trustworthiness and OCB are not mediated by managers' affective trust in subordinates.

Another interesting finding is that both Martins (2000) and Reiche et al. (2014) found a distinct factor that concerned communication. Called *Information Sharing* in the Martins (2000) model, the items were heavily weighted towards performance management but they were not used in the current unified trust model. This finding supports studies by Cho and Poister (2013, p. 832; 2014, p. 191) who found that open communication made the largest contribution to the enhancement of trust, while performance appraisals as a human resources practice had the biggest impact on the trust relationship with a supervisor. In the current study the underlying aspects of communication represent nearly half of the items in the managerial concern factor. Future research, which is discussed later, needs to investigate how the Reiche et al. (2014) factor structure fits in with the unified trust model. A similar procedure followed in this study would probably be able to identify items in the current South African database that could represent the equivalent items from the *Managerial Trustworthy Behavior Scale*.

#### **6.4 Factual conclusion: Integration of Martins (2000) with Mayer et al. (1995)**

The general aim of this research was to develop a unified conceptual model of organisational trust relationships, with specific reference to the structure of the antecedents of trust on the total construct of subordinates' trust. In other words, the aim of this study was

to develop a model representing the antecedents of trust as manifested in the Martins (2000) model in the framework of the Mayer et al. (1995) model. This *unified trust model* can be represented diagrammatically as shown in Figure 6.2. The left-hand side represents the original point of departure (Martins, 2000), while the right-hand side represents the goal variables (Mayer et al., 1995).



**Figure 6.2. The Unified Trust Model**

The above model is a manifestation of the fact that the objective of this study was achieved – namely to develop a unified organisational trust model by integrating the South African Martins (2000) model with the generally accepted Mayer et al. (1995) model. *Specifically; how can the components of trustworthiness, namely ability, benevolence and integrity as postulated by Mayer et al. (1995) be extracted from the item pool of the Trust Relationship Audit (Martins & Von der Ohe, 2005) that measures the five main personality dimensions; four managerial practices and the trust relationship according to Martins (2000) using a South African secondary database?*

On a methodological level, the above unified trust model also addresses the general aim (GA) of this research, which was “to develop a unified conceptual model of organisational trust relationships with specific reference to the structure of the antecedents of trust within the construct of subordinates’ trust”.

The original model by Mayer et al. (1995) postulated three generic antecedents of trust: ability, benevolence and integrity. On the other hand, the structural regression model that

best fits the current data suggested five factors. **These factors still represent ability, benevolence and integrity, but they differentiate between antecedents that address beliefs about the personality or managerial practices attributed to the direct supervisor or manager.** Upon inspection of the items that represent the five constructs in the current study, it became evident that each of them could be classified as one of the following types of trust (as indicated in Table 6.6):

**Table 6.6. Factor components and descriptive names**

| <b>Factor (Scale)</b>     | <b>Components</b>   | <b>Descriptive name</b> |
|---------------------------|---|-------------------------|
| Ability FFM               | Cognitive judgement<br>Personality trait: Resourcefulness   | Inherent ability        |
| Benevolence FFM           | Affective judgement<br>Personality trait: Agreeableness     | Perceived benevolence   |
| Integrity FFM             | Affective judgement<br>Personality trait: Conscientiousness | Personal integrity      |
| Ability MP                | Cognitive judgement<br>Supervisory behaviour: hard issues   | Managerial ability      |
| Benevolence/ Integrity MP | Affective judgement<br>Engaged behaviour: soft issues       | Managerial concern      |

Linking Table 6.6 with the literature confirms that in this study both the perspectives contained in the definition of trust in leadership as suggested by Dirks and Ferrin (2002, p. 612) in their meta-analysis (i.e. a relationship-based perspective and a character-based perspective) can be accommodated in one model. According to this conceptualisation,

*individuals observe leaders' actions and draw inferences about the nature of the relationship with the leader (relationship-based perspective) and/or the character of the leader (character-based perspective).*

(Dirks & Ferrin, 2002, p. 614)

These authors classified the antecedents to relationship-based trust into three categories. The first one, namely "leader actions and practices" is of interest in this study, as this label seems to capture the nature of the two managerial practices (MP) latent variables quite well. Significantly, they report that these leader behaviours and "several management practices may be means of increasing trust in leadership" (Dirks & Ferrin, 2002, p. 622).

Considering the different loadings on trust by the various latent constructs, this study seems to answer the question posed by Dirks and Ferrin (2002, p. 622): is it more important for a leader to build a mutual relationship based on mutual obligations (relationship-based) or to demonstrate that he/she has a "good character"? As the loading for *Benevolence/ Integrity MP* (SRW= 0,90) is three times higher than the highest personality-based latent construct

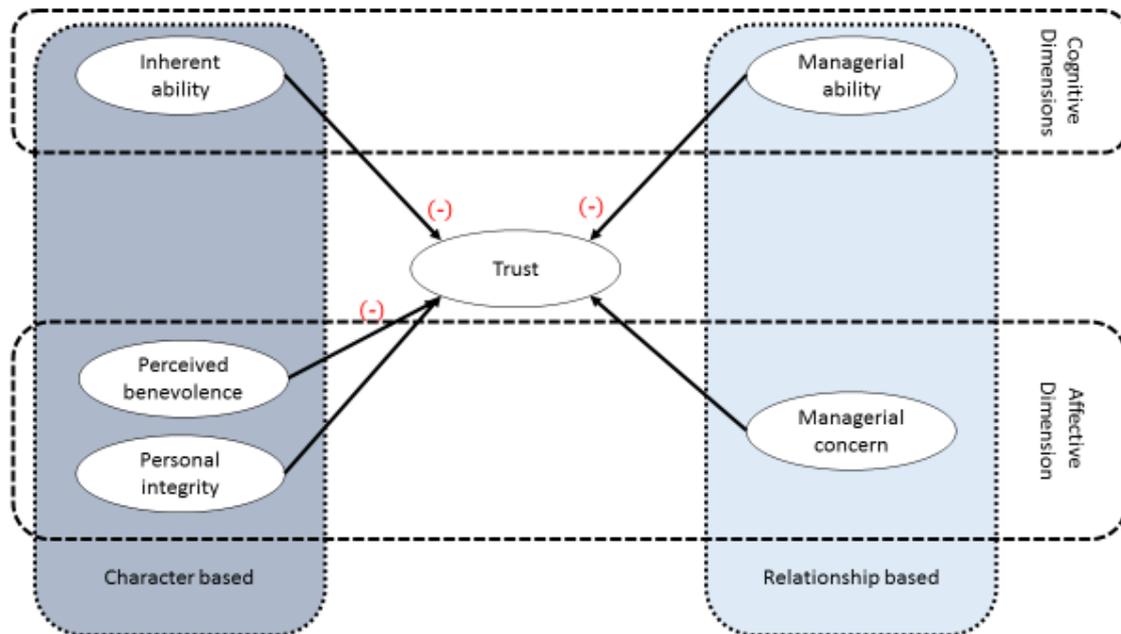
(*Integrity FFM*,  $SRW = 0,27$ ), the relationship-based behaviours will have a much bigger impact than the behaviours aimed at improving character perceptions.

It is important to note that Dirks and Ferrin (2002, p. 616) link integrity to cognitive-based trust, even though McAllister (1995, p. 28) hypothesises that cognition-based trust is linked to “reliable role performance”, which in the unified trust model relates to *Ability MP*. In the unified model’s case, the latter seems to make more sense – as does the classification of affect-based trust by McAllister (1995), which is founded on the emotional bond or ties between a trustor and trustee. McAllister (1995) criticised the commonly held belief that affective-based relationships are considered less important than task-oriented relationships in the workplace, as this led to a dearth of published information on a crucial aspect of social relationships in the workplace. This attitude of negating the importance of the affective component is based on the traditional Anglo-American view of the world of work and is discussed in Section 6.4.6 in greater detail. A recent study conducted in a Taiwanese environment confirms the importance of the affective component of trust in non-Western environments. Using McAllister’s (1995) trust scale, Huang (2012, p. E111) found confirmation that affective trust ( $SRW= 0,83$ ) and cognitive trust ( $SRW= 0,91$ ) both contribute significantly to trust in the immediate supervisor, although it is moderated by psychological empowerment (intrinsic rewards by the supervisor). In their theory-building process, Lewicki, Tomlinson and Gillespie (2006, p. 996) interpreted the work of McAllister as suggesting that cognitive trust precedes affective trust, which would confirm the role the cognitive *Ability* constructs seem to play in the unified trust model. Suffice to say at this point that the unified trust model emphasises the important role of the affective component when it comes to the antecedents of trust towards direct supervisors or managers in organisations in a South African context.

## **6.5 Conceptual conclusion: Antecedents of trust in the unified trust model**

This study advances prior trust research in several important ways. The model confirms that trust is a “single, superordinate factor, with cognitive, affective, and behavioral intention subfactors” (Lewicki et al., 2006, p. 997). It is based on multi-faceted reciprocal social relationships with each relationship based on a different cognitive and affective base as originally postulated by Lewis and Weigert (1985, pp. 969-970). The behavioural component (managerial practices) forms the basis of trust. If the trustor perceives trustworthy behaviour by the trustee, then the trustor will engage in risky behaviour (making themselves vulnerable, according to Mayer et al., 1995) or not (Lewis & Weigert, 1985, p. 971). Integrating Table 6.6

with Model 18a results in the conceptual model of the factors of trustworthiness as depicted in Figure 6.3.



**Figure 6.3. The antecedents of trust in the unified trust model**

Perceived managerial concern or engagement, as exhibited by the affective component of managerial practices, has the greatest impact on a trust relationship with the direct supervisor. It represents the perceived affective managerial relationship of the direct supervisor or manager with subordinates and relates to the “soft issues” in the relationship. The next most important factor that determines the trustworthiness of a direct supervisor or manager relates to the perceived character or personality traits of the trustor, specifically integrity. **High levels of personal integrity are required, as the trustor needs to be seen as conscientious to be trusted.**

Managerial ability and a perceived benevolence (*Ability MP* and *Benevolence FFM*) are both necessary preconditions for trust on their own. Being perceived as having high managerial ability or being perceived as a benevolent personality (as exhibited by high agreeableness) loads negatively on trust. Being seen as very able and/or benevolent will decrease levels of trust if everything else remains constant. However, they are both “necessary but not sufficient” conditions for interpersonal vertical trust. In programming terms, this would denote that *if* there is ability *then* there **can** be benevolence/integrity. This is evident from the high intercorrelations between the factors. In the language of logic, this would represent “*X is necessary but not sufficient for Y*” (<http://philosophy.hku.hk/think/meaning/nsc.php>), or in the

case of this study, “managerial ability and a perceived benevolent personality are necessary but not sufficient for trust”. High scores on the two factors with negative path coefficients (*Ability MP* and *Benevolence FFM*) still lead indirectly to high trust scores as the negative loadings are compensated for by the **larger** path coefficients of the positive factors (also high because of the high multicollinearity). Conversely, this also means that very low scores on *Ability MP* and *Benevolence FFM* would seemingly avoid the direct negative loadings on *Trust*, but because of the high intercorrelations, the other scores would also be low, leading to a low total *Trust* score.

This study emphasises the important role that affective trust plays in organisations – specifically with regard to vertical upward trust relationships. As if to confirm Zand’s (1997) spiral theory discussed in Chapter 3, Reiche et al. (2014, p. 87) found that affective trust is just as important from a vertical downward perspective, as

*managers consciously choose to engage in indirect reciprocity toward subordinates when subordinates’ behaviors trigger affective trust in managers. We may speculate that managers’ indirect reciprocations, in turn, also serve to develop subordinates’ trust in managers.*

In this study the above speculation is confirmed, as it is this perceived affective “indirect reciprocation” that has been found to carry the largest factor loading on supervisor trust.

**Cognitive trust** is represented in this model by the two ability antecedents. In contrast to the behavioural base (Lewis & Weigert, 1985) of the relationship-centred managerial ability (*Ability MP*), the personality-based innate or inherent ability (*Ability FFM*) makes cognitive judgements on the character of the trustor and does not have a large impact (although significant) on trust. Whether the trustor perceives the trustee to be *Resourceful*, in other words intelligent, creative, innovative and curious, does not seem to influence trust in the direct supervisor or manager.

The above model also seems to address the concern by McEvily and Tortoriello (2011) by “establishing more concretely the multi-dimensionality of trust” (p. 37); “not only in terms of conceptualisation, but also in terms of empirical evaluation” (p. 34).

At this stage the Empirical aim (E<sub>A</sub>), which was “to develop a unified organisational trust model by analysing secondary data collected with the Trust Relationship Audit” is addressed as the last empirical sub-aim is addressed. This aim was to “empirically test a unified trust model by way of structural equation modelling (specifically structural regression) to find

support for the theoretical model by way of conceptualising a unified trust relationship model that incorporates both the Martins (2000) antecedents of trust and the Mayer et al. (1995) components of trustworthiness” (E<sub>A4</sub>).

Although the unified trust model brings together two widely published and accepted theories of trust formation, certain aspects are still outside the scope of the current study or were not touched upon because the data was not available.

In the next section some of the limitations that became apparent during the research process will be discussed.

## **6.6 Limitations**

The importance of looking not only at individual differences, for instance concerning personality characteristics, but also at cultural background when it comes to determining workplace trust, is emphasised by Wöhrle et al. (2014, p. 14) who found a unique contribution of cultural characteristics on workplace trust. By virtue of the effects of employment equity legislation, an employee in any South African organisation, at any time, has to work with persons from other cultures, which bring about a multitude of implications and questions:

- Does the typical employee understand the co-employee’s culture?
- What are the effects of language – even or especially when most of the employees communicate in a common business language (English) that is not the home language or mother tongue of most of the employees?
- How does culture influence the perception of ABI and how important is each of these components?

To address the questions raised above, Saunders, Skinner and Lewicki (2010, p. 409) contemplate whether there is “a universally applicable model of trust and trust development [etic], or do people from varying cultures understand and enact trust differently [emic]”? They refer to studies such as Ferrin and Gillespie (2010) who found that countries differ in generalised levels of trust because of demographic and geographic and not cultural factors. Past research also found that ABI are universal characteristics of trustworthiness that sometimes differ and are interpreted uniquely in certain countries.

All of the above questions can and need to be addressed to better understand the functioning of trust relationships in the unique South African organisational environment. As if this complexity is not enough, the researcher had to take cognisance of the fact that workplace trust is not only a dyadic relationship but it has many more facets than just trust in the immediate superior. In fact, trust can have many foci.

#### 6.6.1 *Multiple foci*

One of the limitations of this study is the fact that it only concentrated on the immediate supervisor and line manager as foci of trust. In its later versions, the trust questionnaire as used in this study (Martins & Von der Ohe, 2005) does make provision for the collection of data on trust of multiple foci, as well as “felt trust” (Lau, Lam & Wen, 2014) from different foci. As such it makes it possible to address the concern by Redman, Dietz, Snape and van der Borg (2011, p. 2385) that more empirical studies should be conducted on the similarities and differences concerning trust between different foci.

#### 6.6.2 *Emotion*

Although no attention was given in this study to the role that emotions play, as industrial psychologists we must beware that we cannot ignore these. In his very clear and eloquent manner, Fichman (2003, p. 154) argues that trust may have another emotional component besides cognitive and personality dispositions:

*There may be an emotional component of trust that is not a by-product of cognitions and dispositions, but is in itself an essential element of trust. Emotions may help guide and modulate trusting behavior and the decision-making process associated with it. Most modern approaches to decision making deliberately take the emotion out of the decision. Let's approach a decision with cool heads, not letting emotions cloud our judgment. What if an unqualified recommendation to always let cooler heads prevail is wrong; that we need to reason with our heads and our guts? Intuition, emotion, and the role they best serve in decision making and trust processes should receive far greater and more systematic attention. Emotions are informative and may be fundamental to decision making in organizations in ways currently not fully appreciated.*

The question that needs to be answered is: how different are the affective components in the unified trust model from the intuitive emotions referred to by Fichman (2003)? In responding to Fichman's argument, the related questions regarding the evolutionary reasons for the

existence of trust can be investigated – especially perhaps, why certain behaviours (uBuntu) have developed in a certain context and not in others? This might indeed be a topic on which the organisational cognitive neuroscience and its links to the evolutionary paradigm for organisational behaviour could shed some light.

### *6.6.3 Research methodology*

To overcome problems that are normally associated with the classical survey methodology (and empirical positivism), alternative data collection methods should be considered. The current face-to-face and online methods have certain shortcomings that need to be overcome. The research methodologies should be more context sensitive and must be applicable to individual and macro contexts. They should provide organisation-specific information as well as data that can be aggregated to bigger insights and that can build on the knowledge base found in the literature. Methods that could be considered after having been adapted for the Southern African context could for instance be the repertory grid (Bachmann, 2012), board games (Muethel, 2012) or card-sort methodologies (Saunders, 2012).

With regard to the factor structure of the model, it is important to further analyse why the items with a seemingly common communication topic do not extract from managerial concern as a separate factor. Perhaps this is linked to the same reasons that caused the information-sharing scale to be dropped out of the model in Van den Bergh and Martins (2013) and was replaced by a scale that measured change that had already occurred. A further point of departure for refining the structural regression model that represents the unified trust model would be to investigate the differences between the scales suggested by Reiche et al. (2014) and the items currently included in Model 18a. Combining the theoretical reasoning behind the two models could enrich the knowledge base on antecedents of trust.

### *6.6.4 Reference group effect*

In the case of peer reports of perceived personality based on Likert scales, a researcher needs to be aware of the so-called reference group effect (RGE) that is often encountered in cross-cultural studies of personality (Heine, Buchtel, & Norenzayan, 2008; McCrea et al., 2013). To determine if this is really a problem in organisational trust research, the item response characteristics can be investigated using the partial credit Rasch model (Bond & Fox, 2007, p. 105). The RGE is based on the premise that “responses to personality items are not absolute judgments, but are made relative to some implicit normative group”

(McCrea et al., 2013, p. 833). In the current study this effect may be twofold, firstly involving cross-cultural differences in reference and secondly, differences in organisational references as respondents. The question that needs to be asked in the first scenario is whether the cultural stereotype that the trustor links to the supervisor or manager has an effect on the perceived personality of the supervisor, such as the “unassuming Canadian” or the stereotypical “arrogant American” (McCrae et al., 2013, p. 834; p 840). In the second case, namely the organisational RGE, the respondents will only be able to rate their supervisor against the supervisors whom they know in their current organisation or in the organisation of which they have prior experience. Here the organisational climate may also play a role. Although Heine et al. (2008, p. 310) investigated the reference group effect in a cross-cultural research context, it also becomes a problem in organisational research when “aggregate data” is compared between organisations or between relatively independent organisational units. Within the organisation, this problem is negated as most ratings are made in comparison to the behaviour of the same reference group or person.

#### 6.6.5 *Propensity to trust*

As was discussed before, the fact that the personality of the trustor (propensity to trust) has been left out of the equation in this research needs to be addressed. In an attempt to complete the model in Figure 6.2 empirically, research has to be conducted into how the underlying trait or personality aspect that makes some people more likely to trust others affects the trust relationship. It is especially important in a South African context where trust relationships are often strained in organisations, and where underlying tensions in the workplace are often blamed – wrongly or rightly – on the socio-political history of the country. South Africa with its unique multi-ethnic population is not called the Rainbow nation for nothing as it consists of a melting pot of different cultures and traditions (Urban, 2006, pp. 174). Even individuals are often influenced by different cultures being present in their families, by growing up in multi-cultural surroundings and then by working in a multi-cultural environment. This leads to a “*cultural mosaic* as a metaphoric conceptualization of multiple indicators of cultures used to describe an individual” (Chao & Moon, 2005, p. 1128). Rejecting the simplistic premise that an individual is the product of a single culture might help explain individual organisational behaviour and invariably also trust relationships in organisations.

#### 6.6.6 *The influence of differences such as gender and culture on trust*

One criticism that is often levelled at research in industrial and organisational psychology is that most of the published research makes use of “samples drawn entirely from *Western, Educated, Industrialized, Rich and Democratic (WEIRD) societies*” (Henrich, Heine & Norenzayan, 2010, p. 2), although these are known not to be representative of all global societies – especially if they consist of convenient undergraduate student samples. With globalisation, researchers conveniently fall back on a common denominator by accepting that WEIRD results are generalisable. Often it is irrelevant if the differences are ascribed to socio-cultural, environmental or genetic origins, but crucially important to take cognisance of the differences and to acknowledge them when attempting to generalise the results on a global level (Henrich et al., 2010, p. 4). This study addresses this criticism on one level and specifically adds data from the African subcontinent to open up the possibility of comparing these results with (for instance) results from WEIRD, as well as Asian and Turkish samples (cf. the study by Wasti and Tan (2010)). On another level, this study is possibly also guilty of this same “over-generalisation”, as it accepts that all members included in the sample are representative of the South African working population. It does not investigate whether certain subpopulations (based on aspects such as gender, level in the organisation or cultural background) have a unique effect on the proposed model.

Regarding the propensity to trust, this characteristic of the trustor also has an effect on trust according to the accepted models. The influence on interpersonal trust of for instance gender or culture as a characteristic of the individual, needs to be investigated. Do these characteristics have an impact on a trust relationship only via the propensity to trust or perhaps in another manner? There is a need to compare the South African situation with some of the other studies carried out in the non-Western environment such as the study by Tan and Lim (2009) mentioned above. Analogous to the current study, Tan and Lim (2009) found that *Ability* also does not feature as an antecedent to trust in Confucian society (Chinese respondents in Singapore) – contrary to what is found in the general trust literature. Hence, the effect of collectivism and power distance (Tan & Lim, 2009, p. 62) in a South African context needs to be investigated. The question concerning how these interlink with other theories, for instance from Hofstede’s viewpoint, should also be answered. Wasti and Tan (2010, p. 313) state that results from

*collectivist, high-context cultures such as East Asian or Middle Eastern countries [suggest] that workways are characterized by a much greater emphasis on relational, affective components.*

This leads to questions concerning preferred styles and the role of the cognitive and affective component in everyday workplace interactions. The relative impact of affective versus cognitive factors on trust (SRW) for different cultural groups has not been investigated in depth. The role of emotions in an organisational setting becomes important here and researchers should not accept that the relationship found in the case of a WEIRD sample is relevant to other samples (Elfenbein, 2007, p. 69).

The relational style that a person prefers could possibly have an effect on the individual weighting and importance of perceived ability, benevolence or integrity that the trustor considers sufficient to decide if a trustee is trustworthy. Based on the concepts of relational focus and task focus (Sanchez-Burks, 2005), it is suggested that the general situation found in especially American conditions of high task and low relational focus in the workplace has distorted the current findings in the trust literature and would explain the variances found in non-Anglo-American studies (Li & Tan 2013, p. 423; Wasti & Tan, 2010, p. 312).

Sanchez-Burks (2005) points to the fact that in especially American and Northern European organisations the task is primary, and therefore relationships and consequently emotional and affective aspects do not belong in the work environment. Any deviations from this so-called norm were explained away by ascribing these to specific cultural artefacts, for instance Mexican “simpatia”, Chinese “quanxi”, Korean “cheabol” and Japanese “amae” (Sanchez-Burks, 2005, p. 4). South African “Ubuntu” could also be added to this list. In the terminology used by Allport (1961, pp. 337-340), these would refer to common personality traits that are culture specific but not generalisable across cultures (Piekkola, 2011, p. 20). Even the preference for team goals by French and Italian organisations did not fit the accepted conventions. From this extensive list of so-called specific cultural artefacts it becomes clear that what was accepted as ‘normal’ in the industrial and organisational psychology literature might be an anomaly and that the results that are found in other organisational environments such as from South Africa might be more representative of the wider global situation than was previously thought. Lastly, Fulmer and Gelfand (2012, p. 1212) suggest that trust researchers should move away from the classical collectivism/individualism cultural dimensions and also investigate

*dimensions such as tightness–looseness; power distance; masculinity or femininity; and the logics of honor, dignity, and face.*

If all the above areas of concern are addressed, the rigour of trust research should improve by leaps and bounds, while the relevance of trust research would also make it much more acceptable to practitioners in the field. Trust research and the resultant trust models will no

longer be seen as theoretical abstractions with no practical impact in the daily lives of employees. In the next section the implications of the relationships mentioned above will be applied to everyday organisational life, as well as to anybody who needs to lead subordinates and wishes to enhance or maintain a trusting relationship with their subordinates.

## 6.7 Recommendations for organisational praxis

Many managers ask themselves the rhetorical question: “What happens when you trust your supervisor?” In an attempt to answer precisely this question, Li and Tan (2013) investigated it from a psychological perspective based on Kuhn’s theory. On a very theoretical level they found that trust in your supervisor has a positive influence on performance, which can be attributed to psychological availability and psychological safety (Li & Tan, 2013, p. 407). But findings like these do not assist the practitioner to find value in the results of research or to get support from top management to invest in trust-building or trust maintenance programmes.

To benefit from the unified trust model suggested above, an industrial psychologist should be aware that trust in the supervisor is not a simple summative procedure but an integrated process. **Certain components need to be present – without these no trust can exist, but these components on their own will lead directly to low trust.** The most important factor for trust in the supervisor and direct manager involves the affective aspects of managerial practices, which demonstrate managerial concern and engagement. This is behaviour that displays benevolence and integrity towards the trustor. However, without cognitive hard managerial abilities, a supervisor or direct manager will not have the necessary foundation on which to build the affective relational components of trustworthiness. **Incompetent supervisors or managers will not be able to gain trust as easily as will competent managers. Moreover, supervisors and managers cannot rely only on their competence to gain trust, seeing that managerial concern and personal integrity are crucial antecedents of trust** (see Figure 6.3).

With regard to the direct supervisor or manager, engaging in the above behaviour that would make them more trustworthy often implies risk and vulnerability on their part. According to the unified trust model and Reiche et al. (2014, p. 90), this risk is minimised if the manager or supervisor ensures that the underlying ability is present, that affective behaviours are understood by the subordinates for what they are, and that subordinates do not have ulterior motives when reciprocating the superior’s affective trust.

When it comes to cultural diversity, the importance of the affective component of trust needs to be taken seriously by the typical task-driven managers who have been trained in the Anglo-American tradition in colleges of management or business schools in South Africa. Reiche et al. (2014, p. 90) suggest that “managers from individualist cultures will need to convey their intentions for contributing to and sustaining generalized exchange”.

As various studies have found that trust in a direct leader has a positive influence on turnover intentions (Searle, Weibel et al., 2011, pp. 152-153), conversely, low trust or even worse – a breach of trust – can lead to employee turnover. This is especially critical in the case of the so-called star performers who are extremely sensitive to any perceived breaches of trust as their turnover threshold is much lower than for other employees (Aguinis & O’Boyle, 2014, p. 331). They are the only the ones that “can go” as they are the most mobile (Bedeian & Armenakis, 1998, p. 58) and much more attractive to other employers. Especially during recessions, these star performers help the new employer to be more competitive, while the original organisation will struggle to survive during times of hyper-competitiveness (O’Boyle & Aguinis, 2012, p. 113). The loss to the organisation will be proportionally much more painful in productivity terms than if a whole group of average employees had resigned.

Following their extensive meta-analysis, Colquitt et al. (2007, p. 922) provide an extensive account of the practical implications of sustaining and improving interpersonal trust relationships in organisations. These have been discussed in previous chapters and range from the well-quoted relationship with improved job performance, predicting employees’ propensity to risk taking and counterproductive behaviour and affective commitment (which again predicts absenteeism and turnover intentions). With regard to an intervention that is supported by the unified trust model, Colquitt et al. (2007) suggest that supervisors should be trained in ethics and in how to treat employees fairly. This would be an effort to increase integrity, which has the highest impact on perceptions of trustworthiness and consequently trust. Various reviews have also shown that it is important to understand the functioning of trust relationships in organisations so as to understand cooperative behaviour and co-ordination in organisations (McEvily, 2011, p. 1267).

### *6.7.1 Building trust*

As was made abundantly clear in Chapter 3, trust is one of the key ‘soft’ issues when it comes to organisational functioning. The question that needs to be asked now is: how does the current model assist the practising industrial psychologist in his/her work?

There are two approaches that can be followed:

- Firstly, the Trust Relationship Audit (Martins & Von der Ohe, 2005) can be used in its current format. This data can then be analysed in terms of both the FFM and MP, and also interpreted in terms of ABI. The Trust Relationship Audit then also provides information on how change and information sharing are experienced by the respondent.
- Secondly, if for operational reasons a shorter questionnaire is needed, either Model 18a (32 items) or Model 19a (17 items) can be used. This could for instance be the case when the researcher wants to include the questionnaire in a battery of questionnaires as part of a wider investigation of organisational trust.

The results with regard to benevolent behaviour towards a trustor's peers support the principles of administering fair and transparent performance management. If trustors do not make the link between differential benevolence that is shown towards peers and their performance, trust will be inhibited even by well-performing trustors (Lapierre, 2007, p. 291).

On the other hand, it is also important that the person who is trusted, feels trusted. In confirming the findings by Whitener et al. (1998) some 15 years later, Lau et al. (2014, p. 125) suggest that "supervisors should also consider adopting behavior that involves information sharing, participation in decision making, and delegation of control" to ensure that the trustee also feels trusted, as this leads to better performance and increased organisational citizenship behaviour aimed at co-workers.

In the case of organisational interventions, the Trust Relationship Audit can guide the industrial psychologist when it comes to integrating the personality style of the specific line manager or supervisor at work and the predominant management styles in that organisational unit with one of the accepted trust enhancement or trust-building interventions, as discussed in Chapter 3.

Last, but not least, the importance of two-way communication cannot be overemphasised. Nearly half the items representing managerial concern are somehow related to some aspect of open, honest communication. Supervisors who ensure that relevant information is shared and who are fair and honest in their communication should be perceived as much more trustworthy than others. Whitener et al. (1998, p. 517) already pointed out the importance of communication for trustworthiness. The three factors of communication that these authors identified as important were openness, accuracy and timely feedback, including offering

explanations for their decisions. Fortunately such communication falls under the control of the supervisor, and if these skills are lacking, it is also fairly straightforward to rectify the situation with appropriate interventions.

Trustworthy managerial behaviours (as identified by Abrams et al. (2003, p. 67)) are trust-builders that promote interpersonal trust in the following ways:

- *Act with discretion* (keep confidential information secret as promised)
- *Be consistent between word and deed* (walk the talk)
- *Ensure that decisions are fair and transparent* (avoids hidden agendas)
- *Hold people accountable for trust* (measure and reward trust as an integral part of performance contracts)
- *Disclose your expertise and limitations* (trustors do not have to guess ability or competence)

The above actions are actions that a direct manager or supervisor has under their control since it concerns their own behaviour (Gausdal, 2012, p. 12). Other trustworthy managerial behaviours that can be linked directly to the unified trust model, specifically managerial concern and engagement, are behaviours that are concerned with improved communication, such as:

- *Ensure frequent and rich communication* (enhance caring relationship – show **concern**)
- *Engage in collaborative communication* (listen and share – **engage**)

Lastly, again linking to the unified trust model, Abrams et al. (2003) suggest that **relational** factors also need to be addressed outside the work relationship (i.e. involvement should not only be task driven). When “people share information about their personal lives, especially about similarities, then a stronger bond and greater trust develop” (p. 67). This often constitutes a basis of common understanding and makes the supervisor or manager seem more approachable – yet, always within the boundaries of what the parties feel comfortable sharing (Abrams et al., 2003, p. 71).

### 6.7.2 *Individual contra-organisational trust profiles*

As mentioned in the previous section, trust should be measured and linked to some form of recognition, even in a performance appraisal. This embeds the importance of trust in the organisation and shows that the organisation values trust (Abrams et al., 2003, p. 70).

However, from the unified trust model it becomes clear that this is not a simple, straightforward, simplistic situation.

In an organisational context, the industrial psychologist has to take cognisance of the bigger picture – a holistic approach needs to be adopted and all levels of trust and distrust must be taken into account. As trust is not unidimensional, it is important to recognise that a single overall high trust score does not indicate that there are no problems with trust levels. This is especially the case as trust is often linked to specific individuals and thus, by implication, to specific organisational units that each has its own trust and distrust profiles or patterns. The fact that trust and distrust are opposite constructs that seldom co-exist simultaneously in a respondent's mind has management implications when it comes to organisational interventions (Saunders, Dietz & Thornhill, 2014). In the case of low trust, trust needs to be increased, while in the case of high distrust, this distrust needs to be addressed. In the latter case, Saunders et al. (2014, p. 659) suggest that different interventions such as consistent actions by management and keeping promises are necessary to reduce distrust, as distrust is often the result of perceived injustice or dishonesty. On a theoretical level, these actions link back to cultivating the antecedents of *Integrity* and behavioural consistency, which can be linked to managerial practices. On the other side of the spectrum, in the case of high *Trust* and low *Distrust*, it was found that *Benevolence* and managerial competence (*Ability MP*) are the most important antecedents that influence trust (Saunders, Dietz & Thornhill, 2014, p. 661). Consequently, when faced with a lack of trust, management can be trained to improve their competence as well as to encourage fairness and regular communication. They also refer to another seldom-described situation where there is neither trust nor distrust apparent in the employees. These employees could be described as “disengaged” individuals who are emotionally distant from their work (Saunders et al., 2014, p. 660).

### 6.7.3 *The dark side of trust*

When discussing trust, an industrial psychologist must not forget that not all is inherently beneficial or positive – trust can be a “dual edged sword” (Brown, Crossley & Robinson, 2014, p. 480). Sometimes trust can become a “poisoned chalice” as Skinner, Dietz and Weibel (2014) so aptly title their article that investigates the detrimental or dark side of trust. They go further than only considering the normally accepted concepts of mistaken judgement by the trustor (misplaced trust), trust violations by the trustee or distrust (Skinner et al., 2013, p. 209). In certain cases trust is used as a tool for manipulation by management, while the real dark side is represented by unavoidable and unwelcome disadvantageous obligations forced upon the employee by circumstances. This obligation stems from an

implied expectation of reciprocity in a trust relationship. Skinner et al. (2013) describe five such scenarios:

- **Reluctant trust** – the trustee appeals to the trustor to trust them, social pressure compels the trustor to trust against their better instincts as they might not want to reciprocate or are unsure if they can repay the obligation.
- **Unwelcome trust** – the trustor trusts the trustee although the trustee does not want to be trusted, as the obligations linked to the unsolicited trust are unwelcome and can be used as “a trap of obligation” (Skinner et al., 2013, p. 214).
- **The trust trap** – in a long-term trust relationship the trustee does not wish to be trusted anymore, as it is no longer beneficial for her.
- **Withdrawn trust** – stigmatises the trustee as doubts are cast on their trustworthiness, especially dark when the threat of trust withdrawal is used to coerce the trustee to co-operate.
- **Insincere trust** – employers who say they trust their employees but have onerous checks and balances to ensure compliance. Another example would be “a superficial empowerment scheme that tolerates employee discretion in trivialities but debars their input into more substantial workplace and strategic concerns” (Skinner et al., 2013, p. 217).

A further aspect that has only recently come to the fore is where, in high-trust situations, high performers who take psychological ownership of certain aspects of the task or organisation are seen to exhibit unacceptable territorial behaviour and consequently are seen as not being team players (Brown et al., 2014, p. 480). From the above it is evident that the process of trust is not as uncomplicated and clear-cut as is the case with an economic transaction. Like any social exchange, trust is multi-faceted and complex, following barely understood conscious and subconscious rules (Skinner et al., 2013, p. 219).

Section 6.7 re-addressed the literature aims by integrating the literature (as discussed in Chapter 2, where the concept of trust is described (L<sub>A</sub>1) and Chapter 3 where the practical implications of trust in organisations are described (L<sub>A</sub>2)) with the findings of the current study. This section also addresses the process of enhancing and repairing trust relationships in organisations and, in particular, trust in leaders (L<sub>A</sub>2a). The discussion is based on the unified trust model as developed from the adapted Martins (2000) model for managing trust and its components of personality and managerial practices as antecedents of trust (L<sub>A</sub>2b). Although determining the effect of culture on the unified trust model falls outside the scope of the current study, the sections addressing the limitations of this study nevertheless integrate

the findings with the scientific literature concerning South African trust research, and especially the influence of different cultures on organisational trust relationships (L<sub>A</sub>2c).

## 6.8 Recommendations for trust research

Based on the previous chapters and the above discussion, in this section an attempt will be made to combine areas of future research in a concise conclusion regarding where emphasis should be placed in the future.

In respect of cross-cultural research, it would be interesting to investigate what the effect of culture would be on trust in this model. The question that could be asked is whether the South African population is also both collectivist and individualist, as Luo and Yeh (2012) found in China. As was mentioned in Chapter 4, some authors (such as Hofstede) perceive South Africans as individualistic, while there is also a common perception that the majority of South Africans are “*a culture of collectivism, where group interests are emphasised above personal interests*” (Luo & Yeh, 2012, p. 54, describing Chinese culture).

The question that also needs to be asked is how the complex South African societal history has influenced the different population and racial groups. Despite being numerically the majority, Black South Africans were considered the minority in a sociological sense, in the same way that immigrants are considered the cultural minority in the Netherlands. As the latter examples show different patterns of workplace trust, depending on whether they are first- or second-generation migrants (Wöhrle et al., 2014), the question can be asked if previously discriminated groups present with the same patterns as other minorities, or have these patterns changed after 20 years of democracy? If they did change, are they the same for all groups or are they different as a result of socio-cultural influences? This information can be of great value, as not much research in this regard has been done from an organisational perspective. The two main studies that directly investigated trust in South African from a race perspective were conducted outside the workplace in the general population. Even here, the differences between white and black respondents were not as clear. The studies found that the different levels of trust in neighbours largely disappeared if a correction for income was made (Posel & Hinks, 2013, p. 154). When it comes to reported trust in strangers, after again correcting for income, blacks show significantly higher levels of trust (Posel & Hinks, 2013, p. 158). Income and perceived socio-economic status in all cases increased trust in neighbours and strangers. In a study that validates the relationship between geographic location and personality trait, an indirect deduction can be made that

black and white South Africans exhibit the same levels of interpersonal trust (compare the vertical axis position on Figure 2 in Allik & McCrae, 2004, p. 21).

Concerning the multi-cultural application of the Mayer et al. (1995) integrative model of organisational trust, Schoorman et al. (2007, p. 351) suspect (in their review of their own work) that culture will manifest itself through the differences in the **propensity to trust** in various cultures (Schoorman et al., 2007, p. 351). Another problem that research could address, is the fact that their measure of propensity to trust has a low Cronbach alpha value (Schoorman et al., 2007, p. 347). The question whether trust is culture specific and the importance of different contexts also need to be considered (Bachman, 2012, p. 131). Current items in the Trust Relationship Audit could possibly deal with this deficiency. In closing on the topic of culture, Schoorman et al. (2007) also suspect that action-oriented or more masculine cultures (according to Hofstede) will place greater emphasis on ability, compared to collaborative cultures that might emphasise benevolence. However, since trust as a phenomenon is socially constructed and context bound, it is not an objective process that is easily measured across different cultures (Welter & Alex, 2012, p. 50).

A final area where trust research has become increasingly important is in the field of information systems, especially human-computer interaction, as is often the case in e-commerce. The traditional cues concerning trustworthiness that are gained from physical interaction and the interpretation of the possible trustee's body language are not possible in a virtual environment (Walterbusch, Gräuler & Teuteberg, 2014, p. 1). Lastly, as mentioned in Section 3.3.2, there is no consensus in the literature about the importance of communication and social networks in organisations, while information sharing (mainly concerning work performance) contributed least to the estimation of trust in Martins (2002). In contrast, the current study loaded heavily on communication aspects, although in the context of managerial practices it linked to managerial concern. This discrepancy needs to be explained further in future research as it might uncover some very interesting dynamics underlying organisational trust relationships.

## **6.9 In closing**

This study attempted to combine the Martins (2000) model of organisational trust with the Integrative Model of Organisational Trust by Mayer et al. (1995). The resultant unified trust model was based on a strong theoretical basis and empirically fitted to the extensive data collected over the years. In doing so, this study responds to the call by Ferrin et al. (2008)

and McEvily and Tortoriello (2011) to create a common language of trust that is globally transferable and makes intuitive sense to practitioners.

*We will know we have succeeded when organisations conduct annual trust surveys and act on them, when leaders are selected, trained and evaluated in terms of trust, and when leaders who fail to earn and maintain trust will fail to remain leaders.*

(Ferrin, 2013, p. 151)

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## Appendix A: Descriptive statistics for the two datasets used

|                                    | Total trust data |       |       |      |           |           |                |           |                | No missing values dataset |      |           |           |                |           |                |
|------------------------------------|------------------|-------|-------|------|-----------|-----------|----------------|-----------|----------------|---------------------------|------|-----------|-----------|----------------|-----------|----------------|
|                                    | N                | Mini- | Maxi- | Mean | Standard  | Skewness  |                | Kurtosis  |                | N                         | Mean | Standard  | Skewness  |                | Kurtosis  |                |
|                                    |                  | mum   | mum   |      | Deviation | Statistic | Standard Error | Statistic | Standard Error |                           |      | Deviation | Statistic | Standard Error | Statistic | Standard Error |
| q01 C Irresponsible vs responsible | 1137<br>4        | 1     | 9     | 6,86 | 2,043     | -1,155    | ,023           | ,809      | ,046           | 286<br>0                  | 6,96 | 1,972     | -1,222    | ,046           | 1,065     | ,092           |
| q02 C Undependable vs Dependable   | 1132<br>3        | 1     | 9     | 6,51 | 2,159     | -,889     | ,023           | ,027      | ,046           | 286<br>0                  | 6,63 | 2,050     | -,923     | ,046           | ,190      | ,092           |
| q03 C Disorganised vs Organised    | 1135<br>5        | 1     | 9     | 6,56 | 2,153     | -,913     | ,023           | ,072      | ,046           | 286<br>0                  | 6,73 | 2,039     | -,988     | ,046           | ,343      | ,092           |
| q04 C Sloppy vs Neat               | 1136<br>6        | 1     | 9     | 7,08 | 1,954     | -1,251    | ,023           | 1,156     | ,046           | 286<br>0                  | 7,15 | 1,878     | -1,298    | ,046           | 1,402     | ,092           |
| q05 C Lazy vs Hardworking          | 1137<br>4        | 1     | 9     | 7,12 | 2,000     | -1,292    | ,023           | 1,178     | ,046           | 286<br>0                  | 7,23 | 1,865     | -1,305    | ,046           | 1,414     | ,092           |
| q06 C Dishonest vs Honest          | 1138<br>2        | 1     | 9     | 6,90 | 2,184     | -1,151    | ,023           | ,569      | ,046           | 286<br>0                  | 6,95 | 2,078     | -1,199    | ,046           | ,827      | ,092           |
| q07 C Careless vs Careful          | 1138<br>7        | 1     | 9     | 7,00 | 1,966     | -1,245    | ,023           | 1,140     | ,046           | 286<br>0                  | 7,11 | 1,877     | -1,302    | ,046           | 1,385     | ,092           |
| q08 EX Quiet vs Talkative          | 1138<br>3        | 1     | 9     | 6,67 | 2,097     | -,979     | ,023           | ,336      | ,046           | 286<br>0                  | 6,83 | 2,024     | -1,077    | ,046           | ,608      | ,092           |
| q09 EX Withdrawn vs Sociable       | 1134<br>8        | 1     | 9     | 6,66 | 2,078     | -1,004    | ,023           | ,444      | ,046           | 286<br>0                  | 6,80 | 1,981     | -1,065    | ,046           | ,656      | ,092           |
| q10 EX Unassertive vs Assertive    | 1124<br>3        | 1     | 9     | 6,66 | 2,030     | -,973     | ,023           | ,437      | ,046           | 286<br>0                  | 6,79 | 1,951     | -1,040    | ,046           | ,645      | ,092           |
| q11 EX Reserved vs Outgoing        | 1130<br>1        | 1     | 9     | 6,48 | 2,020     | -,812     | ,023           | ,149      | ,046           | 286<br>0                  | 6,65 | 1,930     | -,897     | ,046           | ,406      | ,092           |
| q12 EX Gloomy vs Cheerful          | 1131<br>7        | 1     | 9     | 6,65 | 1,962     | -,957     | ,023           | ,524      | ,046           | 286<br>0                  | 6,77 | 1,913     | -1,052    | ,046           | ,812      | ,092           |
| q13 EX Shy vs Bold                 | 1134<br>1        | 1     | 9     | 6,89 | 1,845     | -1,080    | ,023           | 1,025     | ,046           | 286<br>0                  | 6,99 | 1,778     | -1,155    | ,046           | 1,256     | ,092           |
| q14 EX Passive vs Active           | 1136<br>6        | 1     | 9     | 6,96 | 1,949     | -1,190    | ,023           | 1,013     | ,046           | 286<br>0                  | 7,12 | 1,876     | -1,318    | ,046           | 1,455     | ,092           |
| q15 A Cold-hearted vs Warm-hearted | 1135<br>8        | 1     | 9     | 6,46 | 2,148     | -,909     | ,023           | ,186      | ,046           | 286<br>0                  | 6,59 | 2,012     | -,962     | ,046           | ,449      | ,092           |
| q16 A Unfriendly vs Friendly       | 1137<br>6        | 1     | 9     | 6,89 | 2,092     | -1,222    | ,023           | ,935      | ,046           | 286<br>0                  | 7,05 | 1,949     | -1,330    | ,046           | 1,437     | ,092           |
| q17 A Rude vs Tactful              | 1133<br>5        | 1     | 9     | 6,57 | 2,107     | -,989     | ,023           | ,372      | ,046           | 286<br>0                  | 6,68 | 2,055     | -1,059    | ,046           | ,568      | ,092           |
| q18 AC Deceitful vs Trustworthy    | 1135<br>5        | 1     | 9     | 6,66 | 2,186     | -,980     | ,023           | ,228      | ,046           | 286<br>0                  | 6,76 | 2,116     | -1,037    | ,046           | ,411      | ,092           |
| q19 A Insensitive vs Sympathetic   | 1134<br>3        | 1     | 9     | 6,56 | 2,138     | -,951     | ,023           | ,243      | ,046           | 286<br>0                  | 6,75 | 2,073     | -1,074    | ,046           | ,532      | ,092           |
| q20 A Hostile vs Peaceful          | 1134<br>3        | 1     | 9     | 6,69 | 2,058     | -,995     | ,023           | ,458      | ,046           | 286<br>0                  | 6,88 | 1,960     | -1,084    | ,046           | ,677      | ,092           |
| q21 A Mean vs Gentle               | 1134<br>3        | 1     | 9     | 6,55 | 2,057     | -,921     | ,023           | ,361      | ,046           | 286<br>0                  | 6,77 | 1,962     | -1,007    | ,046           | ,585      | ,092           |
| q22 A Opposing vs Cooperative      | 1133<br>3        | 1     | 9     | 6,59 | 2,171     | -1,006    | ,023           | ,278      | ,046           | 286<br>0                  | 6,79 | 2,091     | -1,140    | ,046           | ,626      | ,092           |

|   | Total trust data  |              |              |             |              |              |                |             |                | No missing values dataset |             |              |               |                |             |                |
|---|-------------------|--------------|--------------|-------------|--------------|--------------|----------------|-------------|----------------|---------------------------|-------------|--------------|---------------|----------------|-------------|----------------|
|   | N                 | Mini-<br>mum | Maxi-<br>mum | Standard    |              | Skewness     |                | Kurtosis    |                | N                         | Standard    |              | Skewness      |                | Kurtosis    |                |
|   |                   |              |              | Mean        | Deviation    | Statistic    | Standard Error | Statistic   | Standard Error |                           | Mean        | Deviation    | Statistic     | Standard Error | Statistic   | Standard Error |
| q23 ES Nervous vs Relaxed                         | 1133<br>1         | 1            | 9            | 6,57        | 2,005        | -,913        | ,023           | ,313        | ,046           | 286<br>0                  | 6,78        | 1,925        | -1,045        | ,046           | ,648        | ,092           |
| q24 ES Moody vs Stable                            | 1132<br>4         | 1            | 9            | 6,46        | 2,164        | -,879        | ,023           | ,015        | ,046           | 286<br>0                  | 6,63        | 2,102        | -,995         | ,046           | ,272        | ,092           |
| q25 ES Insecure vs Confident                      | 1133<br>4         | 1            | 9            | 6,85        | 2,092        | -1,112       | ,023           | ,569        | ,046           | 286<br>0                  | 6,97        | 2,030        | -1,179        | ,046           | ,774        | ,092           |
| q26 ES Touchy vs Even-tempered                    | 1130<br>1         | 1            | 9            | 6,37        | 2,095        | -,838        | ,023           | ,069        | ,046           | 286<br>0                  | 6,55        | 2,014        | -,927         | ,046           | ,298        | ,092           |
| q27 ES Agitated vs Calm                           | 1133<br>0         | 1            | 9            | 6,49        | 2,084        | -,892        | ,023           | ,170        | ,046           | 286<br>0                  | 6,69        | 2,015        | -1,024        | ,046           | ,472        | ,092           |
| q28 A Angry vs Happy                              | 1135<br>8         | 1            | 9            | 6,70        | 1,986        | -1,002       | ,023           | ,606        | ,046           | 286<br>0                  | 6,89        | 1,914        | -1,113        | ,046           | ,879        | ,092           |
| q29 ES R Dull vs Intelligent                      | 1135<br>8         | 1            | 9            | 7,18        | 1,928        | -1,358       | ,023           | 1,490       | ,046           | 286<br>0                  | 7,24        | 1,864        | -1,358        | ,046           | 1,555       | ,092           |
| q30 R Unimaginative vs Creative                   | 1134<br>7         | 1            | 9            | 6,70        | 2,026        | -1,042       | ,023           | ,581        | ,046           | 286<br>0                  | 6,87        | 1,941        | -1,107        | ,046           | ,808        | ,092           |
| q31 R Conventional vs Innovative                  | 1127<br>6         | 1            | 9            | 6,41        | 2,081        | -,834        | ,023           | ,094        | ,046           | 286<br>0                  | 6,61        | 2,026        | -,926         | ,046           | ,246        | ,092           |
| q32 R Indifferent vs Curious                      | 1127<br>9         | 1            | 9            | 6,55        | 1,982        | -,913        | ,023           | ,407        | ,046           | 286<br>0                  | 6,75        | 1,930        | -1,044        | ,046           | ,720        | ,092           |
| q33 R Believing vs Questioning                    | 1134<br>7         | 1            | 9            | 6,63        | 2,092        | -,962        | ,023           | ,310        | ,046           | 286<br>0                  | 6,89        | 2,038        | -1,152        | ,046           | ,740        | ,092           |
| q34 R Simple vs Complex                           | 1131<br>1         | 1            | 9            | 6,00        | 2,094        | -,613        | ,023           | -,196       | ,046           | 286<br>0                  | 6,22        | 2,063        | -,739         | ,046           | -,021       | ,092           |
| q35 R Prefers routine vs Prefers variety          | 1132<br>0         | 1            | 9            | 5,92        | 2,250        | -,532        | ,023           | -,530       | ,046           | 286<br>0                  | 6,17        | 2,186        | -,650         | ,046           | -,378       | ,092           |
| <b>FFM Means</b>                                  | <b>1133<br/>9</b> | <b>1</b>     | <b>9</b>     | <b>6,65</b> | <b>2,065</b> | <b>-,993</b> | <b>,023</b>    | <b>,452</b> | <b>,046</b>    | <b>286<br/>0</b>          | <b>6,81</b> | <b>1,985</b> | <b>-1,080</b> | <b>,046</b>    | <b>,707</b> | <b>,092</b>    |
| q36 tr36 Have open & trusting relationship with S | 1229<br>7         | 1            | 5            | 3,70        | 1,150        | -,858        | ,022           | -,049       | ,044           | 286<br>0                  | 3,78        | 1,110        | -,927         | ,046           | ,186        | ,092           |
| q37 tr37 S reveals important facts                | 1227<br>6         | 1            | 5            | 3,70        | 1,152        | -,816        | ,022           | -,148       | ,044           | 286<br>0                  | 3,74        | 1,108        | -,844         | ,046           | ,016        | ,092           |
| q38 tr38 Fair judging of performance              | 1226<br>0         | 1            | 5            | 3,67        | 1,166        | -,788        | ,022           | -,171       | ,044           | 286<br>0                  | 3,73        | 1,148        | -,869         | ,046           | ,008        | ,092           |
| q39 tr39 S has good intentions                    | 1226<br>8         | 1            | 5            | 3,69        | 1,123        | -,816        | ,022           | -,026       | ,044           | 286<br>0                  | 3,72        | 1,087        | -,838         | ,046           | ,053        | ,092           |
| q40 tr40 Can believe what S says                  | 1225<br>9         | 1            | 5            | 3,74        | 1,119        | -,853        | ,022           | ,078        | ,044           | 286<br>0                  | 3,79        | 1,082        | -,891         | ,046           | ,243        | ,092           |
| q41 cr41 S respects different opinions            | 1226<br>1         | 1            | 5            | 3,52        | 1,139        | -,543        | ,022           | -,527       | ,044           | 286<br>0                  | 3,59        | 1,091        | -,632         | ,046           | -,309       | ,092           |
| q42 cr42 S listens and clarifies                  | 1224<br>8         | 1            | 5            | 3,59        | 1,173        | -,555        | ,022           | -,602       | ,044           | 286<br>0                  | 3,66        | 1,124        | -,598         | ,046           | -,457       | ,092           |
| q43 cr43 S analyses problems                      | 1226<br>0         | 1            | 5            | 3,65        | 1,210        | -,613        | ,022           | -,615       | ,044           | 286<br>0                  | 3,71        | 1,166        | -,667         | ,046           | -,465       | ,092           |
| q44 ws44 S is there when needed                   | 1221<br>9         | 1            | 5            | 3,66        | 1,180        | -,563        | ,022           | -,633       | ,044           | 286<br>0                  | 3,73        | 1,142        | -,659         | ,046           | -,401       | ,092           |
| q45 ws45 S gives information                      | 1225<br>5         | 1            | 5            | 3,69        | 1,191        | -,666        | ,022           | -,504       | ,044           | 286<br>0                  | 3,76        | 1,146        | -,725         | ,046           | -,330       | ,092           |

|  | Total trust data |              |              |          |           |           |                |           |                | No missing values dataset |          |           |           |                |           |                |
|--|------------------|--------------|--------------|----------|-----------|-----------|----------------|-----------|----------------|---------------------------|----------|-----------|-----------|----------------|-----------|----------------|
|  | N                | Mini-<br>mum | Maxi-<br>mum | Standard |           | Skewness  |                | Kurtosis  |                | N                         | Standard |           | Skewness  |                | Kurtosis  |                |
|  |                  |              |              | Mean     | Deviation | Statistic | Standard Error | Statistic | Standard Error |                           | Mean     | Deviation | Statistic | Standard Error | Statistic | Standard Error |
| q46 cr46 S allows expression of feelings           | 1222<br>4        | 1            | 5            | 3,67     | 1,239     | -,695     | ,022           | -,540     | ,044           | 286<br>0                  | 3,72     | 1,206     | -,751     | ,046           | -,373     | ,092           |
| q47 is47 S feedback on performance                 | 1220<br>9        | 1            | 5            | 3,40     | 1,323     | -,403     | ,022           | -1,021    | ,044           | 286<br>0                  | 3,51     | 1,294     | -,500     | ,046           | -,894     | ,092           |
| q48 cr48 S accepts our decisions                   | 1223<br>3        | 1            | 5            | 3,47     | 1,151     | -,538     | ,022           | -,512     | ,044           | 286<br>0                  | 3,55     | 1,117     | -,626     | ,046           | -,303     | ,092           |
| q49 cr49 S implements our decisions                | 1221<br>7        | 1            | 5            | 3,34     | 1,173     | -,366     | ,022           | -,737     | ,044           | 286<br>0                  | 3,42     | 1,149     | -,431     | ,046           | -,628     | ,092           |
| q50 tm50 S ensures acceptable performance          | 1220<br>9        | 1            | 5            | 3,67     | 1,155     | -,677     | ,022           | -,356     | ,044           | 286<br>0                  | 3,72     | 1,126     | -,702     | ,046           | -,278     | ,092           |
| q51 tm51 S is self-disciplined                     | 1221<br>7        | 1            | 5            | 3,91     | 1,163     | -,963     | ,022           | ,062      | ,044           | 286<br>0                  | 3,97     | 1,126     | -1,013    | ,046           | ,220      | ,092           |
| q52 tm52 S conducts effective meetings             | 1223<br>6        | 1            | 5            | 3,67     | 1,236     | -,703     | ,022           | -,515     | ,044           | 286<br>0                  | 3,74     | 1,177     | -,770     | ,046           | -,306     | ,092           |
| q53 cr53 S accepts negative feedback               | 1216<br>1        | 1            | 5            | 3,28     | 1,237     | -,364     | ,022           | -,864     | ,044           | 286<br>0                  | 3,37     | 1,191     | -,504     | ,046           | -,643     | ,092           |
| q54 tm54 S freely talks/ gives opinions            | 1222<br>5        | 1            | 5            | 3,81     | 1,133     | -,805     | ,022           | -,162     | ,044           | 286<br>0                  | 3,87     | 1,079     | -,876     | ,046           | ,099      | ,092           |
| q55 is55 S gives straight feedback                 | 1222<br>2        | 1            | 5            | 3,48     | 1,306     | -,475     | ,022           | -,938     | ,044           | 286<br>0                  | 3,61     | 1,262     | -,623     | ,046           | -,691     | ,092           |
| q56 tm56 S handles conflict well                   | 1216<br>8        | 1            | 5            | 3,39     | 1,273     | -,412     | ,022           | -,894     | ,044           | 286<br>0                  | 3,48     | 1,233     | -,495     | ,046           | -,750     | ,092           |
| q57 is57 S reveals company information             | 1220<br>9        | 1            | 5            | 3,50     | 1,252     | -,520     | ,022           | -,766     | ,044           | 286<br>0                  | 3,56     | 1,210     | -,577     | ,046           | -,619     | ,092           |
| q58 tm58 S confronts culprits                      | 1218<br>4        | 1            | 5            | 3,57     | 1,258     | -,552     | ,022           | -,757     | ,044           | 286<br>0                  | 3,64     | 1,228     | -,599     | ,046           | -,677     | ,092           |
| q59 tm59 S ensures same goals                      | 1220<br>7        | 1            | 5            | 3,67     | 1,167     | -,666     | ,022           | -,414     | ,044           | 286<br>0                  | 3,75     | 1,116     | -,734     | ,046           | -,187     | ,092           |
| q60 tm60 Know what S expects                       | 1221<br>1        | 1            | 5            | 3,74     | 1,174     | -,714     | ,022           | -,413     | ,044           | 286<br>0                  | 3,81     | 1,121     | -,781     | ,046           | -,196     | ,092           |
| q61 cr61 S encourages expression of feelings       | 1219<br>6        | 1            | 5            | 3,60     | 1,260     | -,621     | ,022           | -,671     | ,044           | 286<br>0                  | 3,68     | 1,205     | -,693     | ,046           | -,472     | ,092           |
| q62 cr62 S keeps promises                          | 1214<br>7        | 1            | 5            | 3,51     | 1,257     | -,543     | ,022           | -,728     | ,044           | 286<br>0                  | 3,57     | 1,225     | -,605     | ,046           | -,580     | ,092           |
| q63 cr63 S tolerates mistakes                      | 1217<br>7        | 1            | 5            | 3,35     | 1,194     | -,399     | ,022           | -,762     | ,044           | 286<br>0                  | 3,33     | 1,198     | -,399     | ,046           | -,794     | ,092           |
| q64 tm64 S explains how my work influences company | 1219<br>0        | 1            | 5            | 3,37     | 1,292     | -,380     | ,022           | -,974     | ,044           | 286<br>0                  | 3,46     | 1,246     | -,480     | ,046           | -,805     | ,092           |
| q65 ws65 S supports me when needed                 | 1218<br>6        | 1            | 5            | 3,65     | 1,236     | -,627     | ,022           | -,631     | ,044           | 286<br>0                  | 3,72     | 1,191     | -,708     | ,046           | -,431     | ,092           |
| q66 cr66 S ensures prestige and credibility        | 1215<br>5        | 1            | 5            | 3,34     | 1,282     | -,347     | ,022           | -,975     | ,044           | 286<br>0                  | 3,44     | 1,239     | -,456     | ,046           | -,784     | ,092           |
| q67 cr67 S tells truth about future                | 1216<br>6        | 1            | 5            | 3,47     | 1,293     | -,490     | ,022           | -,865     | ,044           | 286<br>0                  | 3,52     | 1,255     | -,556     | ,046           | -,718     | ,092           |
| q68 cr68 S considers my proposals                  | 1218<br>7        | 1            | 5            | 3,43     | 1,213     | -,469     | ,022           | -,727     | ,044           | 286<br>0                  | 3,49     | 1,178     | -,567     | ,046           | -,540     | ,092           |
| q69 is69 S asks feedback on S performance          | 1218<br>7        | 1            | 5            | 2,73     | 1,417     | ,217      | ,022           | -1,296    | ,044           | 286<br>0                  | 2,82     | 1,408     | ,118      | ,046           | -1,307    | ,092           |

|  | Total trust data |              |              |          |           |           |                   |           |                   |          | No missing values dataset |           |           |                   |           |                   |
|--|------------------|--------------|--------------|----------|-----------|-----------|-------------------|-----------|-------------------|----------|---------------------------|-----------|-----------|-------------------|-----------|-------------------|
|  | N                | Mini-<br>mum | Maxi-<br>mum | Standard |           | Skewness  |                   | Kurtosis  |                   | N        | Standard                  |           | Skewness  |                   | Kurtosis  |                   |
|  |                  |              |              | Mean     | Deviation | Statistic | Standard<br>Error | Statistic | Standard<br>Error |          | Mean                      | Deviation | Statistic | Standard<br>Error | Statistic | Standard<br>Error |
| Mean MP                                    | 1221<br>5        | 1            | 5            | 3,55     | 1,214     | -,576     | ,022              | -,578     | ,044              | 286<br>0 | 3,62                      | 1,176     | -,646     | ,046              | -,415     | ,092              |
| b83 'I trust top management'               | 4927             | 1            | 5            | 2,94     | 1,244     | -,038     | ,035              | -1,060    | ,070              | 284<br>5 | 2,91                      | 1,221     | -,045     | ,046              | -1,030    | ,092              |
| b84 'I trust my immediate manager'         | 4934             | 1            | 5            | 3,32     | 1,316     | -,335     | ,035              | -1,051    | ,070              | 286<br>0 | 3,32                      | 1,293     | -,350     | ,046              | -,997     | ,092              |
| b85 'I trust my immediate supervisor'      | 3918             | 1            | 5            | 3,56     | 1,249     | -,583     | ,039              | -,690     | ,078              | 286<br>0 | 3,62                      | 1,208     | -,654     | ,046              | -,510     | ,092              |
| b86 'I trust my colleagues (team members)' | 4935             | 1            | 5            | 3,74     | 1,084     | -,739     | ,035              | -,042     | ,070              | 284<br>3 | 3,79                      | 1,037     | -,759     | ,046              | ,098      | ,092              |
| Mean Trust                                 | 4679             | 1            | 5            | 3,39     | 1,223     | -,424     | ,036              | -,711     | ,072              | 285<br>2 | 3,41                      | 1,190     | -,452     | ,046              | -,610     | ,092              |
| Valid N (listwise)                         | 2829             |              |              |          |           |           |                   |           |                   | 282<br>9 |                           |           |           |                   |           |                   |

## Appendix B: Covering letter and instructions

Dear Colleagues

Below is the summary table of the literature regarding the three constructs under which I want to classify my 70 items. These are ability, benevolence and integrity (ABI).

### **ABI Code**

On the accompanying Excel spreadsheet, kindly indicate next to each item which construct you think it belongs to (in column E), taking into consideration the theoretical descriptions given below.

- If there is more than one construct, list them in sequence of importance (e.g. AI or IA).
- In the case of the first 35 items that are generic items used in the Five-Factor Model (FFM) of personality, we thought one would need to look at the second term (positive/right side) as **all** items are **very positively skewed**. For example, for the item *Irresponsible vs responsible* we suggest you look at the “responsible” side.

### **“Construct validity”**

Lastly, I would appreciate it if you could indicate which five or six items you see as the most valid, relevant or appropriate measures of the different constructs (in columns F,G or H). A type of rank order would be very helpful for testing the model.

To make this task easier, I have included a summary table of the ABI constructs that I compiled from the long table following at the end of this document.

Your help is really appreciated.

Hartmut

098 765 4321

### Coding Guidelines for Ability, Benevolence, Integrity and Trust

| Study & Defining context  | Ability   | Benevolence  | Integrity   |
|---|---|--|---|
| Ho and Benbasat (2014)  | "...ability (competence), ..., competence is an external factor referring to the effective application of learned behavior. For example, a person can be competent by acquiring a set of skills." (Ho & Benbasat, 2014, p. 4)   | ...,benevolence (kindness), (Ho & Benbasat, 2014, p. 4)  | ...integrity (goodwill/ethics). ..., integrity is an internal (dispositional) cause, which refers to a person's internal dispositional state. For example, a person is willing to sacrifice his or her own time or energy to make a high integrity contribution regarding an assigned task. (Ho & Benbasat, 2014, p. 4) |
| Colquitt and Rodell (2011)<br><br>"Mayer and colleagues (1995) framed the concepts as facets of <i>trustworthiness</i> — attributes or characteristics of a trustee that inspire trust." (Colquitt & Rodell, 2011, p. 1184)                                 | <i>Ability</i> reflects concepts such as competence, skills, efficiency, and dedication. (Colquitt & Rodell, 2011, p. 1184)   | <i>Benevolence</i> reflects the sense that the trustee wants to "do good" to the trustor, with "doing good" including concepts such as being caring and open. (Colquitt & Rodell, 2011, p. 1184)   | <i>Integrity</i> reflects an adherence to a set of acceptable principles or a set of shared values." (Colquitt & Rodell, 2011, p. 1184)   |
| Colquitt, LePine, Zapata and Wild (2011)<br><br>"We defined trust in our study as a unitary construct that is driven by perceptions of ability, integrity, and benevolence, following Mayer and colleagues (1995)."<br><br>(Colquitt et al., 2011, p. 1001) | "By including ability and integrity as antecedents of trust, we sampled the same construct content that is found in operationalizations of knowledge- or cognition-based trust (Lewicki & Bunker, 1995; McAllister et al., 2006; McAllister, 1995; Shapiro et al., 1992)."<br><br>(Colquitt et al., 2011, p. 1001)<br><br>"Similarly, McAllister and colleagues' (2006) discussion of knowledge-based trust emphasized the importance of reliability, met expectations, and promise keeping (see also Lewicki & Bunker, 1995; McAllister, 1995; Shapiro et al., 1992)."<br><br>(Colquitt et al., 2011, p. 1001) | By including benevolence as an antecedent of trust, we sampled the same construct content that is found in operationalizations of goodwill- or affect-based trust (McAllister, 1995; McAllister et al., 2006).<br><br>(Colquitt et al., 2011, p. 1001) | "By including ability and integrity as antecedents of trust, we sampled the same construct content that is found in operationalizations of knowledge- or cognition-based trust (Lewicki & Bunker, 1995; McAllister et al., 2006; McAllister, 1995; Shapiro et al., 1992)."<br><br>(Colquitt et al., 2011, p. 1001)      |
| McEvily and Tortoriello (2011)  | "Ability is the first dimension and represents the skills, competencies and other   | "...benevolence, defined as the belief that a counterpart wants to do good to the counterpart,   | "Integrity is the third dimension and reflects the belief that the counterpart adheres to a set of  |

| Study & Defining context  | Ability   | Benevolence   | Integrity   |
|---|---|---|---|
|   | characteristics that allow a counterpart to have influence in some domain. "(McEvily & Tortoriello, 2011, p. 61)  | not solely from an egocentric profit motive." (McEvily & Tortoriello, 2011, p. 60)  | principles that the trustor finds acceptable." (McEvily & Tortoriello, 2011, p. 60)   |
| Searle, Weibel and Den Hartog (2011b)<br>"..., reliability, so far treated as a subcomponent of integrity, might be the essential trust driver in more calculative relationships and also in high-risk contexts." (Searle, Weibel et al., 2011, p. 145) |   | "Benevolence beliefs reflect the care and concern of the trustee for the well-being of the trusting employee." (Searle, Weibel et al., 2011, p. 145)  | "Integrity beliefs focus on whether the trustee is likely to adhere to moral principles and codes of behavior."<br>"... integrity as congruence between words and deeds..." "... set of shared core values ..." "..., reliability..." (Searle, Weibel et al., 2011, p. 145)   |
| Borum (2010)  | "...trustor's perceptions of a trustee's competence... predictability... or consistency" (Borum, 2010, pp. 13 - 14)   | "...is based on perceptions and demonstrations of caring ..., goodwill ... and empathy..., responsibly fulfilling obligations, and goal commitment." (Borum, 2010, p. 14)   | "...a trustee's objectivity, fairness ..., and accurate/honest communication, each of which also supports a trustee's perceived dedication or commitment to a goal..." (Borum, 2010, p. 14)   |
| Lapidot, Kark, & Shamir (2007, p. 17 – 18)  | "..... a group of skills, competencies, and characteristics that enable an individual to have influence within a specific domain (Mayer et al., 1995; Zand, 1972). Within this specific domain (e.g., some technical area) the trustee may be highly competent and trusted to perform well; however, he or she may have a limited ability in a different area (e.g., interpersonal communication) and may not be trusted in that domain." | "... the extent to which a trustee is believed to want to do good to the trustor, aside from a self-centered profit motive (Cook & Wall, 1980; Mayer et al., 1995; Mishra, 1996). Benevolence suggests that the trustee has some specific attachment to the trustor and is reflected in the perception of a positive orientation of the trustee toward the trustor ..." | "..., involves the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable. A sense of integrity involves both the adherence to and acceptability of the principles, since if a set of principles held by the trustee is not found acceptable by the trustor, the trustee would not be considered to have integrity ..." |
| Schoorman, Mayer & Davis (2007)   | ...is domain specific. ... The difference in the level of trust within the same relationship is a function of the different abilities across different domains. (Schoorman et al., 2007, p. 350).<br>[For example the partner can look after children but not drive sports car]   | "as the extent to which a party is believed to want to do good for the trusting party, aside from an egocentric profit motive" (Schoorman et al., 2007, p. 345)<br><br>"benevolence as a quality of a relationship" (Schoorman et al., 1996, p. 339)  | "...perception that the supplier has integrity suggests that it will fulfil agreements as promised." (Schoorman et al., 2007, p. 345)   |
| Dietz and Den Hartog (2006)   | "... competence refers to the other party's capabilities to carry out her/his obligations (in terms of skills and   | "... benevolence reflects benign motives and a personal degree of kindness toward the   | "... integrity involves adherence to a set of principles acceptable to the other party, encompassing honesty  |

| Study & Defining context   | Ability   | Benevolence   | Integrity   |
|--|---|---|---|
|  | knowledge); “ (Dietz & Den Hartog, 2006, p. 560).   | other party, and a genuine concern for their welfare;” (Dietz & Den Hartog, 2006, p. 560).  | and fair treatment, and the avoidance of hypocrisy” (Dietz & Den Hartog, 2006, p. 560).<br><br>“...“openness and honesty” as an equivalent to integrity,” (Dietz & Den Hartog, 2006, p. 568).   |
| Simons (2002)<br>“Behavioral Integrity (BI) is the perceived pattern of alignment between an actor's words and deeds.” (Simons, 2002, p. 19)   |   |   | “...the extent to which employees believe a manager “walks her talk,” and, conversely, it reflects the extent to which they see her as “talking her walk.””(Simons, 2002, p. 19)  |
| Davis, Schoorman, Mayer and Tan (2000)   | “... that group of skills and attributes which enables a party to have influence within some specific situation.”<br><br>“For a manager to be trusted, employees must perceive that he/she has the skills and aptitude to make a difference for them.”<br><br>“what can you do for me?” (Davis et al., 2000, p. 566)  | “...the extent to which the trustor perceives that the trustee intends to do good to the trustor in the relationship”<br>“...represents a positive personal orientation of the trustee to the trustor.” (Davis et al., 2000, p. 566)<br><br>“... is flexible in scheduling work hours and considering their opinions when making a decision. (Davis et al., 2000, p. 567)   | “... adheres to a set of principles that the employee finds acceptable. Such factors as consistency, a reputation for honesty, and fairness all contribute to the employee’s perception of GM integrity.”<br><br>“...is just, honest and fair.” (Davis et al., 2000, p. 567)  |
| <b>Studies with items</b>  |   |   |   |
| Colquitt, Scott and LePine (2007)<br><br>The trust literature distinguishes <i>trustworthiness</i> (the ability, benevolence, and integrity of a trustee) and <i>trust propensity</i> (a dispositional willingness to rely on others) from <i>trust</i> (the intention to accept vulnerability to a trustee based on positive expectations of his or her actions). (Colquitt et al., 2007, p. 909) | Ability: “that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain” (Mayer et al., 1995, p. 717).<br><br><i>Mayer et al. (1995) synonyms:</i><br>Competence, perceived expertise<br><br>“... scales designed to assess ability, like, “competence,” “expertise,” “knowledge,” and “talent” (Mayer & Davis, 1999). “<br><br>(Colquitt et al., 2007, p. 913) | Benevolence; “the extent to which the trustee is believed to want to do good to the trustor, aside from an egocentric profit motive” (Mayer et al., 1995, p. 718).<br><br><i>Mayer et al. (1995) synonyms:</i><br>Loyalty, openness, caring, receptivity availability<br><br>“.. scales designed to assess benevolence, like “openness,” “loyalty,” “concern,” and “perceived support” (Mayer & Davis, 1999). Perceived support was included because its focus on caring, valuing, showing concern, and | Integrity: “the perception that the trustee adheres to a set of principles that the trustor finds acceptable” (Mayer et al., 1995, p. 719).<br><br><i>Mayer et al. (1995) synonyms:</i> Fairness, consistency, promise fulfilment, reliability, value congruence, discreetness<br><br>“... scales designed to assess integrity, like, “promise keeping,” “credibility,” and “procedural justice” (Mayer & Davis, 1999).”<br>“... procedural justice... its focus on the consistency, bias suppression, and ethicality of decision making” |

| Study & Defining context   | Ability  | Benevolence   | Integrity  |
|--|--|---|--|
|  |  | helping the focal individual" (Colquitt et al., 2007, p. 913)   | (Colquitt et al., 2007, p. 913)  |
| Organisational Trust Instrument (Mayer & Davis, 1999) (Mayer & Gavin, 2005) * = reverse coded Scale (1 = disagree strongly to 5 = agree strongly) (McEvily & Tortoriello, 2011, p. 61) | Trustworthiness (Ability)<br>1. Top management is very capable of performing its job.<br>2. Top management is known to be successful at the things it tries to do.<br>3. Top management has much knowledge about the work that needs to be done.<br>4. I feel very confident about top management's skills.<br>5. Top management has specialised capabilities that can increase our performance.<br>6. Top management is well qualified. | Trustworthiness (Benevolence)<br>1. Top management is very concerned about my welfare.<br>2. My needs and desires are very important to top management.<br>3. Top management would not knowingly do anything to hurt me.<br>4. Top management really looks out for what is important to me.<br>5. Top management will go out of its way to help me.   | Trustworthiness (Integrity)<br>1. Top management has a strong sense of justice.<br>2. I never have to wonder whether top management will stick to its word.<br>3. Top management tries hard to be fair in dealings with others.<br>4. Top management's actions and behaviours are not very consistent.* [D&D - predictability]<br>5. I like top management's values.<br>6. Sound principles seem to guide top management's behaviour.    |
| Managerial Interpersonal Trust Instrument (McAllister, 1995)<br><br>* = reverse coded Scale (1 = strongly disagree to 7 = strongly agree) (McEvily & Tortoriello, 2011, p. 56)         | [Item categorisation according to Dietz & Den Hartog, 2006, appendix 2]<br><br>This person approaches her/his job with professionalism and dedication<br>Given this person's track record, I see no reason to doubt her/his competence and preparation for the job<br>I can rely on this person not to make my job more difficult by careless work<br>Competence   | [Item categorisation according to Dietz & Den Hartog, 2006, appendix 2]<br><br>We have a sharing relationship. We can both freely share our ideas, feelings and hopes<br>I can talk freely to this individual about difficulties I am having at work and know that (s)he will want to listen<br>If I shared my problems with this person, I know that (s)he would respond constructively and caringly | [Item categorisation according to Dietz & Den Hartog, 2006, appendix 2]<br><br>If people knew more about this individual and her/his background, they would be more concerned and monitor her/his performance more closely*  |
| Cummings and Bromiley (1996) (also available in Dietz & Den Hartog, 2006, p. 582)  | 2. We think that ( ) meets its negotiated obligations to our department [D&D - Predictability/competence]<br>3. In our opinion, ( ) is reliable [D&D - Predictability]   | 5. We feel that ( ) tries to get the upper hand * [D&D -Benevolence]<br>6. We think that ( ) takes advantage of our problems * [D&D - Benevolence]<br>12. We feel that ( ) takes advantage of people who are vulnerable * [D&D - Benevolence/ Integrity]  | 1. We think the people in ( ) tell the truth in negotiations [D&D - Integrity]<br>4. We think that the people in ( ) succeed by stepping on other people* [D&D -Integrity]<br>7. We feel that ( ) negotiates with us honestly [D&D -Integrity]<br>8. We feel that ( ) will keep its word [D&D - Predictability/ integrity]<br>9. We think that ( ) does not mislead us [D&D - Integrity]<br>10. We feel that ( ) tries to get out of its |

| Study & Defining context  | Ability  | Benevolence  | Integrity  |
|---|--|--|--|
|   |  |  | commitments* [D&D – Integrity]<br>11. We feel that ( ) negotiates joint expectations fairly [D&D – Integrity]  |
| Jarvenpaa, Knoll & Leidner, (1998, p. 37) – adjusted Schoorman et al., instrument to reflect team as foci, the trustee was accordingly described as a “collective entity”   | <p>“<i>Ability</i> refers to the group of skills that enable a trustee to be perceived competent within some specific domain.” (Jarvenpaa et al., 1998, p. 31)</p> <p>I feel very confident about the other team members' skills.</p> <p>The other team members have much knowledge about the work that needs to be done.</p> <p>The other team members have specialized capabilities that can increase our performance.</p> <p>The other team members are well qualified.</p> <p>The other team members are very capable of performing their tasks.</p> <p>The other team members seem to be successful in the activities they undertake.</p> <p>(Jarvenpaa, et al., 1998, p. 63)</p> | <p>“<i>Benevolence</i> is the extent to which a trustee is believed to feel interpersonal care and concern, and the willingness to do good to the trustor beyond an egocentric profit motive.” (Jarvenpaa et al., 1998, p. 31)</p> <p>The other team members were very concerned about the ability of the team to get along.</p> <p>The outcomes of this project are very important to the other team members.</p> <p>The other team members would not knowingly do anything to disrupt or slow down the project.</p> <p>The other team members are concerned about what is important to the team.</p> <p>The other team member will do everything within their capacity to help the team perform.</p> <p>(Jarvenpaa, et al., 1998, p. 63)</p> | <p>“<i>Integrity</i> is adherence to a set of principles (such as study/work habits) thought to make the trustee dependable and reliable, according to the trustor.” (Jarvenpaa et al., 1998, p. 31)</p> <p>The other team members try hard to be fair in dealing with one another.</p> <p>The other team members have a strong sense of commitment.</p> <p>I never am doubtful about whether the other team members will do what they promised.</p> <p>I like the work values of the member on this team.</p> <p>The other team member do not behave in a consistent manner- I am never sure if they are going to do what they promise or not.</p> <p>The other team member display a solid work ethic.</p> <p>(Jarvenpaa, et al., 1998, p. 63)</p> |
| Behavioural Trust Inventory (Gillespie, 2003)<br>Instructions: How willing are you to ...<br>Scale (1 = not at all willing to 7 = completely willing)<br>(Dietz & Den Hartog, 2006, 587; Gillespie, 2012; McEvily & Tortoriello, 2011, pp. 62-63) | N/A Based on Zand (1972)<br>1. . . . rely on your leader's work-related judgements? [D&D - Competence/ predictability]<br>2. . . . rely on your leader's task-related skills and abilities? [D&D - Competence/ predictability]   | N/A Based on Zand (1972)<br>3. . . . depend on your leader to handle an important issue on your behalf? [D&D - Benevolence/ competence/ predictability]<br>4. . . . rely on your leader to represent your work accurately to others? [D&D - Benevolence/ competence/ predictability]<br>5. . . . depend on your leader to back you up in difficult situations? [D&D - Benevolence/ competence/ predictability]   | N/A Based on Zand (1972)   |

| Study & Defining context  | Ability | Benevolence  | Integrity   |
|---|---------|--|---|
| Robinson (1996)<br>Organisational trust<br>“statements concerning the reliability, dependability and integrity of the organisation (e.g., I believe my employer is open and upfront with me), and asked to indicate their agreement on 7-point scales (1_strongly disagree; 7_strongly agree).”<br>(Gellatly & Withey, 2012, p. 38) |         | 4. In general, I believe my employer’s motives and intentions are good [D&D - Benevolence] | 1. I believe my employer has high integrity [D&D - Integrity]<br>2. I can expect my employer to treat me in a consistent and predictable fashion [D&D - Predictability]<br>3. My employer is not always honest and truthful*[D&D - Integrity]<br>5. I don’t think my employer treats me fairly* [D&D - Integrity/benevolence]<br>6. My employer is open and upfront with me [D&D - Integrity] |

Note. [D&D – *component name*] represents the item categorisation according to Dietz and Den Hartog (2006). This refers to the fact that they “categorised each item in each measure to discern which of the four content components the wording seemed to capture – regardless of any category assigned to it by the author(s) – to gauge the proportionate attention given to each (p. 565)”

### Coding Guidelines for the Trust Measure

| Study – Defining context                 | Trust measure (criterion / dependent variable)   |
|--|--|
| Frazier, Johnson and Fainshmidt (2013)   | <p><i>Propensity to trust</i></p> <p><b>Final items</b></p> <ul style="list-style-type: none"> <li>• I usually trust people until they give me a reason not to trust them.</li> <li>• Trusting another person is not difficult for me.</li> <li>• My typical approach is to trust new acquaintances until they prove I should not trust them.</li> </ul> <p>My tendency to trust others is high.</p> <p><b>Items not retained in final CFA</b></p> <p><i>Propensity to trust</i></p> <ul style="list-style-type: none"> <li>• It is easy for me to trust others.</li> <li>• Even if I am uncertain, I will generally give others the benefit of the doubt.</li> <li>• I generally believe that others can be counted on to do what they say they will do.</li> <li>• I tend to trust others even if I have little knowledge of them.</li> <li>• I generally give people the benefit of the doubt when I first meet them.</li> <li>• I am seldom wary of others. I don’t mind giving up control to others over matters which are essential to my future plans.</li> </ul> <p>I believe that people usually keep their promises.</p> |
| Colquitt, LePine, Zapata and Wild (2011) | <p><i>Global trust.</i></p> <p>“In general, I trust my coworkers,”</p> <p>“It bothers me to think that I am vulnerable to</p> <p>“In addition, we included identification as an antecedent of trust, in an effort to sample the same construct content that is</p> <p>“It is important to note that the use of the word “trust” in the items classifies this measure as a “direct measure.”</p>  |

| Study – Defining context  | Trust measure (criterion / dependent variable)   |   |  |
|---|--|---|--|
| <p>construct that is driven by perceptions of ability, integrity, and benevolence, following Mayer and colleagues (1995).”</p> <p>(Colquitt et al., 2011, p. 1001)</p>  | <p>my coworkers’ actions” (reverse-coded), “It bothers me when I have to rely on my coworkers during job tasks,”</p> <p>“I am confident that my coworkers will do the right thing on the job,” and</p> <p>“I am confident that I can depend on my coworkers when performing job tasks.”</p> <p>We utilized an ad hoc scale for global trust because existing scales are either unreliable or include items that actually reflect trust antecedents such as ability, integrity, or benevolence (Colquitt et al., 2011, p. 1006)</p> | <p>found operationalizations of identification-based trust” (Colquitt et al., p. 1001)</p>  | <p>in Measures based on a willingness-to-be-vulnerable definition are typically used in conjunction with Mayer and colleagues’ (1995) unitary conceptualization of trust, but those measures have sometimes proven unreliable (Mayer &amp; Davis, 1999; Mayer &amp; Gavin, 2005; Schoorman, Mayer, &amp; Davis, 2007). Direct measures have proven to be reliable in past research, and the use of the word “trust” makes responding to the 18 tasks simpler than it would be with a willingness-to-be-vulnerable phrasing. (Colquitt et al., 2011, p. 1005)</p> |
| <p>Dietz and Den Hartog (2006)</p>  | <p>“Cunningham and MacGregor (2000, pp. 1578-9) and Mishra (1996, p. 265) have both made powerful arguments for including predictability (or reliability).” (Dietz &amp; Den Hartog, 2006, p. 560)</p>   |   | <p>“...predictability relates specifically to consistency and regularity of behaviour (and as such is distinct from competence or integrity).” (Dietz &amp; Den Hartog, 2006, p. 560)</p> <p>“...other’s consistency and reliability...” (Dietz &amp; Den Hartog, 2006, p. 568)</p>  |
| <p>Colquitt, Scott and LePine (2007)</p> <p>The trust literature distinguishes <i>trustworthiness</i> (the ability, benevolence, and integrity of a trustee) and <i>trust propensity</i> (a dispositional willingness to rely on others) from <i>trust</i> (the intention to accept vulnerability to a trustee based on positive expectations of his or her actions). (Colquitt et al., 2007, p. 909)</p> | <p><i>Trust</i></p> <p>Items that represent positive expectations of the trustor concerning trustee actions or behaviours such as “How confident do you feel that your superior keeps you fully and frankly informed about things that might concern you?” (Read in Colquitt et al., 2007, p. 914).</p>  | <p><i>Propensity to trust</i></p> <p>In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy</p> <p>Parents usually can be relied upon to keep their promises</p> <p>Parents and teachers are likely to say what they believe themselves and not just what they think is good for the child to hear.</p> <p>Most elected public officials are really sincere in their campaign promises (Rotter, 1967, p. 654)</p> |  |
| <p>Organisational Trust Instrument (Mayer &amp; Davis , 1999) (Mayer &amp; Gavin, 2005) * = reverse coded Scale (1 = disagree</p>   | <p><i>Willingness-to-be-vulnerable</i></p> <p>1. If I had my way, I wouldn’t let top management have any influence over issues</p>   | <p><i>Propensity to trust</i></p> <p>1. One should be very cautious with strangers.</p> <p>2. Most experts tell the truth about the limits of their knowledge.</p>  | <p>Outcome instrumentality</p> <p>1. Whether or not I get a raise depends on my performance.</p> <p>2. If you are one of the better performers in this</p>   |

**Study – Defining Trust measure (criterion / dependent variable) context**

|   |  |   |  |
|---|--|---|--|
| <p>strongly to 5 = agree strongly)<br/>(McEvily &amp; Tortoriello, 2011, p. 61)</p> | <p>that are important to me.* [D&amp;D -Intention to Act?/General]<br/>2. I would be willing to let top management have complete control over my future in this company. [D&amp;D - Intention to Act?/ General/ Benevolence]<br/>3. I really wish I had a good way to keep an eye on top management.* [D&amp;D - Intention to Act?/General]<br/>4. I would be comfortable giving top management a task or problem which was critical to me, even if I could not monitor their actions. [D&amp;D -Intention to Act?/ General / Competence]</p>  | <p>3. Most people can be counted on to do what they say they will do.<br/>4. These days, you must be alert or someone is likely to take advantage of you.<br/>5. Most salespeople are honest in describing their products.<br/>6. Most repair people will not overcharge people who are ignorant of their specialty.<br/>7. Most people answer public opinion polls honestly.<br/>8. Most adults are competent at their jobs.</p> | <p>company, you will get one of the better raises.<br/>3. If I perform well, my chances of moving up are improved.<br/><br/>Ability to Focus<br/>1. The work climate here allows me to focus on doing my job.<br/>2. In this company, you need to make sure you “cover your backside.”<br/>3. There are issues in this company which take my attention away from doing my job.<br/>4. I need to spend a fair amount of my time getting information to protect myself.<br/>5. If you don’t watch out for yourself around here, you won’t get what’s coming to you.<br/>6. I don’t feel like I need to worry about the politics in this company.</p> |
|   | <p><i>Additional trust items (Mayer &amp; Gavin, 2005)</i><br/>1. I would tell ___ about mistakes I’ve made on the job, even if they could damage my reputation.<br/>2. I would share my opinion about sensitive issues with ___ even if my opinion were unpopular.<br/>3. I am afraid of what ___ might do to me at work.<br/>4. If ___ asked why a problem happened, I would speak freely even if I were partly to blame.<br/>5. If someone questioned ___’s motives, I would give ___ the benefit of the doubt. [General item loaded with four items above]<br/>6. If ___ asked me for something, I respond without thinking about whether it might be held against me.</p> | <p>Cognition-based trust<br/>1. This person approaches his/her job with professionalism and dedication.<br/>2. Given this person’s</p>  | <p>Affect-based trust<br/>1. We have a sharing relationship. We can both freely share our ideas, feelings, and hopes.<br/>2. I can talk freely to this</p>   |
| <p>Managerial Interpersonal Trust Instrument (McAllister, 1995)</p>                 | <p>-</p>   |   |  |
| <p>* = reverse coded</p>  |  |   |  |

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Study – Defining Trust measure (criterion / dependent variable) context

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|  |  |   |
|--|--|---|
| <p>Scale (1 = strongly disagree to 7 = strongly agree)</p> <p>(McEvily &amp; Tortoriello, 2011, p. 56)</p> | <p>track record, I see no reason to doubt his/her competence and preparation for the job.</p> <p>3. I can rely on this person not to make my job more difficult by careless work.</p> <p>4. Most people, even those who aren't close friends of this individual, trust and respect him/her at work.</p> <p>5. Other work associates of mine who must interact with this individual consider him/her to be trustworthy.</p> <p>6. If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.*</p>   | <p>individual about difficulties I am having at work and know that (s)he will want to listen.</p> <p>3. We would both feel a sense of loss if one of us was transferred and we could no longer work together.</p> <p>4. If I shared my problems with this person, I know (s)he would respond constructively and caringly</p> <p>5. I would have to say that we have both made considerable emotional investments in our working relationship.</p> |
| <p>Schoorman, Mayer &amp; Davis (2007)</p>   | <p>Trust Items (from Schoorman and Ballinger)</p> <p>My supervisor keeps my interests in mind when making decisions.</p> <p>I would be willing to let my supervisor have complete control over my future in this company.</p> <p>If my supervisor asked why a problem occurred, I would speak freely even if I were partly to blame.</p> <p>I feel comfortable being creative because my supervisor understands that sometimes creative solutions do not work.</p> <p>It is important for me to have a good way to keep an eye on my supervisor.</p> <p>Increasing my vulnerability to criticism by my supervisor would be a mistake.</p> <p>If I had my way, I wouldn't let my supervisor have any influence over decisions that are important to me.</p> | <p>"We defined trust as a willingness to be vulnerable to another party. ..., suitable measurement of the construct necessitates that questions be asked that assess the extent to which a trustor is willing to voluntarily take risks at the hands of the trustee." (Schoorman et al., 2007, p. 347)</p>  |
| <p>Jarvenpaa, Knoll &amp; Leidner, (1998, p. 37) – adjusted Schoorman et</p>                               | <p><i>Trust</i></p> <p>If I had my way, I wouldn't let the other</p>   | <p><i>Propensity to Trust (in foreign international students)</i></p> <p><i>Trustworthiness</i></p> <p>Members of my work group show a great deal</p>   |

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**Study – Defining Trust measure (criterion / dependent variable) context**

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|   |   |  |   |
|---|---|--|---|
| <p>al., instrument to reflect team as foci, the trustee was accordingly described as a “collective entity”</p>  | <p>team members have any influence over issues that are important to the project. I would be comfortable giving the other team members complete responsibility for the completion of this project. I really wish I had a good way to oversee the work of the other team members on the project. I would be comfortable giving the other team members a task or problem that was critical to the project, even if I could not monitor them. (Jarvenpaa, et al., 1998, pp. 63-64)</p> | <p>“...is influenced by a trustor's cultural, social, developmental experiences, and personality type” (Jarvenpaa et al., 1998, p. 31)</p> <p>One should be very cautious when working with foreign students. Most foreign students tell the truth about the limits of their knowledge. Most foreign students can be counted on to do what they say they will do. If possible, it is best to avoid working with foreign students on projects. Most foreign students are honest in describing their experience and abilities. Most foreign students answer personal question honestly. Most foreign students are very competent in terms of their studies. (Jarvenpaa, et al., 1998, p. 64)</p> | <p>of integrity. I can rely on those with whom I work in this group. Overall, the people in my group are very trustworthy. We are usually considerate of one another's feelings in this work group. The people in my group are friendly. There is no "team spirit" in my group. There is a noticeable lack of confidence among those with whom I work. We have confidence in one another in this group. (Jarvenpaa, et al., 1998, p. 64)</p>  |
| <p>Behavioural Trust - Inventory (Gillespie, 2003) Instructions: How willing are you to ... Scale (1 = not at all willing to 7 = completely willing) (Dietz &amp; Den Hartog, 2006, 587; Gillespie, 2012; McEvily &amp; Tortoriello, 2011, pp. 62-63)</p> | <p>Trust -</p>  | <p>Reliance</p> <ol style="list-style-type: none"> <li>1. Rely on your leader's work-related judgements.</li> <li>2. Rely on your leader's task-related skills and abilities.</li> <li>3. Depend on your leader to handle an important issue on your behalf.</li> <li>4. Rely on your leader to represent your work accurately to others.</li> <li>5. Depend on your leader to back you up in difficult situations.</li> </ol>   | <p>Disclosure</p> <ol style="list-style-type: none"> <li>1. Share your personal feelings with your leader. [D&amp;D - Benevolence/integrity]</li> <li>2. Confide in your leader about personal issues that are affecting your work. [D&amp;D - Benevolence/competence/integrity]</li> <li>3. Discuss how you honestly feel about your work, even negative feelings and frustration. [D&amp;D - Benevolence/competence/integrity]</li> <li>4. Discuss work-related problems or difficulties that could potentially be used to disadvantage you. [D&amp;D - Benevolence/competence/integrity]</li> <li>5. Share your personal beliefs with your leader. [D&amp;D - Benevolence/competence/integrity]</li> </ol> |
| <p>Robinson (1996) Organisational trust “statements concerning the reliability,</p>   | <p>I'm not sure I fully trust my employer. [D&amp;D - General]</p>  |  |   |

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## Study – Defining Trust measure (criterion / dependent variable) context

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dependability and integrity of the organisation (e.g., I believe my employer is open and upfront with me), and asked to indicate their agreement on 7-point scales (1\_strongly disagree; 7\_strongly agree).” (Gellatly & Withey, 2012, p. 38)

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Note. [D&D – component name] stands for item categorisation according to Dietz and Den Hartog (2006, appendix 2). This refers to the fact that they “...categorised each item in each measure to discern which of the four content components the wording seemed to capture – regardless of any category assigned to it by the author(s) – to gauge the proportionate attention given to each... (p. 565)”

### SUMMARY TABLE ABI

#### ABILITY

- capabilities to carry out their obligations (in terms of skills and knowledge);
- capable (\_\_) are very capable of performing their tasks.
- capable (\_\_) is very capable of performing their job.
- lead / influence within a specific domain
- competence, skills, also perceived competence
- consistency
- dedication.
- different domain specific abilities
- efficiency
- expertise
- Given this person's track record, I see no reason to doubt her/his competence and preparation for the job
- Has the skills and aptitude to make a difference for them.
- I can rely on this person not to make my job more difficult by careless work
- I feel very confident about (\_\_)' skills.
- reliable (\_\_) is reliable [D&D –Predictability]
- knowledge (\_\_) has much knowledge about the work that needs to be done.
- met expectations
- performance increase (\_\_) has specialised capabilities that can increase our performance.
- predictability
- qualified. (\_\_) are well qualified.
- rely on your leader's task-related skills and abilities? [D&D - Competence/ predictability]
- rely on your leader's work-related judgements? [D&D - Competence/ predictability]
- skills,
- successful (\_\_) is known to be successful at the things it tries to do.
- successful (\_\_) seem to be successful in the activities they undertake.
- talent
- This person approaches her/his job with professionalism and dedication
- We think that (\_\_) meets its negotiated obligations to our department [D&D -Predictability/ competence]
- What can you do for me?

## BENEVOLENCE

- **Synonyms: Loyalty, openness, caring, receptivity availability**
- **Scales designed to assess: "openness," "loyalty," "concern," and "perceived support (focus on caring, valuing, showing concern, and helping the focal individual)**
- ( ) are concerned about what is important to the team.
- ( ) is very concerned about my **welfare**.
- ( ) really looks out **for what is important** to me.
- ( ) were very concerned about the ability of the team to *get along*.
- ( ) will do everything within their capacity to **help the team perform**.
- ( ) will **go out of its way to help me**.
- ( ) would not knowingly do anything to disrupt or slow down the project.
- ( ) would not knowingly **do anything to hurt me**.
- being caring and open
- believed to want to do good for the trusting party,
- benevolence as a quality of a relationship
- benign motives
- concern for their welfare
- considering their opinions when making a decision.
- depend on your leader to back you up in difficult situations? [D&D - Benevolence/ competence/ predictability]
- depend on your leader to handle an important issue on your behalf? [D&D - Benevolence/ competence/ predictability]
- feel interpersonal care and concern
- flexible in scheduling work hours
- goodwill- or affect-based trust
- I can **talk freely** to this individual about **difficulties** work and know that (s)he will want to listen
- If I *shared* my problems with this person, I know that (s)he would **respond constructively and caringly**
- intends to do good to the trustor in the relationship
- kindness toward others
- motives and intentions are good
- My **needs and desires** are very important to ( ).
- perception of a positive orientation of the trustee toward the trustor
- perceptions and demonstrations of **goodwill** and **empathy**
- rely on your leader to represent your work accurately to others? [D&D - Benevolence/ competence/ predictability]
- **responsibly** fulfilling obligations, and goal commitment
- specific attachment to the trustor
- the care and concern of the trustee for the **well-being** of the trusting employee
- The outcomes of this project are very important to the ( ).
- the willingness to do good
- trustee wants to "do good" to the trustor
- want to do good to the trustor,
- wants to do good to the counterpart, not solely from an egocentric profit motive
- We can both freely *share* our ideas, feelings and hopes
- We feel that ( ) takes advantage of people who are vulnerable \* [D&D -Benevolence/ Integrity]
- We feel that ( ) tries to get the upper hand\*
- We have a *sharing* relationship.
- We think that ( ) takes advantage of our problems\*

## INTEGRITY

- accurate communication
- behaviour past - If people knew more about this individual and her/his background, they would be more concerned and monitor her/his performance more closely\*
- bias suppression,
- commitment ( ) have a strong sense of commitment.
- commitment or dedication trustee's perceived goals
- commitments. We feel that ( ) tries to get out of its commitments\* [D&D – Integrity]
- **congruence** - manager "walks the talk,"
- congruence - seen to "talking the walk"
- congruence between words and deeds
- congruence stick to its word. I never have to wonder whether ( ) will stick to its word.
- congruence stick to their word. We feel that ( ) will keep its word [D&D - Predictability/ integrity]
- congruence stick to their word -I never am doubtful about whether ( ) will do what they promised.

- consistency
- consistent (\_\_) do not behave in a consistent manner- I am never sure if they are going to do what they promise or not\*
- consistent (\_\_)'s actions and behaviours are not very consistent.\* [D&D - predictability]
- consistent -expect (\_\_) to treat me in a consistent and predictable fashion [D&D - Predictability]
- credibility,
- dedication trustee's perceived *to goals*
- dependable
- ethic. (\_\_) display a solid work ethic.
- ethicality of decision making
- expectations,met
- **fair**
- fair (\_\_) tries hard to be fair in dealings with others.
- fair (\_\_) try hard to be fair in dealing with one another.
- fair - We feel that (\_\_) negotiates joint expectations fairly
- fair treatment
- fairly treats [D&D - Integrity/benevolence]
- fairness
- fulfil agreements as promised
- honest and truthful
- **honesty**
- honesty - We think the people in (\_\_) tell the truth in negotiations
- honesty -We feel that (\_\_) negotiates with us honestly
- hypocrisy -avoidance of hypocrisy
- integrity -has high
- just,
- justice (\_\_) has a strong sense of justice
- not mislead. We think that (\_\_) does not mislead us [D&D – Integrity]
- objectivity, a trustee's
- open and upfront with me
- openness and honesty
- predictable
- **principles**
- principles - trustee is likely to adhere to moral principles and codes of behavior
- principles adherence to principles (e.g. work habits)
- principles that the trustor finds acceptable.”
- principles -Sound principles seem to guide (\_\_)'s behaviour. procedural justice fair
- promise keeping
- reliability
- values - set of shared core values
- values - I like (\_\_)'s values.
- values I like the work values of (\_\_).
- values shared
- We think that the people in (\_\_) succeed by stepping on other people\*

### Technical summary table:

|  | Ability Key Concepts  | Benevolence Key Concepts  | Integrity Key Concepts  |
|--|---|---|---|
| Ho and Benbas at (2014)                  | Competence, application of learned behaviour, gaining skills (external disposition) | Kindness  | Goodwill / ethics (internal disposition)                              |
| Colquitt and Rodell (2011)               | competence, skills, efficiency, dedication.   | trustee wants to “do good” to the trustor being caring and open | adherence to a set of acceptable principles or a set of shared values |
| Colquitt, LePine, Zapata and Wild (2011) | met expectations,   | goodwill- or affect-based trust                                 | reliability, met expectations, promise keeping                        |

|  |   |  |   |
|--|---|--|---|
| McEvily and Tortoriello (2011)         | skills, competencies  | wants to do good to the counterpart, not solely from an egocentric profit motive   | "adheres to a set of principles that the trustor finds acceptable."   |
| Searle, Weibel and Den Hartog (2011b)  |   | the care and concern of the trustee for the well-being of the trusting employee  | the trustee is likely to adhere to moral principles and codes of behavior<br>congruence between words and deeds<br>set of shared core values<br>reliability   |
| Borum (2010)                           | a trustee's competence<br>predictability<br>consistency   | perceptions and demonstrations of goodwill and empathy<br><b>responsibly</b> fulfilling obligations, and goal commitment   | a trustee's objectivity, accurate/honest communication<br>trustee's perceived <b>dedication or commitment</b> to a goal   |
| Lapidot, Kark, & Shamir (2007)         | skills, competencies, characteristics lead influence within a specific domain                       | want to do good to the trustor, specific attachment to the trustor<br>perception of a positive orientation of the trustee toward the trustor   | adherence to and acceptability of principles  |
| Schoorman, Mayer & Davis (2007)        | different domain specific abilities   | believed to want to do good for the trusting party, benevolence as a quality of a relationship   | suggests s/he will fulfil agreements as promised  |
| Dietz and Den Hartog (2006)            | capabilities to carry out her/his obligations (in terms of skills and knowledge);                   | benign motives<br>a personal degree of kindness toward others<br>a genuine concern for their welfare   | adhere to principles acceptable to others<br>honesty<br>fair treatment<br>avoidance of hypocrisy<br>openness and honesty  |
| Simons (2002)                          |   |  | manager "walks the talk," seen to "talking the walk"  |
| Davis, Schoorman, Mayer and Tan (2000) | has the skills and aptitude to <b>make a difference</b> for them.<br><i>What can you do for me?</i> | "...the extent to which the trustor perceives that the trustee intends to do good to the trustor in the relationship"<br>"...represents a positive personal orientation of the trustee to the trustor." (Davis et al., 2000, p. 566) "... is flexible in scheduling work hours and considering their opinions when making a decision. (Davis et al., 2000, p. 567) | "... adheres to a set of principles that the employee finds acceptable. Such factors as consistency, a reputation for honesty, and fairness all contribute to the employee's perception of GM integrity."<br>"...is just, honest and fair." (Davis et al., 2000, p. 567)  |
| Colquitt, Scott and LePine (2007)      | perceived competence<br>expertise<br>knowledge<br>talent  | <i>Synonyms:</i> Loyalty, openness, caring, receptivity availability<br><i>Scales designed to assess:</i> "openness," "loyalty," "concern," and "perceived support (focus on caring, valuing, showing concern, and helping the focal individual)"  | <i>Synonyms:</i> Fairness, consistency, promise fulfillment, reliability, value congruence, discretionness<br><i>Scales designed to assess</i> "promise keeping," "credibility," and "procedural justice" (procedural justice... its focus on the consistency, bias suppression, and ethicality of decision making) |

|  |  |   |  |
|--|--|---|--|
| Organisational Trust Instrument (Mayer & Davis, 1999; Mayer & Gavin, 2005) | (_) is very <b>capable</b> of performing its job.<br>(_) is known to be <b>successful</b> at the things it tries to do.<br>(_) has much <b>knowledge</b> about the work that needs to be done.<br>I feel very <b>confident</b> about (')s skills.<br>(_) has <b>specialised capabilities</b> that can <b>increase our performance</b> .<br>(_) is well <b>qualified</b> .  | (_) is very concerned about my <b>welfare</b> .<br>My <b>needs and desires</b> are very important to (_).<br>(_) would not knowingly <b>do anything to hurt me</b> .<br>(_) really looks out <b>for what is important</b> to me.<br>(_) will <b>go out of its way to help me</b> .  | (_) has a strong sense of <b>justice</b><br>I never have to wonder whether (') will stick to its word.<br>(_) tries hard to be <b>fair</b> in dealings with others.<br>(')s actions and behaviours are not very consistent.* [D&D - predictability]<br>I like (')s <b>values</b> .<br>Sound <b>principles</b> seem to guide (')s behaviour.  |
| Managerial Interpersonal Trust Instrument (McAllister, 1995)               | This person approaches her/his job with <b>professionalism</b> and dedication<br>Given this person's <b>track record</b> , I see no reason to doubt her/his competence and <b>preparation</b> for the job<br>I can rely on this person not to make my job <b>more difficult by careless work</b>   | We have a sharing relationship. We can both freely share our ideas, feelings and hopes<br>I can <b>talk freely</b> to this individual about <b>difficulties</b> work and know that (s)he will want to listen<br>If I shared my problems with this person, I know that (s)he would <b>respond constructively and caringly</b>  | If people knew more about this individual and her/his background, they would be more concerned and monitor her/his performance more closely*   |
| Cummins and Bromiley (1996)  | We think that (') meets its <b>negotiated obligations</b> to our department [D&D - Predictability/ competence]<br>In our opinion, (') is <b>reliable</b> [D&D - Predictability]  | We feel that (') tries to get the upper hand*<br>We think that (') takes advantage of our problems*<br>We feel that (') takes advantage of people who are vulnerable * [D&D - Benevolence/ Integrity]   | We think the people in (') tell the truth in negotiations<br>We think that the people in (') succeed by stepping on other people*<br>We feel that (') negotiates with us honestly [D&D - Integrity] 8. We feel that (') will keep its word [D&D - Predictability/ integrity] 9. We think that (') does not mislead us [D&D - Integrity] 10. We feel that (') tries to get out of its commitments* [D&D - Integrity]<br>We feel that (') negotiates joint expectations fairly [D&D - Integrity] |
| Jarvenpaa, Knoll & Leidner, (1998, p. 37)                                  | I feel very confident about (')' <b>skills</b> .<br>(_) have much <b>knowledge</b> about the work that needs to be done.<br>(_) have specialized <b>capabilities</b> that can increase our performance.<br>(_) are well <b>qualified</b> .<br>(_) are very <b>capable</b> of performing their tasks.<br>(_) seem to be <b>successful</b> in the activities they undertake. | feel interpersonal care and concern<br>the willingness to do good<br>(_) were very concerned about the ability of the team to get along.<br>The outcomes of this project are very important to the (_).<br>(_) would not knowingly do anything to disrupt or slow down the project.<br>(_) are concerned about what is important to the team.<br>(_) will do everything within their capacity to <b>help the team perform</b> . | adherence to a set of principles (study/work habits)<br>trustee dependable and reliable<br>(_) try hard to be <b>fair</b> in dealing with one another.<br>(_) have a strong sense of commitment.<br>I never am doubtful about whether (') will do what they promised.<br>I like the work values of (_).<br>(_) do not behave in a <b>consistent</b> manner- I am never sure if they are going to do what they promise or not*<br>(_) display a solid work <b>ethic</b> .                       |
| Behavioral Trust Inventory (Gillespie, 2003)                               | rely on your leader's work-related judgements? [D&D - Competence/ predictability]<br>rely on your leader's task-related skills and abilities? [D&D - Competence/ predictability]   | depend on your leader to handle an important issue on your behalf? [D&D - Benevolence/ competence/ predictability]<br>rely on your leader to represent your work accurately to others? [D&D - Benevolence/ competence/ predictability]  |  |

depend on your leader to back  
you up in difficult situations?  
[D&D - Benevolence/  
competence/ predictability]

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Robinson  
(1996)

In general, I believe my ( )  
motives and intentions are good

has high integrity  
expect ( ) to treat me in a  
consistent and predictable  
fashion [D&D - Predictability]  
( ) is honest and truthful  
( ) treats me fairly [D&D -  
Integrity/benevolence]  
( ) is open and upfront with  
me

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## Appendix C: Trust Relationship Audit



Organisational  
Diagnostics

# TRUST RELATIONSHIP AUDIT

**OCTOBER 2005**

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