CHAPTER 9

SUMMARY: FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

9.1   INTRODUCTION

The aim of this thesis was mainly to explain the nature and scope of TQM implementation, and to develop an appropriate framework that can serve as an internal organisational arrangement for personnel at SA Air Force Bases. This has so far been achieved through discussions of the dimensions of TQM, the proposal of a framework within which it can be applied, the provision of contextual information about the SA Air Force, a exposition of the research methodology employed in the empirical part of the study, as well as an in-depth analysis of the results obtained from the latter.

The last chapter of the thesis addresses specific and appropriate recommendations and conclusions, based on the theoretical substructure (chapters 1 to 6), as well as the findings that came to light in the research results as discussed in chapter 8. To facilitate research, the aim of this study was subdivided into eight objectives (see chapter 1), namely:

- to provide a conceptual analysis of TQM within the context of organisational theory;
- to provide an appropriate definition of TQM for this study;
- to identify primary and supporting TQM dimensions from the research literature and integrate these dimensions into a framework that can be used to implement TQM at SA Air Force Bases;
- to study the primary TQM dimensions individually;
- to study the supporting TQM dimensions individually;
- to introduce the SA Air Force and describe the process followed with regard to the implementation of TQM at the SA Air Force Bases;
- to determine the attitude of personnel at SA Air Force Bases towards the nature and scope of the primary and supporting TQM implementation dimensions of the literature framework empirically; and
- to determine empirically whether personnel members of SA Air Force Bases find the application of TQM implementation acceptable.

To ensure that this study is also an appraisal of a process and not only a description based on a framework, the findings made in the preceding chapters on the various objectives are summarised in this chapter in order to make recommendations and draw conclusions on the nature and scope of TQM as an internal organisational arrangement for personnel at air force bases in the SA Air Force. The objectives are discussed according to their original formulation in separate sections. This is followed by a synopsis of the findings, before attempting to define the value of the framework. Conclusions are drawn and suggestions are made for further research.

9.2　OBJECTIVE ONE:　TO PROVIDE A CONCEPTUAL ANALYSIS OF TQM WITHIN THE CONTEXT OF ORGANISATIONAL THEORY

The first purpose of this objective was to provide a conceptual analysis of TQM that would lay the foundation to prepare the institution for implementing TQM. To achieve the aforementioned, it is necessary to understand the different views of researchers in respect of quality and the meaning of TQM. Firstly, in the research literature there appears to be no uniform understanding of the meaning of the term "quality" and even well known authors seem to have different perspectives of this issue. Although many definitions of quality exist, it was prudent to create a deeper insight into the many definitions of researchers that constitute quality so as to maintain perspective on the subject of managing quality. The preceding statements imply that it is important for institutions to formulate their own definition of quality in terms of their unique needs and special circumstances. However, a common definition of quality is needed, firstly, to prevent confusion arising amongst personnel members and, secondly, to help resolve any arguments that may arise from time to time within and between departments in an institution. Based on the above-mentioned analysis of quality definitions by different authors, the following definition of quality was developed for this research, namely: "Quality is the degree to which *value* is added to products and/or service delivery *as perceived by all the stakeholders* through *conformance to specifications* and the degree to which *excellence* is added to products and/or service delivery through a *motivated workforce*, in order to *meet customer satisfaction*." The definition provided places conformance to specifications as the starting point with customer satisfaction at the centre of the institution's purpose and focus. Defining quality in these terms emphasises two important aspects. Firstly, it reminds managers of their

institution's purpose ("conformance to specifications" as the top priority) and secondly, of the methods to follow in order to achieve customer satisfaction.

Although the latter provides the most comprehensive definition, institutions will have to define quality in terms of what it means to them within the context of their specific circumstances. The choice of a "definition", i.e. what quality means to them, will depend on the specific environment and objectives of the institution. Just as important as the contents of the definition, however, is the way in which quality is communicated in unambiguous terms and understood by all personnel employed at the institution. It was found that "quality and satisfaction are determined ultimately by the customer's perception of a total product's value or service relative to its competition". Therefore, from a systematic point of view, quality will be determined by the stakeholders' perception of the total institution, its products and services, and its actions relative to their particular requirements. From the above it is clear that institutions can no longer afford to ignore any of its stakeholders.

The second purpose of this objective was to do a conceptual analysis of TQM. The reason for this is that TQM is arguably the most significant of the new ideas that have swept across institutions over the last few years. To achieve an intense understanding of TQM, the following was necessary: (1) a historical review of TQM based on the prescriptions of the quality gurus, (2) a historical evolution from quality to total quality, (3) the principles of TQM, (4) a definition of TQM, and (5) the essentiality and scope of TQM (see paragraph 2.3.1 to 2.3.5). To understand the origins of TQM, it was important to understand the contributions of several "quality gurus" such as Deming, Juran, Feigenbaum, Crosby and Ishikawa. These researchers laid the foundation for achieving quality excellence and can they therefore be regarded as specialists in the field of TQM. Although they all have their own set of principles in respect of TQM, their general arguments do not differ much from one another. The principles of the five researchers can serve as guidelines for establishing TQM at an institution. However, *each* one has its own specific strong and weak points, amongst others, to reduce costs and obtain continuous improvement within an institution.

Institutions should adopt the principles of TQM and the prescriptions of the quality gurus (see chapter 2, paragraphs 2.3.1 – 2.3.3) to implement TQM. Most of the

researchers referred to, who have an opinion in respect of TQM, regard top management's commitment and involvement as the most important principle in order to successfully implement a TQM programme. Researchers who emphasise this principle are Bilich & Neto (2000:7); Coetzee (2001:27); Evans *et al.* (2003:289); Gurnani (1999:209); Kanji & Wong (1999:1147); Kanji (2002:720); Nel *et al.* (2001:349); Pun & Hui (2002:380); Russel (2000:661); Savolainen (2000:211); Sureshchandar *et al.* (2002:73); Townsend & Gebhardt (2002:77) and Yusof & Aspinwall (2000:459).

They found that TQM should be directed towards (1) establishing cultural values with integrity, (2) unlocking the potential of personnel, (3) establishing improved structures, systems and procedures and (4) improving all processes in order to develop a capability to fully satisfy all current and future customer needs. Apart from these reasons, it was found that the TQM philosophy also requires continuous changes. These changes involve moving away from a situation where control is mainly exercised over employees and their activities to a way of supporting and empowering employees in their attempts to establish continuous improvement. Through this approach it was found that employees are compelled to develop new ways of doing things and to continuously question the way in which the institution functions (*status quo*). Various authors support this approach in that TQM is regarded as being that part of the total management function and strategic planning that has to lead the institution to total quality. For a TQM programme to be successful, it was found that it is essential for TQM to be regarded as a strategy. In this way institutional performance is improved, on the one hand, by the commitment of all employees to satisfy the agreed upon needs of customers at the lowest possible cost, and, on the other hand, through the continuous improvement of products and services, organisational processes and employees involved. In this regard the concept of TQM should in the first instance focus on customer satisfaction via the employees and the integration of quality technologies into all facets of the institution and, in the second instance, the concept of TQM should be expanded to include the economic and cost aspects of product and service provisioning in a win-win situation in which the prosperity of all internal and external customers are improved.

From the conceptual analysis of TQM it was found that customer service *and satisfying the needs of customers* are very important. Various authors emphasise *customer*

service, quality in service context, service strategies, service process, service standards and *service expectations*. Most of the authors referred to who have an opinion on *customer service*, regard *satisfying the expectations of the customer* as a requirement that can be used to improve *customer service*.

In order to analyse TQM, it was important to understand the reasons why TQM programmes fail, which may provide insight into the importance to understand the meaning of TQM. A thorough understanding was necessary of the barriers that can impede an effective quality transformation. Institutions and authors have identified a variety of reasons why TQM programmes fail and many surveys have been done on this subject. Understanding the barriers that can hinder the success of TQM initiatives is essential for the survival of TQM programmes. It was found that TQM depends on a successful, combined approach to all the previously discussed prescriptions of the gurus (see paragraph 2.3.1), underlying principles (see paragraph 2.3.3) as well as the avoidance of all TQM obstacles. What is perhaps of greatest importance is the interconnectness and interaction between the prescriptions of the gurus and the underlying TQM principles. They should reinforce one another and form a synergistic, comprehensive strategy towards TQM.

Following the discussion on the factors that influence TQM, a literature study was done to analyse five international self-assessment models that can be used to enhance improvement in performance at institutions following the TQM philosophy, namely the Deming Prize from Japan, the Malcolm Baldrige National Quality Award from the United States, the European Quality Award from Europe, the South African Excellence Foundation Award from South Africa and the Australian Quality Award. These models were designed to encourage institutions to do self-assessments and to use the information obtained in this manner to improve performance. It was found that assessment models have specific advantages that make them extremely appropriate to assess the TQM framework implemented at an institution. In this regard five advantages were identified, namely (1) self-assessment measures successes and improvements, (2) it emphasises the "best ways of doing things", (3) it supports the needs of customers, (4) it creates a vision or model for excellence and (5) public recognition is given to the prize that is won. Since 2000 the SA Air Force has used the SAEF model to evaluate air force bases in an attempt to attain excellence. The self-

assessment model is also used to determine the prestige air force base of the year in the SA Air Force. Since the implementation of the SAEF model in 2000, many areas have been identified that had to receive the SA Air Force's strategic attention in order for them to be able to improve outputs. The value added by the SAEF model was therefore already visible in the first year of implementation.

In the last instance a literature study was conducted analysing the ISO 9000:2000 and Six Sigma. The ISO 9000:2000 contains quality standards to integrate and harmonize similar existing quality management standards into a single body of international quality standards, which apply to world trade and commerce. It was found that the ISO 9000 standards are based on 20 elements, which focus on continuous improvement and customer satisfaction with the emphasis on the process approach. ISO 9000:2000 standards are a communication tool that is document-based. It was found that Six Sigma is a logical and methodical approach to achieving disciplined total quality improvements in areas critical to the success of any service-oriented institution or manufacturing business. As quality improvement is a prime ingredient of TQM, many institutions find that adding a Six Sigma programme or ISO9000:2000 to their current business system, give them all or almost all the elements of TQM [(current business system) + (Six Sigma) = (TQM)].

Therefore, it is recommended that, prior to implementing TQM, an institution should first ensure that all involved in the activities of the institution are aware of the meaning of TQM. In this way uncertainties in respect of the interpretation of specific concepts and technical aspects will be eliminated. To ensure that activities do indeed address quality, it is essential that all involved are unanimous as far as the meaning of TQM is concerned. It is also recommended that the views that various authors have on the meaning of *quality* and *TQM* be analysed. Institutions also have to (1) understand the factors that can influence TQM, (2) use existing successful management process models for the implementation of TQM, and (3) use internationally recognised assessment models to assess their TQM philosophy.

The preceding recommendations contain the first steps to be followed by institutions planning to establish the TQM philosophy at their institutions. The conclusion that can be drawn is that TQM requires specific principles and criteria for successful

implementation. Therefore, thorough knowledge of the meaning of TQM should be optimised at institutions. A conceptual understanding of TQM is one of the foundation tracks required to move an institution from a traditional institution to a TQM institution. The conceptual analysis of TQM forms the initial track as a foundation whose purpose is to develop the groundwork for launching a TQM understanding. Objective one is addressed in chapter two, namely to define TQM within the context of the organisational theory.

9.3 OBJECTIVE TWO: TO PROVIDE AN APPROPRIATE DEFINITION FOR TQM FOR THIS STUDY

The lack of uniform terminology forms an obstacle for any person who wishes to study, or communicate, in the field of TQM concepts. The purpose of the conceptual analysis in objective one was to find, within the context of this study, an appropriate definition for TQM based on the meaning of quality and quality management. It should be mentioned that TQM is a management philosophy that is generally accepted in America and Europe as one of the most acceptable and widely used strategies to improve the productivity of an institution. As such it was found that total quality has far reaching consequences for the SANDF and SA Air Force. Several definitions are in use to define TQM philosophies, strategies, approaches and processes. A common definition of TQM was needed in this research to prevent confusion arising amongst personnel members and to help resolve any arguments that may arise from time to time within and between departments at an institution. On analysing the various TQM definitions as found in the available literature, it was found that various researchers classify TQM under the following broad headings, namely:

- TQM as a culture.
- TQM as a management and institutional-wide process.
- TQM as a management philosophy and guiding principles.
- TQM as a strategy.
- TQM as a system.

Various definitions of TQM can be found in the literature to validate the five headings under which TQM are classified by different authors (Aksu 2003:592; Djerdjour & Patel

2000:26; Elmuti & Kathawala 1999:68; Eng & Yusof 2003:64; Edgeman 1999:4,49; Evans & Dean 2003:16; Ghobadian & Gallear 1996:83; Hansson 2001:989; Kanji & Wallace 2000:979; Parzinger & Nath 2000:355; Pun 2002:760; Scharitzer & Korunka 2000:S942; Selladurai 2002:615; Senthil *et al.* 2001:682; Wicks 2001:511; Yong & Wilkinson 2001:252; Hansson 2001:990; Yong & Wilkinson 2001:249), as described in chapter 2, paragraph 2.3.4.   The following definition of TQM was developed for this research, based on the above-mentioned analysis of TQM definitions by different authors, namely: "TQM is a ***strategy*** and ***process*** to manage an institution as an ***integrated system*** of principles, methods and best practices that provide a framework for the institution to strive for excellence in everything they do under the ***leadership and commitment of top management***, supported by ***education and training, open communication, change management, regular self-assessment, support structures, systems and resources***, which ***empower employees*** through ***investing*** in them to improve their performance as ***teams*** to deliver ***continuously improved*** quality products and services. Through this approach a corporate TQM ***culture*** will be established, to ***satisfy and exceed agreed internal and external customer requirements*** at the lowest overall cost to increase institutional performance in all areas such as service results, financial results, marketing results, operational results, society results, customer results and employee results to obtain world-class quality."

Understanding TQM by means of appropriate definitions and defining an own TQM definition for the specific institution are some of the foundations required before implementing changes at an institution. An own definition for TQM forms the initial track together with a conceptual analysis of TQM as a foundation whose purpose is to develop the groundwork for launching a TQM understanding. It is recommended that institutions involved in TQM find an appropriate definition for TQM within the context of the TQM philosophy.   From the recommendation, the conclusion is drawn that institutions will follow the right direction for the successful implementation of TQM if they formulate an own definition for their specific institution. Objective two is therefore addressed in chapter two, namely to determine an appropriate definition for TQM for this study.

9.4 OBJECTIVE THREE: TO IDENTIFY PRIMARY AND SUPPORTING TQM DIMENSIONS FROM THE RESEARCH LITERATURE AND TO INTEGRATE THESE DIMENSIONS IN A FRAMEWORK THAT CAN BE USED TO IMPLEMENT TQM AT THE SA AIR FORCE BASES

From the literature review in chapter 3 (1) it is found that TQM has many dimensions (see table 3.1), (2) generic similarities are found in the TQM models for the dimensions as listed in table 9.1, and (3) a theoretical assumption has been made that the 14 dimensions in table 9.1 are applicable to all types of institutions when implementing TQM.
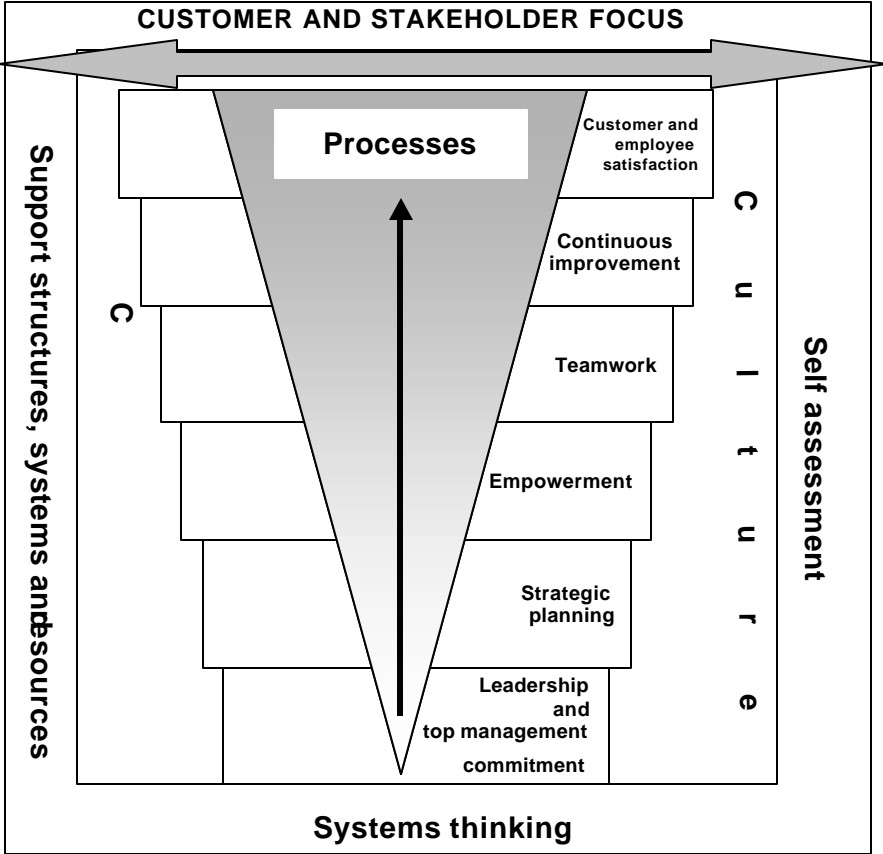
Table 9.1: Primary and supportive dimensions

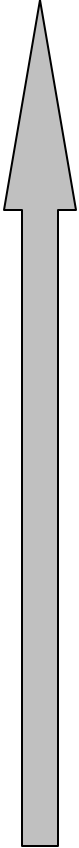| Primary dimensions	Hard or Soft science
Leadership and top management commitment	Soft
Strategic planning	Hard
Empowerment	Soft
Teamwork	Soft
Continuous improvement	Hard
Customer and employee satisfaction	Soft
Supportive dimensions	**Hard or Soft science**
Communication	Soft
Training	Soft/Hard
Culture forming	Soft
Change management	Soft
Supportive structures, systems and resources	Hard
Systems thinking	Soft
Self assessment	Hard
Processes	Soft/Hard

The 14 TQM dimensions listed in table 9.1 are formalised into an integrated telescopic total quality framework (see figure 9.1) according to which TQM at air force bases is analysed and explained, as discussed in chapter 8, with interfaces throughout the thesis, but that are nevertheless unique and form the basis for the research. The

telescopic total quality framework was also compiled to serve as explanation and summary of that that was intended with the thesis. The total quality framework was developed to make a contribution in terms of knowledge of the relationships between the 14 TQM dimensions. The total quality framework is a representation of the way in which TQM was analysed at the air force bases.

Figure 9.1: The "TQM telescopic framework"

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m

o

CUSTOMER AND STAKEHOLDER FOCUS

Processes

Customer and employee satisfaction

Continuous improvement

Teamwork

Empowerment

Strategic planning

Leadership and top management commitment

Support structures, systems and resources

C

C u l t u r e

Self assessment

Systems thinking

Source: Own observation

Not one of the researchers referred to in chapter 3, paragraph 3.3 (table 3.1 and table 3.2) gave an order of preference to dimensions in their models or frameworks. However, all the researchers clearly indicate in their models or frameworks that leadership and the commitment of top management to TQM forms the foundation of the TQM attempt. Therefore, it can be accepted that the researchers found the other 13 dimensions (see table 9.1) to be equally important.

From table 9.1 and figure 9.1, six dimensions, namely leadership and top management commitment, strategic planning, empowerment, teamwork, continuous improvement, and customer and employee satisfaction, form the *primary* dimensions that drive the TQM transformation. The primary dimensions with their related foundations and cornerstones are discussed in chapter 4. From figure 9.1, it becomes clear that eight dimensions, namely communication, training, culture forming, change management, support structures, systems and resources, self-assessment, systems thinking and processes, form the *supportive* dimensions that affect every part of the institution and that must be considered continuously in all six primary dimensions (see chapter 3, figure 3.2). They are discussed in chapter 5.

The TQM framework depicted in figure 9.1 addresses the 14 dimensions required to implement TQM, as well as their interactions. Literature research has proven that these dimensions are essential and sufficient to compile such a framework. As institutions such as the SA Air Force strive for TQM and continuous improvement, it was prudent to develop guidelines for implementing TQM (see chapter 3, paragraph 3.4.3). For the purposes of this research, the following implementation phases (a three-phase implementation process) were developed that can be used to successfully implement the TQM telescopic framework, namely:

- Phase 1: Start-up phase (see figure 9.2) – In this first phase people at all levels of the institution struggle to understand and learn about TQM, its principles and the prescriptions of the quality gurus. Top management must take the leadership through a strategic and planning process to start the whole TQM transformation.

- Phase 2: Integration phase (see figure 9.3) - In the second phase after the start-up, the institution discovers that total quality is more than the sum of isolated improvements and the institution strives to completely integrate TQM principles and the prescriptions of the quality gurus into every aspect of the institution's operations so that its influence becomes visible and automatic. Together with the start-up phase, consisting of leadership and strategic planning, the dimensions 'empowerment of employees' and 'teamwork' must be used to integrate TQM into an institution.

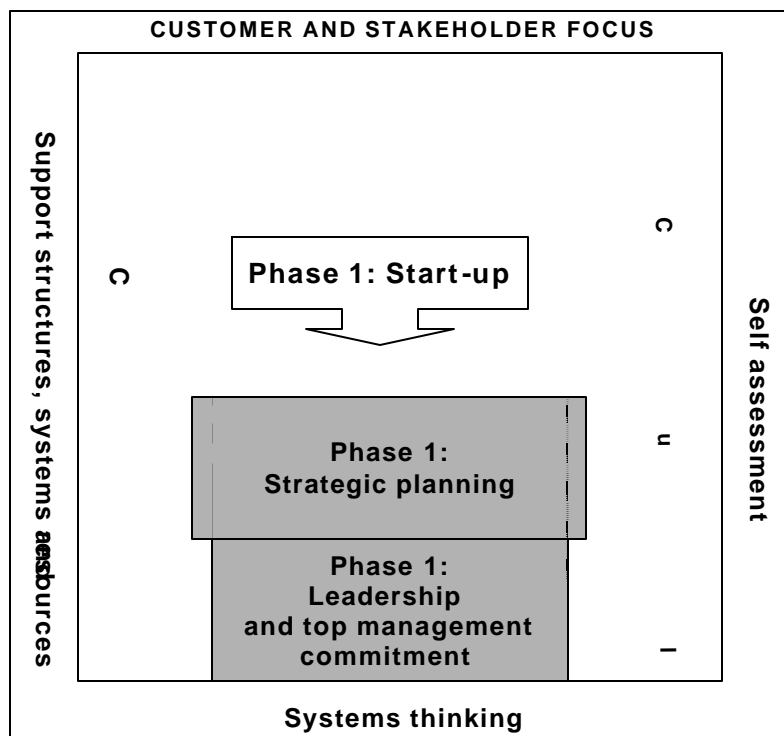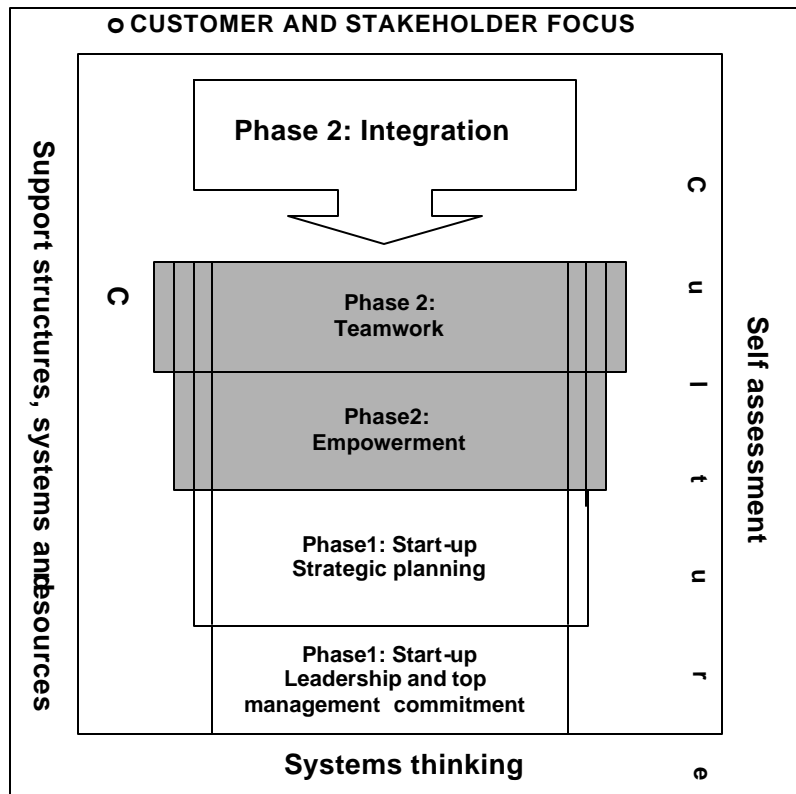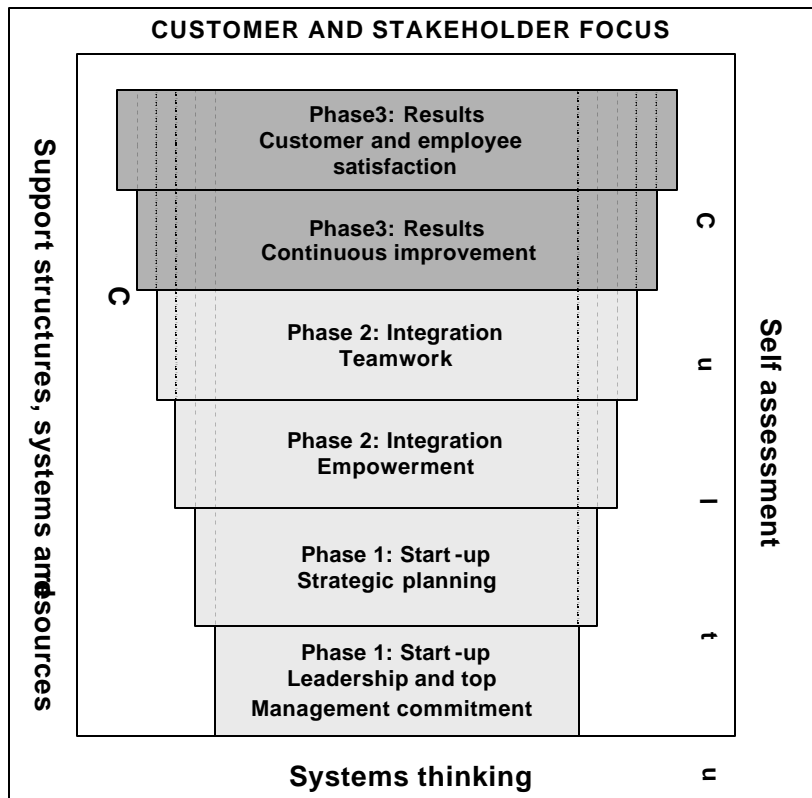Figure 9.2: Phase 1 - Start-up phase to implement TQM

Figure 9.3: Phase 2 - Integration phase to implement TQM

Figure (diagram) contents:

CUSTOMER AND STAKEHOLDER FOCUS

Support structures, systems and sources

Self assessment

Phase 2: Integration

Phase 2: Teamwork

Phase2: Empowerment

Phase1: Start-up Strategic planning

Phase1: Start-up Leadership and top management commitment

Systems thinking

- Phase 3: Result phase (see figure 9.4) - After integration, TQM is to infiltrate every nook and cranny of the institution, and specific techniques must be used and results monitored and managed for continuous improvement to ensure customer and employee satisfaction, which is the main focus of any TQM philosophy.

Figure 9.4: Phase 3 - Result phase when implementing TQM

CUSTOMER AND STAKEHOLDER FOCUS

Phase3: Results
Customer and employee satisfaction

Phase3: Results
Continuous improvement

Phase 2: Integration
Teamwork

Phase 2: Integration
Empowerment

Phase 1: Start -up
Strategic planning

Phase 1: Start -up
Leadership and top
Management commitment

Systems thinking

Support structures, systems and resources

Self assessment

Consult

It is recommended that top management focuses on the relationships that exist between the 14 dimensions, as indicated by the total quality framework in figure 9.1, in order to enhance institutional improvement at air force bases. The total quality framework can also be tested in other sectors of the SA Air Force and SANDF in order to determine the most important dimensions for the specific sectors. The deduction that can be made is that the recommended total quality framework can be used to establish an own (unique) implementation framework for air force bases or to further develop existing implementation frameworks. What emerged from objective three is a framework for TQM in which all 14 dimensions in the framework, divided into six primary and eight supportive dimensions, must operate synergistically within an institution. Objective three is therefore addressed in chapter 3, namely to identify the TQM dimensions from the literature and to integrate these dimensions into a framework for the SA Air Force.

9.5   OBJECTIVE FOUR: TO PROVIDE AN ANALYSIS OF THE PRIMARY DIMENSIONS OF THE TQM FRAMEWORK

On analysing the six primary dimensions discussed in objective three (see figure 9.1), namely leadership and top management commitment, strategic planning,

empowerment, teamwork, continuous improvement, customer and employee satisfaction, that all drive the TQM transformation, it was found that these six primary dimensions are based on the following findings derived from the literature and that they may reinforce or supplement air force base guidelines, built on a core set of values and paradigms, to complement the focus on TQM.

9.5.1   Leadership and top management commitment

The TQM telescopic framework is based on the primary (foundation) dimension of leadership and top management commitment to establish unity of purpose and give direction to attain the desired outcomes. It was found that leadership rather than management forms the essential factor in challenging times, i.e. to implement TQM in an institution. From the literature research it became clear that in order to attain quality service, top management must become directly involved and be committed. Top management must demonstrate visible commitment through deeds, personal involvement in the TQM programme and maintaining close contact with those personnel members responsible for implementing quality service. Good leaders convey a sense of urgency to reduce the resistance to change that prevents the institution from taking the steps required to complete the process. Top management should create and maintain an internal environment in which all employees become fully involved in achieving the institution's objectives. Top management should commit themselves and encourage all employed by the institution to meet customer requirements through continuous improvement. Top management plays an active role in creating strategies, plans and systems for achieving superior quality, and they should include quality as part of core institutional values and the corporate mission. They should inspire effective and efficient use of the resources and efforts of the institution towards quality excellence. Visionary leadership is necessary to transform an institution to TQM and the ability of top management is required to establish a long-term vision for the institution, driven by changing customer requirements as the main focus. They should serve as role models by reinforcing and communicating core values through their words and actions. Leadership traits, both positive and negative, have a great deal to do with the potential for success in leadership-required situations. Leadership style is very important in the quest for quality as some leadership styles support the TQM process

more than others. It is important to understand leadership styles and how styles relate to team efforts.

Top management should convince employees that by pursuing a TQM philosophy, there are further benefits for the institution. It was found that top management needs to align internal and external stakeholders and needs to provide change to accelerate the evolution to a TQM institution. This role should occur as follows: Leadership is responsible for developing vision and strategies, aligning relevant people behind these strategies and empowering employees to make the vision happen, despite obstacles. Top management should create an atmosphere in which people believe in strategy, believe in management decisions and believe in their work. To achieve this, top management as leaders should become more multi-skilled than their 20th century predecessors. Knowledge of languages, cultures and a wide range of subjects is vital to achieve success in implementing TQM. Leaders should be experts in several fields and they should strive for almost anything that increases their institution's success. Leaders should have an attitude of continuous improvement.

9.5.2   Strategic planning

It was found that strategic planning is of vital importance to establish TQM. In the dimension of strategic planning the specific TQM objectives and requirements of an institution must be determined and incorporated into a strategic plan. Strategic planning should be used to plan, develop and implement strategies that should result in improved customer and employee satisfaction. This action should involve employees throughout the institution, translating customer requirements into short and long-term plans that guide the activities of every division, department, team and individual. Strategic planning should involve leaders, managers, employees, customers and suppliers in charting a course that every department, team and employee can translate into daily actions. TQM and strategic planning should become a single process and TQM should be fully integrated and linked into the strategy and operation of the institution. The link between TQM and strategic planning should provide an integrated management system for an institution. It was found that three critical links are required between TQM and strategic planning, namely that (1) the strategic plan must be customer driven, (2) strategic planning must provide the direction and context for TQM

and must precede other TQM initiatives, and (3) strategic planning must establish a TQM culture in institutions and continuous improvement efforts must focus on achieving results that increase value to customers and ensure long-term success.

The strategic plan should link the most precious resource, people, who achieve the vision, mission and strategy. The institution's vision, mission and value system should be shaped around TQM. The synergy between TQM and strategic planning should strengthen the institution's competitiveness and should enable the institution to achieve success in today's business environment. Forecasting future needs should also be done, and reactions of customers and employees to certain operations should be estimated. This integration between TQM and strategic planning eliminates wasting resources on projects not directly linked to the strategic plan.

It was found that strategic planning is the process of looking into the future and seeing that future as institutions want it to be. Strategic planning is a necessary process for long-term success of the total quality programme in an institution. An action strategic plan should be designed to turn the institutional vision into reality. Customer and employee satisfaction is the outcome of sound strategic planning. Strategic planning provides a mechanism for institutional managers to shape their external environment, limit threats, take advantage of opportunities and enable leaders to respond to issues proactively, rather than reactively. It was found that strategic planning build institutional capabilities to espouse continual renewal as a central theme and should be included in all statements concerning the institution's vision and/or the management philosophy and it must become a part of the social contract between the institution and its employees. Top management need strategic planning in the institution to repeatedly raise the performance bar, both in terms of institutional goals and challenges and in individual expectations. The structures and systems in the institution through strategic planning should be designed to promote lateral processes, including communication and coordination, between those in direct contact with customers and suppliers and those involved in the internal functions of the institution. It was also found that strategic planning needs foresight which represents a vehicle for managing perceptions of environmental uncertainty and change, thereby enabling the clarification of perception that is fundamental to prescient and innovative use of macro-environmental phenomena and the pre-sponsive recognition of institutional opportunities.

9.5.3 Empowerment

Employee involvement is one of the best ways to create a positive culture that thrives on TQM. Employees should be empowered to encourage innovation and creativity by all levels of the workforce. Leaders should find a successful balance between control and employee freedom to gain maximum benefit from the empowered process. Empowerment of all employees is necessary as a source for improved performance and participation. Employees should be empowered as they form the centre of any TQM approach, as they are involved in managing and improving processes and in serving customers. Employees have to be involved from day one to transform to the TQM philosophy and employees have to be motivated to do their work right the first time. Incentive schemes should be developed to reward employees accordingly and there should be no limit to their institutional achievements. They must perceive themselves as having equal opportunity in terms of institutional aspiration. Quality of life is also an important aspect of empowerment and should be rigorously managed by top management as a critical process. Total quality improvement should be managed as an integral part of all employees' day-to-day work, and remuneration, reward and recognition programmes should be established to promote quality improvement activities. Institutions should give their employees the authority, responsibility, the knowledge and skills they need to be effective in their expanded roles. An institution can serve its customers only as well as it serves its own employees. Employees should therefore feel compelled to be empowered.

It was found that top management must promote the establishment of an environment that encourages employee efforts toward institutional objectives that removes barriers between top management and employees. In high-performing institutions, employees who do the work should make most of the decisions about how the work is done. Therefore, access to data and developing skills to manage by fact are prerequisites for optimising employee contributions to the institution's success. It was found that the message of empowerment is that leaders must know that employees need strong direction and a target and great ideas on how to implement TQM in an institution. Leaders must know how to set standards and boundaries and how to invite people to make their unique contributions. An institution can only move as fast as it develops

people to move it. This is why empowering people are so critical to overcoming competitive disadvantage and gaining competitive leadership.

Workers want to be a part of their institution and help in its improvement. Empowerment supports the TQM process because employees at all levels have the responsibility for and authority to make decisions that affect them and their work teams. Institutions cannot effectively move decision making to the level where most of the work is done unless those doing the work have access to the necessary data and are skilled at making fact-based decisions. Top management should educate middle management, lower management and employees in decision-making processes by using, for example, group decision making, brainstorming, self-directed teams and cross functional teams to ensure rational decisions. Empowerment is a crucial part of cultural change that brings the decision-making process down to the point where problems are most visible. In order to be empowered to make decisions regarding their work, employees, regardless of institutional level, must understand and know information relevant to the performance of their institutions.

Developing programmes and policies that truly provide opportunities for employees to influence the work they do, the ways they do their work, their commitment to meeting customer needs, through the methods described in the section, can enable institutions to have the employee involvement necessary to be productive in the complex competitive environment of the twenty-first century. Managers should also empower employees to solve problems in real time rather than refer all problems to managers.

Empowerment is a portion of the delegate process that frees up management for additional tasks of equal or greater importance. Empowerment requires substantial training, job security, desire and a commitment to performance. In most cases, employees are delighted to be empowered when empowerment is accompanied by these factors. Employees who have been trained, empowered and recognised for their achievements see their jobs and their institutions from a different perspective.

When empowerment begins to be effective, the institution will realize the benefits of synergy and empowerment will not work without a participative management structure. Commitment to empowerment has implications for virtually every area of managerial

and institutional work and, therefore, has to be implemented across all of an institution's activities. Research studies have demonstrated that involvement brings about greater commitment to the end results. Empowerment is the natural output of a well-implemented TQM programme. It should promote freedom to employees to use their initiative in matters of customer care. Additionally, this freedom creates an environment of trust, which enables staff to act towards the institution's cultural transformation without fear.

9.5.4 Teamwork

The dimension of teamwork should not simply be used as a tool for performance improvement, but as a fundamental element to ensure that the climate of the workplace encourages all members to use their skills to make the workplace an even better place to be. Teamwork is necessary for the propensity of the institution to engage in non-competitive activities internally amongst employees and externally with respect to suppliers. These teams should have the power to make work-related decisions. Collective wisdom is virtually always superior to individual wisdom. The team and the individual should be recognised and rewarded equally. Teamwork should provide an opportunity for employees to work together in the pursuit of total quality in ways in which they have not worked together before. Through teams employees are brought together in terms of a common goal and quality improvement becomes easier to communicate over departmental or functional walls. In this way, the slow breaking down of barriers acts as a platform for change. Teams are a useful way of determining issues, involving those who must implement solutions, and they are crucial to the management of the next dimension, namely continuous improvement, one of the driving forces for successful TQM.

It was found that teams are a major part of any TQM effort because teamwork enables various parts of the institution to work together to meet customer needs in ways that cannot be done through individual job performance alone. Teamwork is therefore a behavioural factor and must be part of the institutional culture. If staff is to pull together, they will need to consider themselves part of a functioning team. Getting staff to pull together involves a variety of leadership skills - one of the most basic being conducting a team-building exercise. Effective teamwork will occur when team members feel positive towards each other. It was found that the only efficient way to tackle process

improvement or complex problems is through teamwork. To develop this relationship, assemble all members in a social context with "getting-to-know-workmates" as the only set agenda. It is important for a team leader to have the trust and confidence of all members of the team. A leader must also develop team cohesion. Two necessary preconditions for cohesion to occur are: (1) members must be free to express their attitudes and feelings towards the team and its members; and (2) members must feel that they are listened to when they adopt this position. A team leader must also ensure that all team members feel sufficiently confident to behave in this way.

Teams are viewed as ways for institutions to increase the speed, flexibility and methods with which they make work decisions. Teams are used to build commitment to the institution and to transform the workplace from one of low commitment to high commitment. It was found that grouping people into teams could manage the problem-solving requirements of the institution. Teams and teamwork can be a very powerful management strategy to improve competitive advantage and, together with people empowerment, form the basis of managing the most important resource or asset of an institution.

9.5.5 Continuous improvement

Institutions should adopt a policy of continuous improvement. It was found that continuous improvement is one of the key success factors in the quality improvement process. Continuous improvement provides a way for managers to provide a form of strategic control that allows their institution to respond more proactively and timely to rapid developments in the different areas that influence an institution's success.

The institution should move from one-off quality targets to a continuous and ongoing process, which will retain and increase employees' commitment in the long term. The propensity of the institution to pursue incremental and innovative improvement of its processes, products and services should be the driver to achieve continuous improvement. Any institution should have procedures and processes established to ensure that incremental and ongoing improvements are made to products and services. This includes the application of techniques for problem solving and analysis to achieve continuous improvement. Institutions should establish the most appropriate and

effective ways to translate the data they obtain into real and continuous institutional improvements. Improvement seeks to eliminate problems at their source and should become part of the daily work of all individuals and work units. Sources of improvement include employee ideas, research and development, customer input and benchmarking or other comparative performance information. Improvement and learning are directed not only on providing better products and services, but also to being more responsive and efficient .

Institutions should encourage the fostering of creativity and innovation to achieve continuous improvement. It was found that knowledge management or intellectual capital is one of the latest techniques for continuous improvement adopted by institutions. Performance measurement provides institutions with the opportunity to strengthen the institutional delivery process in the areas of quality, cost and delivery. Performance measurements keep institutions focused on continuous improvement according to the actual results they achieve in producing products and services as compared to internal baselines and external benchmarks of "Best Practices". For performance measurement it was found that a balanced scorecard must be used as a management decision tool to be used as a framework for linking strategy with operational performance measures. A truly balanced scorecard aligns the strategic objectives of an institution with customer priorities. Benchmarking is also a positive, proactive process to change operations in a structured fashion to achieve superior performance. It is a continuous process of measuring products, services and practices against the toughest competitors or those institutions recognised as industry leaders.

It was found that various techniques are necessary to solve problems relating to an individual job or the improvement of a work process. These techniques reflect foundation principles that guide total quality institutions in problem solving, measuring and making rational decisions about improvement processes. There are two stages involved in problem-solving to achieve continuous improvement, namely (1) Stage 1: explain the situation and define the problem (i.e. PDCA, seven step method, brainstorming and flowcharting), and (2) Stage 2: understand the situation by collecting and analysing data (i.e. check sheet, cause-and-effect diagram, Pareto chart, scatter chart, run chart and histogram).

The most potent value in TQM is continuous improvement where high-performing institutions create cultures that seek to evaluate and improve everything they do. A culture of continuous improvement is essential to maintain and sustain true competitive advantage. Without systematic improvement, institutions will ultimately face extinction. Continuous improvement results provide a track record that can give an institution an advantage over their competitors for service delivery and additional resources. Continuous improvement is essential for increasing customer satisfaction, and alleviating waste of employee time and institutional resources. The process of continuous improvement encompasses all groups horizontally and vertically in an institution.

9.5.6   Customer and employee satisfaction

On studying the principles of TQM (see chapter 2, paragraph 2.3.3), the point of view of the three quality gurus, Deming's 14 points (see chapter 2, paragraph 2.3.1.1), Juran's Trilogy (see chapter 2, paragraph 2.3.1.2) and Feigenbaum's fundamental factors affecting quality (see chapter 2, paragraph 2.3.1.3), it was found that customer and employee satisfaction are two of the key success factors in the quality improvement process.

9.5.6.1   Customer satisfaction

It was found that customer service and satisfaction are at the core of any institution and the main focus of the TQM telescopic framework (see figure 9.1). Customer-driven quality should be the main focus of any institution, as it will ensure that products and services are delivered with the objective of satisfying customer needs. The customer is the final arbiter of product and service quality. Customer needs and requirements and how to deliver value should be generally understood. The ultimate goal of TQM efforts is to delight the customer. The customer's needs should be identified and appropriate product designs or service delivery designs be instituted to satisfy those needs. The focus of this dimension is the degree to which an institution's customers continually perceive that their needs are being met by the institution's products and services. Customer satisfaction should be continuously measured and analysed. The requirements of the final, external customer can be met only when the requirements of

all internal and external customers are met. The total quality programme must begin by obtaining the customers' perception of the service delivered and their expectations of the service to be provided by the institution. This information can also be gained from the internal feedback relationship created between the internal customer and supplier, known as quality chains. No matter how efficient the administrative system of an institution, it can produce zero defects only if the customers (internal and external) provide sufficient and accurate details to enable the quality process to meet their needs and expectations.

The importance of internal and external customer satisfaction became a major theme in the TQM revolution. It was found that institutions should strive for customer satisfaction, as it results in customer enthusiasm. This implies that the customers are excited and loyal because the services and products available to them exceed their expectations. Institutions must create new and loyal customers through direct interaction with them. Customers do not care about management structures, strategic planning, financial perspectives or the leader of the institution. What they do care about are the products and services available to them. It was found that if internal customers were happy and empowered, they would also better serve their other internal customers. When internal customers can work together efficiently and effectively, costs will be reduced. Thus, happy and empowered external customers and happy and empowered internal customers could bring capabilities to the institution. The ultimate competitive advantage is established when an institution develops a culture that supports its internal and external customers.

9.5.6.2   Employee satisfaction

It was found that employee satisfaction must be set equal to customer satisfaction in the institution's strategy and planning process to ensure the best results for any institution. Employees are defined as all the individuals employed by the institution, including full-time, part-time, temporary and contract workers. Employee satisfaction is the gratification or prosperity that employees get from their job. Every aspect that has to do with the influence that the job has on the employee as well as the perception that

the employee has of the job/institution should be included in employee satisfaction. The full potential of employees should be released through shared values and a culture of trust and empowerment. Employees are the critical stakeholders in that, apart from being inherent stakeholders in an institution, only they ultimately deliver the institutional outcomes required to fully meet all the needs of the stakeholders. There should be widespread involvement and communication to achieve employee satisfaction and this should be supported by opportunities to learn and develop employee skills. The level of satisfaction of employees should be monitored and improved continuously. It was found that one of the ways to achieve this is to develop the full potential of the workforce, which includes employee involvement, training, recognition, safety and satisfaction. Human input should be encouraged to increase the self-esteem of employees and the degree to which the employees of an institution feel that the institution continually satisfies their needs. As employee satisfaction increases, an institution can expect its key performance and customer satisfaction indicators to improve also. Job satisfaction, job commitment and empowerment exemplify this. It was found that in order to achieve employee satisfaction, the following should be achieved:

- First, top management must be involved in modelling employee involvement. Employee involvement programmes take time and require extensive commitment from all institutional levels.
- In order for the employees to participate effectively, employees need power, information knowledge and rewards that are relevant to institutional performance.
- Institutions with involved employees have to share corporate performance and financial results, so that employees know the impact of their actions and work.
- Reward systems that support participation by rewarding the initiation of change and the fostering of team building should be in place.
- Training in the quantitative and qualitative aspects of decision-making and communication of real institutional information is also critical parameters to ensure employee involvement for employee satisfaction.
- True employee involvement requires that power, knowledge, information and rewards be present at all levels of the institution.
- Teams must be established to create involvement and share power, or utilize the problem-solving tools.

- Problem-solving tools to employees is necessary to get them involved. The tools serve to enable employees to improve their job performance, giving them more control over their environment.

What has emerged in objective four is that an integrated framework is necessary in which all six primary dimensions should operate synergistically within an institution. An integrated approach of the six primary dimensions must be evident, if an institution wishes to transform to TQM. What is required is a close link between the six primary dimensions and the eight supportive dimensions (see objective five) to ensure that an institution can transform fully to the TQM philosophy. Objective four is therefore addressed in chapter 4, namely to analyse the six primary TQM dimensions from the literature.

9.6   OBJECTIVE FIVE: TO PROVIDE AN ANALYSIS OF THE SUPPORTIVE DIMENSIONS OF THE TQM FRAMEWORK

On analysing the eight supportive dimensions, that is communication, training, culture forming, change management, support structures, systems and resources, systems thinking, self assessment and processes, which supports the six primary dimensions in the TQM telescopic framework (see objective four), it was found that these supportive dimensions are based on the following findings derived from the literature and that they may reinforce or supplement air force base guidelines, built on a core set of values and paradigms, to complement the focus on TQM.

9.6.1   Communication

It was found that to implement TQM successfully, communication provides the means of raising total quality awareness and involvement and reinforcing the message within an institution. Effective communication among employees should be stressed, and barriers that limit communication should be broken.   Top management should communicate down to the lowest level and should not always expect a bottom-up approach.   Top management should also solicit and hold continuous meetings with employees to communicate the TQM philosophy with the strategic intent to identify any

problems at the work place before developing corrective actions. Communication should be used to focus employees on customer satisfaction in order to eliminate discrepancies between internal and external perceptions of total quality. Leaders should effectively communicate the link between customer satisfaction and increased excellent results, and should encourage sceptical management to support total quality programmes by stressing the link.

It was found that positive feedback through communication provides the fuel to energize an ongoing total quality programme. People do not automatically commit to total quality; they should be sold on it. This requires careful development of a presentation and successfully selling the ideas through proven techniques. Effective internal and external communications are the keys to successful TQM. Effective communication with employees, customers and stakeholders is vital to the successful development and deployment of TQM in institutions. It is the customers and stakeholders of an institution, whether public or private, who will ultimately judge how well it has achieved its goals and objectives. It is those within the institution entrusted with and expected to achieve total quality goals and targets that should clearly understand how TQM success is defined and what their role is in achieving that success. Both institution outsiders and insiders need to be part of the development and deployment of the TQM philosophy. Communication should be multidirectional, running top-down, bottom-up and horizontally within and across the institution.

9.6.2 Training

Ownership and empowerment imply that the employee should be trained to have the required skills and abilities to perform his or her work effectively. During the training phase the employees should be informed of the history and establishment of the TQM philosophy, the structure and functions of each role player within the institution and the role of top and middle management. The training should also be directed on achieving clearly measurable results. In the last instance employees should receive training in respect of the various TQM models, such as the EFQM, Malcolm Baldrige and SAEF

models, as well as in problem-solving processes and supporting techniques to achieve continuous improvement in results. The employee as learner should be actively involved in decision making in respect of training activities and in this way accept responsibility for the training and accompanying development.

Education and training should cover all employees as part of an ongoing process, with the scope and depth tailored to suit each group's needs. Each employee within the institution and those who deal with it must learn a common language. Training and education should be the focus in understanding total quality requirements. Knowing the TQM methodology is important. The idea of doing things right the first time every time should be stressed. Employees should understand how much it costs if small things go wrong. Any institution should have a comprehensive approach to education and training, which should include total quality standards, procedures and skills for quality improvement. In-service training should be instituted to educate and train employees in respect of the TQM philosophy. Employees should be trained to use continuous improvement methods so that they can position the institution in a financial grid and compare its success to that of competitors. The institutional capability should recognise and nurture the development of skills, abilities and knowledge of employees. Managers should develop a multidisciplinary background through training, education and hands-on experience. This exposure to different functional areas will help unite the functional goals to those of the institution. The cross-functional background will help management to understand the importance and implications of total quality in each functional area in achieving total quality. Employees should be continuously trained and retrained on the different aspects of total quality, especially the cost of quality and its relationship to the survivability of the institution. They need to be frequently reminded of the importance of satisfying customer needs and specifications for the institution to survive.

9.6.3 Culture forming

It was found that in order to implement TQM a new culture must be established in the institution. TQM must be directed at changing people's behaviour, and this applies to both management and workers. Instead of an elite group of executives running an institution, all institutional employees need to be involved to transform to TQM. Institutions that do not use the talents of all the employees, combined with the new

techniques, will begin to falter and eventually fail. The new culture that must be developed must promote and support TQM, as it will allow an institution to survive new challenges. It was found that everyone in the new institutional culture of TQM must assume ownership of their process and the quality of their deliverables. Cultural change must be planned and must occur in a consistent and incremental manner, since experience indicates that if the change is too great and unplanned, the institution will revert back to the *status quo*.

It was found that institutional cultures require several years to change. Frequently it takes a survival crisis to energize an institution to change its culture from one set of values to another set of values. There are several processes at work to keep corporate cultures stable and resistant to change. In the sequence of institutional change, the first thing managers must change is people's behaviour. Then there must be cultural justifications for the behaviour. New rituals, new stories and new heroes are needed to justify the new behaviours. These new cultural artefacts, stories, symbols and rituals need to be widely and consistently communicated. Leaders should keep employees informed of the significant cultural changes required to successfully implement a TQM programme. The culture dimension should create commitment to TQM and transform the culture of an institution. Institutions should develop a culture where total quality initiatives are the responsibility of all employed in the various departments of the institution rather than just the quality department. The culture dimension should address the values that determine group behaviours and support the performance objectives required to achieve the Critical Business Success Factors and internal customer satisfaction agreements. The culture dimension should also address the forces that impede change, the benefits of change, the risk of failing to change, and the rewards for change.

9.6.4 Change management

It was found that successful institutional change to TQM could only occur if the manager in charge leads by example. Without that example, people doubt the sincerity of management's espoused goals and philosophy. This means that top management must be willing to examine their own behaviour and they must be capable of personal change themselves. Top management must create a context for change, articulate a

theme, and demand that managers develop plans for institutional cultural change of their own design. Top management must pull change through by creating a market for institutional innovations. Effective top managers are aware that they need partners in managing change. They must cultivate the support of customers, employees and stakeholders. They must utilize effectively the human resource function and outside consultants and they must ensure that these groups network with each other; that they meet periodically to discuss progress, assess barriers to change, and develop new responses.

TQM results require continual change in the way things are done at institutions. Strategies to manage and cope with change should be adopted in order to maintain order. Change should be seen as inevitable, and it should be planned to minimize the associated risks. Leaders should convey to employees the message that total quality is not just theoretical tools and techniques, but involves a change in the way that employees think and act. Institutional culture and structure should be adapted to change if the quest for continuous improvement, innovation and creativity is to be achieved. It was found that there are two change models that lead to effective change management in institutions. The models are the Burke-Litwin Institutional Performance model (see chapter 5, figure 5.1) and the Change Process Model (see chapter 5, figure 5.2). The Burke-Litwin Model shows the 12 critical variables involved in performance and change. The Change Process Model is sequentially structured as a tool to facilitate an understanding of the variables required in a change initiative. Change is, however, not top-down, nor is it bottom-up. It is both. Institutions that want to change their culture to TQM will have to learn to manage such a long-term process. The quick fix will not work. TQM requires continual change in the way things are done. Relieving the natural resistance found in the environment will support the changes required on the quality road.

9.6.5   Support structures, systems and resources

It was found that the sustenance of TQM is dependent on the creation of support structures and is the process of linking the institution's resources to its demands. The support structures of the institution should not be static but flexible and should encourage the flow of new ideas and information to improve the management of total

quality. This dimension also relates to an institution's ability to rapidly respond to the changing market and customer needs as well as external environmental pressures. TQM requires an institutional structure that demands and harnesses the full potential of the workforce. A team structure provides the means for involvement and the power for total quality improvement. The hierarchical structure with a facilitation role provides a clear line of authority for setting goals and reviewing progress.

It was found that total quality doesn't just happen; it is created in a total quality environment. The operational environment must support total quality in every operation or total quality will not be experienced. Institutional design as a support structure is necessary to define the required components for TQM institutions to achieve customer-relevant goals. Determining appropriate institutional support structures is a constant challenge for managers when implementing TQM. Support structures are nowadays required to adapt to environments that are rapidly changing. Control systems, hierarchy, integrating roles and structures (notably matrix institutions) need to give way to an institution designed around information flow, with loose, flexible structures, networks of employees who are knowledgeable and creative, and able to meet the customers' needs. Institutions should use the concepts of boundarylessness in their TQM processes. Boundary free institutions form a support structure to implement TQM by keeping people close to internal and external customers, so that they can hear, see and feel customer/employee requirements.

It was found that information is a unique resource at an institution. The Management Information System (MIS) as support activity is sometimes taken for granted and its linking potential to support the TQM effort is often overlooked. The design and operation of a MIS, as a key system, can provide value to customers if it is integral to TQM in the institution. In a customer-value role, the MIS is used to provide customers with timely, accurate, accessible information that has value for the customer.

It was found that document control with its supporting structures supports an institution's TQM system by ensuring that information is approved, current and available. Document control at the operating level fits well with attempts to deploy process responsibility to those who perform the work. Whether documentation is

controlled centrally or distributed, a consistent approach must be established at all levels of the institution to support the TQM programme of an institution.

9.6.6 Systems thinking

It was found that an institution must be managed in accordance with the characteristics of the systems approach if it is to be successful. To successfully implement TQM activities at an institution, executives should manage an institution according to the systems thinking approach. An institution should be viewed as a system, as (1) institutions are systems that employ various processes to convert input into output, (2) institutions as systems must adapt to feedback provided by both internal and external sources, and (3) work gets done (or fails to get done) horizontally or cross-functionally also, not only hierarchically. Identifying, understanding and managing a system of interrelated processes for a given objective improve the institution's effectiveness and efficiency. Systems thinking facilitate constant feedback, analysis and control throughout the institution. Through the systems thinking approach the deviations should be analysed and the knowledge should be developed to decide when and where a compensating change must be made. Without the systems thinking approach to manage an institution, an institution will be inconsistent in its response to change.

9.6.7 Self-assessment

It was found that institutions that do not have a formal plan for integrating self-assessment activities from day one when transforming to TQM, would experience that TQM falls short of reaching their desired goals. If managers are not careful, assessment practices will fail for the same reasons many TQM programmes have failed: a lack of strategic planning, failure to consider culture and lack of a systems approach. Self-assessment should be a comprehensive, systematic and regular review of an institution's activities and results referenced against a model of performance excellence (see chapter 2, paragraph 2.5). The self-assessment process should allow the institution to clearly identify its strengths and areas in which improvements can be made. It should culminate in planned improvement actions, which are then monitored for progress. Self-assessment should indicate the extent to which it covers the institution's activities and the relative importance of the parameters chosen to measure

results, including relevance of the measurements to the various stakeholders. The results presented should include perception or direct feedback data as well as predicted or relevant institution performance measures. The reliability and validity of any survey results presented should be discussed.

Self-assessment programmes should be viewed as more than tools to score performance. These programmes need to be perceived as a means to continually improve the product or service of an institution. They also should be consistent with prevailing TQM principles. This implies that institutions need to maintain a customer focus, empower employees and provide for the continual improvement of the institution when developing self-assessment initiatives. For most institutions the question is not whether assessment practices will be implemented, but rather how the assessment process will be integrated within institutional activities. The right culture, one that incorporates trust amongst institutional employees, is the primary enabler of a successful assessment programme. Therefore, institutions should view the self-assessment process as a means to continually improve the quality of the programme and not as a threat, with information used to punish or control. To successfully implement TQM activities in an institution, executives will need to use self-assessment as a tool to implement TQM.

9.6.8 Processes

A key part of any TQM strategy is the management of processes. It was found that by using process management and Business Process Reengineering for continuous improvement, top management knew what their processes are, which are most important to the institution, how well the important processes are performed and what tools should be used to advance key processes along the maturity continuum. The basic essence of TQM is that it should be a process that training, institutional education and leadership support. All work should be regarded as a process and TQM should be regarded as a continuous process of improvement for individuals, groups of people and whole institutions. To improve the total implementation process of TQM, people should know what to do and how to do it, have the right tools to do it, and be able to measure the improvement of the process and the current level of achievement. Institutions should focus on process improvement at all levels through problem-solving processes

and followership aimed at assuring that the goals of the customer is attained. The principles and definitions in chapter 2, paragraphs 2.3.3 to 2.3.4 should drive the TQM process.

What has emerged in objective five is that an integrated framework is necessary in which all eight supportive dimensions should operate synergistically within an institution. An integrated approach to the eight supportive dimensions must be evident, if an institution wishes to transform to TQM. What is required is a close link between the six primary dimensions (see objective four) and the eight supportive dimensions (see objective five) to ensure that an institution transforms fully to the TQM philosophy. Objective five is therefore addressed in chapter 5, that is to analyse the eight supportive TQM dimensions from the literature.

9.7 OBJECTIVE SIX: TO INTRODUCE THE SA AIR FORCE AND DESCRIBE THE PROCESS FOLLOWED WITH REGARD TO THE IMPLEMENTATION OF TQM AT THE SA AIR FORCE BASES

The objective was to define how TQM is approached and implemented at the SA Air Force and how it functions to contribute to knowledge on the implementation and functioning of TQM at air force bases. The aim and functions of the SA Air Force are discussed based on (1) the aim, function and strategic direction of the SA Air Force and (2) institutional design and structure of the SA Air Force from level 2 to level 4. The historical development to implement TQM in the SA Air Force is discussed from 1980 to date with specific emphasis on the year 1999 and the years 2000 to date. The discussion is followed by the methodology the SA Air Force follows to implement TQM. The methodology followed by the SA Air Force to implement TQM is supported by the SAEF model (figure 9.5), used as self-assessment methodology for air force bases, and serving as basis for the description of TQM at air force bases, with 2000 as base year.

Figure 9.5: The SAEF model used to evaluate TQM at air force bases
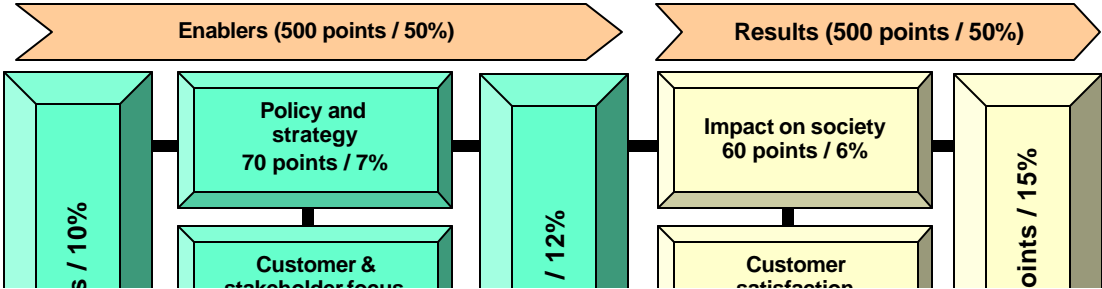
The description was based mainly on the author's personal experience of TQM in the SA Air Force. This approach made it possible to relate the SA Air Force's TQM approach, based on the SAEF model, to objectives four and five, based on the 14 TQM dimensions. A structured questionnaire (Appendix B and C) was used to obtain additional information on the TQM programme at air force bases.

It was found that the SA Air Force is apparently active and successful from level 2 to level 4 in respect of the attainment of the objectives of the SAEF model to establish TQM at air force bases, in spite of specific deficiencies as found and identified in the next objective. It was found that air force bases can be regarded as progressive institutions that have performed rather well the past four years in implementing TQM. The process that the SA Air Force followed, and in fact still follows, to implement TQM, based on the SAEF model, can serve as recommendation for other institutions that wish to implement TQM. The conclusion that is reached is that if other SANDF bases or institutions follow this process and their implementation attempts correlate more or less with that of the SA Air Force, they will have a good chance of succeeding. Objective six is therefore addressed in chapter 6, namely to introduce the SA Air Force and to describe the process followed by the SA Air Force in respect of TQM.

9.8 OBJECTIVE SEVEN: TO DETERMINE EMPIRICALLY THE ATTITUDE OF PERSONNEL AT SA AIR FORCE BASES TOWARDS THE NATURE AND SCOPE OF THE PRIMARY AND SUPPORTING TQM IMPLEMENTATION DIMENSIONS OF THE LITERATURE FRAMEWORK

Where the aim of objective six was to introduce the SA Air Force and to describe the process followed by the SA Air Force in respect of TQM, the aim of objective seven is to determine the attitude of respondents towards the 14 TQM dimensions. In chapter 8 attention is paid to an analysis and interpretation of the results flowing from the empirical study to address objective seven. In this section recommendations will be made on how best to eliminate the identified deficiencies, as found in chapter 8, paragraph 8.5, in order to address the final objective, that is to describe the nature and scope of TQM as an internal organisational arrangement for personnel at SA Air Force Bases. The aim of the recommendations is to make a practical contribution to the improvement of TQM at air force bases.

The recommendations are based on those aspects that are logically required to ensure the correct execution of the TQM dimensions, as discussed in chapters 4 and 5. However, it should be realised that the recommendations that are made should merely serve as a guideline for the decisions that are ultimately to be made on the elimination of identified deficiencies, as discussed in chapter 8. The most important deficiencies that were identified in chapter 8, as well as the ideal situation that should be striven for, will subsequently be discussed in the context of the relevant section of the questionnaire (see Appendix C). The deficiencies and recommendations will be discussed in the order as listed in the total quality framework in figure 9.1 and the order followed in the questionnaire two (see Appendix C).

9.8.1   Section A: Leadership and top management commitment to TQM

(a)   The important role of top management to TQM

In chapter 8, paragraph 8.3.1 it was stated that (1) the three categories of respondents are uncertain as to whether top management provide sufficient guidance and accept responsibility to properly establish the TQM effort at air force bases, (2) top management themselves believe that they are not totally committed to the TQM philosophy (both at an intellectual and emotional level) and (3) top management is not

recognised as leaders outside air force bases, with regard to the TQM implementation of improvements. All three deficiencies highlighted in chapter 8, paragraph 8.5.2 clearly indicate that the role played by top management to indicate their commitment to the TQM philosophy, is not clear. Top management themselves are unsure as to whether they had totally committed themselves to a culture of TQM in the amount of time they spent with customers, suppliers, employees and external bases/community. A further deficiency in respect of top management is the fact that they do not fully indicate their commitment by providing sufficient resources for the quality attempt. In chapters 2, 3 and 4 the importance of top management's commitment to TQM is the cornerstone that supports and keeps the whole TQM philosophy together in order to ensure success.

All of these problems can be eliminated if top management shows more commitment towards the TQM philosophy. It is recommended that the top management of air force bases commit themselves clearly, solidly and formally to TQM.   The mentioned unsatisfying condition will in all probability be eliminated if top management is equipped with the necessary knowledge and information in respect of their role to implement TQM within their institution. The only way in which these deficiencies will probably be eliminated is to provide training to top management on, firstly, the implementation of the TQM philosophy and, secondly, their resulting responsibilities. The training to be received by top management should be management directed, that is the focus should amongst others be on management techniques, quality techniques and systems in order to teach them the required techniques to fully commit themselves to the TQM philosophy. Such training programmes should address principles and techniques in respect of TQM in general and more specifically the use of TQM implementation plans. In this way top management as leaders should be able to develop the trust required of them. Apart from this they should be able to develop a more positive attitude towards the TQM philosophy for achieving quality commitment, in spite of limitations as far as resources are concerned. The commitment of top management is essential and is discussed fully in chapter 4, paragraph 4.2.

It is recommended that top management give more guidance, not only by formulating and approving high-level policy and strategies, but their subordinates should also regard them as leaders. This entails that top management should also act as leaders as far as the execution of TQM is concerned. Closely linked to this aspect, is the fact

that top management should ensure that TQM is executed down to the lowest level at air force bases so that it will guide each individual in the execution of his or her daily tasks. Such commitment compels top management to understand TQM and to learn more about the way in which the process functions. However, such greater involvement will only occur once top management has received the necessary training in TQM and no uncertainties exist as to how they are to fulfil their responsibilities. Research should therefore be done on how to involve top management more and how to make them accept more responsibility in respect of the TQM effort.

9.8.2   Section B: Strategic planning

(a)   Prerequisites for successful planning

In chapter 8 in the analysis of the responses to the questionnaire it came to light that top management and middle management do not plan properly to provide for possible deviations from planned objectives. The mentioned unsatisfying situation will in all probability be solved if top management realises that they are responsible for air force bases as a whole as well as for determining the right of existence and objectives of air force bases. In chapter 4 (paragraph 4.3.1) it is emphasised that the required planning process to implement total quality within an institution is the responsibility of top management. Long-term planning, involving amongst others formulating broad objectives, strategies and policy that will keep air force bases directed on their fundamental aim, is the responsibility of top management. These objectives, strategies and policy are refined through the values and aspirations of top management and the broad forecast and evaluation of environmental factors. Top management plays an essential role in leading air force bases to their objectives and is responsible to keep air force bases in equilibrium with their environment by accommodating environmental changes. Ideally spoken, there should be no uncertainty that top management should do proper planning in order to achieve planned objectives. Therefore, top management should properly plan, organise, give guidance and exercise control to prevent or eliminate any deviations from planned objectives.

(b)   Interface between tasks and strategic planning

In chapter 8, paragraph 8.3.2 it is stated that top management is of the opinion that employees do not properly understand the interface between their tasks and the strategic plans and objectives of the air force bases. It is a matter of concern that the questionnaire data indicate that the aforementioned deficiency exists. The reasons for this situation, of which an investigation fall outside the scope of this dissertation, can be manifold. The aforementioned deficiency also appears to be a reflection on the management style of the top management concerned and requires attention. In chapter 4, paragraph 4.3 it is clearly stated that strategic planning is a key focus area for top management, as well as a way of focussing all personnel members within an institution on integrated day-to-day activities. It is top management's responsibility to provide their subordinates with a 'sense of direction' by means of strategic planning, so that they will be able to understand what the interface is between their tasks and the strategic plans and objectives of air force bases.

(c)   The role of all interest groups (stakeholders, customers and employees)

The analysis of the responses to the questionnaire clearly indicates that the poor involvement of interest groups in the strategic planning of air force bases is probably the cause for the serious problem that will be discussed in the next paragraph, namely that top and middle management is of the opinion that suppliers, customers and employees are not all involved in the quality improvement programmes of the air force bases. In chapter 2 (paragraph 2.2.1) it is set as a prerequisite that an institution that provides a service, should have a service strategy that involves all interest groups and that all interest groups should form part of the institution's strategic planning process in order to be part of future quality improvement programmes. It is clear that a need exists to foster greater understanding amongst the members of top and middle management of air force bases for the role played by interest groups in quality improvement programmes. Such understanding will probably be enhanced in that air force bases clearly *identify* their internal and external customers in their strategic planning process and establish proper, continuous communication channels with all interest groups in order to make their customers' expectations and needs part of air force bases' strategic planning.

By means of communication channels clear instructions can be given to all interest groups as to the actions required of them to ensure the execution of the agreements/arrangements. By using this method a service strategy should be formulated. A service strategy will give all members employed at air force bases a focus point on which they can direct their efforts to render a customer-orientated service that will satisfy the customer. Whether the customer is internal of external, an attempt should always be made to satisfy the needs of the customer as far as possible in order to ensure customer satisfaction. It is essential that customer satisfaction, whether internal or external, be measured and managed continuously in order to optimise satisfying needs.

Questionnaires can be used to obtain regular feedback on whether air force bases satisfy their needs. Proper feedback by interest groups can also assist to foster a better understanding amongst top and middle management for the problems of interest groups. The output of the questionnaire should be used as action plans to improve customer service if problems are identified. Time scales should be linked to the action plans to ensure that the problem areas are addressed and solved. More attention should be paid to feedback sessions to all interest groups within and outside the air force bases to improve trust relations between departments within air force bases, between air force bases and their customers, and between air force bases and their suppliers. Apart from this, top and middle management should also be encouraged to communicate with all the interest groups of air force bases on a regular basis (formally as well as informally) to ensure mutual understanding for one another's circumstances and to address potential problem situations as soon as possible. Feedback on performance is essential, as tendencies can be analysed to increase future performance and mutual service rendering.

9.8.3 Section C: Empowerment

(a) Employee empowerment to reach their full potential

In chapter 8, paragraph 8.3.3 it is stated that respondents indicated that they are not certain that air force base personnel have been empowered to reach their full potential by given them ownership and responsibility. It is clear that a need exists for better understanding by top management to provide encouraging guidance to workers. In

chapter 4 (paragraphs 4.2 and 4.4.1.1) it is emphasised that top management has to ensure renewal within the institution by redefining responsibilities and operational procedures in such a way that workers are empowered. An orderly relationship between activities is necessary to ensure that employees work together in a coordinated fashion under the directing authority of top management to achieve a common goal. It is essential for employees to apply TQM innovatively and creatively together with other aids in order to achieve the aforementioned. In order to obtain new ideas and creativity whilst actively striving for TQM, a close partnership should exist between top management and the personnel of air force bases. Creativity will lead to employees using technical and innovative ideas to search for opportunities whilst striving to exceed the needs of customers (both internal and external) in order to establish total quality.

It is recommended that top management adapt their management style in a pragmatic manner to offer employees the opportunity to be innovative and creative and in this way to empower them to develop to their full potential. A change in the behaviour of top management, that is to strive to listen and be open to new ideas and suggestions as presented by employees, is required. Exclusive efforts by top management to cling to organisational authority should be replaced with the desire to involve employees inclusively as full partners at air force bases. Top management should develop the optimum potential of each employee in such a manner that a feeling of "belonging to the institution" is established. This approach will not only add value to the life of the employee, but will also be to the advantage of the air force base and the SA Air Force. By following this approach top management will create an atmosphere of trust and openness (transparency) throughout the air force base concerned and the employee will accept co-ownership, not only of his or her work, but also of the air force base.

(b)   Uncertainty as to the real meaning of TQM

The respondents indicated in the analysis of the responses to the questionnaire that the personnel of air force bases do not receive proper training (both formally and informally) in TQM. There are also strong indications that air force bases do not have a long-term training programme in respect of TQM for all employees. The analysis of the responses to the questionnaire indicated that uncertainty exists amongst certain employees at air force bases as to whether they really understand the TQM philosophy

or not. It is recommended that all employees at air force bases receive more training in respect of the philosophy and principles of TQM. Knowledge of the philosophy and principles of TQM should also decrease resistance to the acceptance of TQM. Training in quality techniques and systems should be provided to employees in order to understand the customer-supplier relationship. All employees should be involved in the institution's quality improvement programme.

Employees should be introduced formally (see Deming's sixth principle of "establish in task-training", chapter 2 paragraph 2.3.1.1) to the policy, procedures and culture of the institution, as well as the requirements of each employee's specific tasks. A long-term training programme for training and self-improvement should be formulated and instituted to continuously provide employees with new knowledge and skills (see Deming's thirteenth principle as stated in chapter 2, paragraph 2.3.1.1). Therefore, it is essential for air force bases to take measures that will contribute to the fact that the necessary training in the TQM philosophy is put at the disposal of all employees. Not only should the necessity of formal training on the TQM philosophy at air force bases be emphasised, but greater attempts should also be made by the SA Air Force's Directorate Education, Training and Development (in conjunction with other institutions who have knowledge of the management of the TQM philosophy). The reason for this is that the accessible population at air force bases, that were involved randomly in this study as sample group, is probably representative of the SA Air Force population and that the results can possibly be generalised universally. By means of courses, seminars and training programmes practical orientation of the implementation possibilities of TQM can be provided to the employees of air force bases in order to equip them to successfully use TQM at air force bases. Air force bases should establish a visible and executable training programme that makes TQM actively part of continued training and development programmes. However, what is of importance is the necessity of and greater efforts that should be applied in formal training in respect of the TQM philosophy.

(c)   The delegation of decision-making to lower levels

The analysis of the responses to the questionnaire indicates that respondents are of the opinion that they are not really recognised during the decision-making processes of the

air force bases. It has already been stated that it is desirable that employees should to a certain extent be afforded the opportunity to be involved in the decision-making processes of an institution.   Employees are generally more motivated to achieve objectives if they are afforded the opportunity to become involved in decisions affecting them. Furthermore, involvement in the decision-making process can contribute to the establishment of ownership to enhance the achievement of objectives.   If middle management and even workers do not have the ability to make high quality decisions, the chances are slim that proper empowerment will occur. If subordinates are well qualified, top management can use this to their advantage by empowering them. It is recommended that middle management and workers are involved in the decision-making process in partnership with top management.

If participative management is emphasised, middle management and workers can offer creative solutions to problems experienced in the work environment. In this way middle management and workers are offered an opportunity to influence decision-making within their capabilities to the advantage of top management and the institution. Top management should therefore delegate more decision-making powers and responsibility to middle management and the workers. Middle management and the workers should be given the opportunity to make decisions on how to achieve results. By following this approach top management offers middle management and the workers an opportunity to become involved in the strategic positioning of air force bases.   This, of course, implies a certain degree of risk management, but the involvement and commitment of middle management and workers to optimise results, should overshadow the possibility of losses/risks.

9.8.4   Section D: Teamwork

(a)   Team recognition

As prerequisite for a sound top management/team relationship it is essential for top management to focus on team recognition rather than individual recognition within team context. In chapter 4 (paragraph 4.5) it is emphasised that top management should give recognition for the achievements of workers within team context. In the analysis of

the responses to the questionnaire it came to the fore that top management is more in favour of individual rather than team recognition. This fact basically confirms that team recognition is not well utilised by the top management of air force bases. The deduction can possibly be made that the focus is on teamwork, but that recognition in team context does not enjoy a high priority. Sufficient recognition of successful teams results in team empowerment and employee satisfaction. It is recommended that greater emphasis be placed on giving recognition to successful teams at air force bases and not only on individual recognition within team context.

(b)   The role of teamwork to achieve customer satisfaction

The analysis of the responses to the questionnaire indicates that respondents are not sure that task groups at air force bases are continuously involved in the setting of standards for measuring internal and external customer satisfaction. It is important for top and middle management to continuously remind the workers of the objectives of air force bases, especially those objectives based on customer service and satisfaction. Workers in task teams should be empowered to identify the needs of customers and they should also be able to put in place the standards, processes and procedures required to satisfy internal and external customer needs. The fact that a large number of respondents continuously indicated that they have no knowledge of the standards, compel air force bases to take the necessary measures that will ensure that the required information and training in the setting of standards are placed at the disposal of such workers. It is recommended that task teams be properly trained and developed in the principles of group dynamics, communication, problem solving, think tanks and standards for measuring internal and external customer satisfaction. Not only should the necessity of formal training on standards for measuring internal and external customer satisfaction at air force bases be emphasised, but a greater effort should also be made by the educational institutions of the SA Air Force.

(c)   Top management support to achieve teamwork

In chapter 4 (paragraph 4.5) it is clearly stated that the managers of an institution can be a work team's greatest asset or greatest burden. In the subsequent discussion on teamwork it is clearly stated that it is important that a relationship of trust exists

between top management and work teams. Without experienced and well trained leaders, teams can easily and simply fade away, deviate from objectives, lose trust, stagnate or simply be lacking in potential in the growing phase of their development as a team. It was also stated that top management should provide their employees, grouped into teams, the opportunity to participate in deliberations in respect of the arrangement and execution of their work, as it will not only result in more satisfaction amongst personnel, but will also result in increased efficiency.

In chapter 8, paragraph 8.3.4 the analysis of the responses to the questionnaire indicates that (1) top management is of the opinion that the performance of air force bases within team context will not improve without the support of higher authority and that (2) middle management and the workers are of the opinion that the performance of work teams as well as their recommendations are not easily accepted and implemented. This deficiency seems to be a reflection on the management style of the top management that does not meet expectations. In Section A it also came to the fore that top management is not fully committed to establishing a culture of TQM and that top management is not involved personally by means of participation in the TQM efforts. The deduction can be made that the reason for this state of affairs could possibly be that the training that top management receives, is not management directed or not management directed enough. If management-directed training, focusing amongst others on participative management techniques for teamwork, is presented to those involved and the techniques are applied in the work situation, the workers should within team context be able to observe the trust put in them. The relationship of trust between top management and teams should improve to such an extent that the performance of air force bases within team context should improve without the involvement of higher authority and that the performance and recommendations of work teams should be accepted and implemented easily. At the same time the role of top management in air force base activities should be re-evaluated in order to make adaptations to involve work teams more in partnership. Top management should facilitate task teams and should support the decisions made by members of the task teams, if at all feasible. Top management should consider the recommendations made by teams and should realise that teams as resource contribute directly to the success of air force bases. In this way work teams will receive the necessary skills and abilities to perform their tasks efficiently and effectively. In this way worker empowerment,

ownership and a relationship of trust will exist between top management and work teams.

(d)   Teamwork in TQM projects

The analysis of the responses to the questionnaire clearly indicates that respondents are not sure that each department/section/subsection at air force bases are actively involved in TQM projects. In chapter 4 (paragraph 4.5) it is emphasised that teamwork has many advantages to a situation where individuals work separately, namely (1) a larger number of complex problems can be tackled simultaneously within team context, and (2) the solutions that are reached by means of teamwork have a greater possibility of being implemented, as the quality of decision making can be more effective in team context. Positive and observable support by top and middle management of teamwork for TQM projects is one of the most important characteristics of successful teamwork within the departments, sections and subsections of institutions. It should have a major impact on the elimination of the mentioned deficiency.

It is recommended that the top management of air force bases make "teamwork" within departments, sections and subsections an integral part of air force bases' strategic planning process. Setting objectives is essential for the success of teamwork. The objectives direct top management and the various departments, sections and subsections at air force bases to that which is to be achieved by means of teamwork and in this way eliminate uncertainty. The objective of top and middle management should be to enhance the efficiency and affectivity of service rendering and to create a work environment where the employees are involved in TQM projects within team context in their various departments, sections and subsections in partnership with management. The objective of the various departments, sections and subsections as teams should be active participation in TQM projects. It is also recommended that top management, as well as the workers, within the various departments, sections and subsections of air force bases receive training in participative techniques (within team context) that will encourage creativity and innovative thoughts. Such training should enable all to fully utilise their creativity and expertise. Teams should also receive thorough training in the problem-solving process and supporting techniques. During the training workers should be informed on the development, history and the philosophical

substructure of teamwork, as well as the structure and function of each role player within these teams.

9.8.5   Section E: Continuous improvement

(a)   An active programme for benchmarking

In the analysis of the responses to the questionnaire it became clear that respondents are not sure that an active programme exists at air force bases to obtain comparative benchmarking data from the best bases in the SA Air Force, although the workers indicated that it is the case.   In chapter 4 (paragraph 4.6.3) it is emphasised that benchmarking is the process of continuous measuring and comparing of an institution's business processes with comparative processes of leading institutions in that field in order to obtain information to achieve improvements.   The role to be played by top management and middle management to establish continuous improvement by means of benchmarking is grounds for concern as continuous attention should be paid to the areas of cost, reliability, innovation, efficiency and affectivity in order to place the institution in a better competitive position.   As it represents such a basic and critical element of the activities of top and middle management, quick reaction is required to an investigation by top management in this regard.   In this way insight can be obtained as to why middle management is not sure that an active programme exists at air force bases to obtain comparative benchmarking data from the best bases in the SA Air Force.

(b)   Continuous improvement to support service delivery and customer satisfaction

In their responses to the questionnaire respondents indicated that (1) workers do not really understand the TQM efforts to continuously improve their own work performance and service delivery, (2) they do not pay sufficient attention to the availability of techniques/aids for error-cause-elimination and (3) they are not sure as to whether air force bases use data on benchmarking and customer satisfaction to initiate process

improvements in order to obtain continuous improvement. In chapter 2 (paragraph 2.2.1) it is indicated that the service concept plays an important role at institutions to achieve continuous improvement. The service concept has two components, namely the degree to which the customer's needs are satisfied and the added value for the customer. Customers' perception of service is of the utmost importance. Man aspires more and more to improve his/her standard of life, accompanied by a better quality of life. The last aspect is closely related to the whole concept of customer service. Customers expect quality service that meet their expectations and improve their quality of life. As the customer becomes more important, the demand for services will increase and the institution's ability to provide in that which the customer wants will determine its feasibility. Therefore, it is of concern that the quantification and measuring of improvements for service rendering at air force bases are not up to standard. The mentioned deficiencies refer to the same matter, namely an apparent lack of effective training to the employees of air force bases in quality evaluation methods and techniques for gathering and analysing information to ensure continuous service improvement.

Training in quality evaluation serves as an important resource for management to identify areas where there is a need for continuous improvement. Various types of audits exist, as discussed in chapter 2, paragraph 2.5, that can be used to identify areas for improvement within an institution and to put action plans in place to ensure improvement, e.g. the EFQM model, the Malcolm Baldrige Award and SAEF model. During training the focus should be on the implementation of the quality evaluation methods and techniques to gather and analyse information in order to ensure continuous service improvement. A number of data collecting and analysis techniques exist that employees can use to collect and analyse data (as discussed in chapter 4, paragraph 4.6.4) in order to ensure continuous improvement of quality performance.

9.8.6 Section F: Customer and employee satisfaction

(a)   Employee satisfaction

The analysis of the responses to the questionnaire brought to the fore the disturbing fact that the degree of employee satisfaction at air force bases is not satisfying. In

chapter 4 (paragraph 4.7.3) it is indicated that employee satisfaction plays an important role in the TQM philosophy. It has been clearly stated that the abilities, talents and judgment of employees should be trusted so that in this way they can obtain the right to make their own decisions. In chapter 4 (paragraph 4.7.3) it is indicated that the opportunities that an institution offers its employees to develop in their work situation, have an important effect on their levels of work satisfaction. In this way optimum work performance and satisfaction can be obtained as the employee is afforded an opportunity to develop in his/her work situation. The deduction is made that, even though air force bases do much to ensure employee satisfaction, other factors exist that can contribute to employees' level of job satisfaction not being up to standard. It is clear that employee satisfaction can be hindered if factors such as interpersonal conflict and inter-organisational conflict exist. As this aspect has many facets and there can be many reasons, the problem is not simple and should an investigation be launched at air force bases to determine the reasons why the levels of employee satisfaction are so low at air force bases. Better employee satisfaction will only occur once it has been properly determined why employee satisfaction is so low. If these steps are followed, top management should be able to act with greater authority in this regard. This problem has interfaces with all 14 TQM dimensions, as indicated in figure 9.1.

(b)   Service standards

In the analysis of the responses to the questionnaire it became clear that respondents are uncertain as to whether air force bases have develop well defined customer standards to deal with the problems experienced by customers (both internally and externally) in order to solve deviations. According to both top and middle management, they are also uncertain as to whether air force bases have developed a generic model for all departments/sections/subsections according to which customer service is rendered to meet the expectations of the customer. The mentioned problem has already been identified in the findings of the dimension on "teamwork for customer satisfaction" [paragraph 9.8.4. (b)] and the same recommendations apply here. From the conceptual analysis of TQM in chapter 2 (paragraph 2.2.1) the importance of customer service and the needs of customers came to the fore. It was set as prerequisite in chapter 4 (paragraph 4.7.1) that all total quality improvement efforts should focus on customers and satisfying their needs and expectations. The aim of any

institution is to create a customer and to retain such customer. It is clear that a need exists to foster greater understanding amongst workers for the importance of their customers and the reasons why customer service is so important. Proper service standards for customers should also be set for air force bases that can serve as indicators of performance, as on the basis of these it can be determined whether the service meets the expectations of the customer or not. The standards should be measurable and be related to the tasks forming part of service rendering. Therefore, service standards should be created at all air force bases on the basis of which assessment can be done. All employees of air force bases should know that all employees within the base are internal customers of one another. By setting service standards, service can be better managed and workers can obtain a clearer picture of exactly what is expected of them.

The measuring of service should be a continuous process for which each worker accepts responsibility. It is also important to have a system of providing feedback so that there can be early warning should there be a deviation from a set standard. Once the requirements of customers have been determined, standards can be set according to which the service is evaluated and measured. In chapter 2, paragraph 2.2.1.5 reference is made to Stamatis (1996:54) who has developed a six step generic model for the implementation of customer service, on how to comply with service standards and the expectations of the customer. A better understanding of service standards will probably be enhanced amongst the workers of air force bases if an efficient training programme is followed, using realistic case studies.

(c)   Aids and techniques to evaluate customer satisfaction

The analysis of the responses to the questionnaire clearly indicates that there are strong indications that there are no aids and techniques at air force bases that can be used to assess customer satisfaction and customer needs. There are further indications that uncertainty exists as to the establishment of design teams with customers within air force bases for the mentioned assessment purposes. In chapter 4 (paragraph 4.6.4.1) it clearly came to the fore that institutions have to use aids and techniques to measure customer satisfaction and customer needs. As this matter has

various facets and is complex, it will be wise to include it together with other points highlighted in this chapter, in a structured TQM course to be presented to all employees of air force bases and the relevant top management. It is further recommended that the suggested or other data collecting and analysing techniques (as mentioned in chapter 4, paragraph 4.6.4.1 in the dimension "continuous improvement") are used on a regular basis within team context to measure the progress made with institutional improvement, based on the TQM philosophy and principles. Such a structured TQM course dealing with aids and techniques to assess customer satisfaction and customer needs, will ensure that the required knowledge is conveyed to employees.

9.8.7   Section G: Communication

(a)   Undisturbed communication flow

In chapter 5 (paragraph 5.2.2) it is clearly stated that one of the requirements in the area of communication is that management should understand all communication processes within an institution, that is horizontally, vertically, downwards, upwards and diagonally, in order to ensure effective communication throughout the institution. The analysis of the responses to the questionnaire clearly indicates that communication does not flow unhampered horizontally, vertically or diagonally between departments, sections, subsections and processes, which relates to the previously mentioned communication problem between top and middle management and sections. It is recommended that top management make an effort to ensure that their messages, views, expectations and aspirations reach the operational level quickly and correctly by means of vertical communication (downwards communication). At the same time the responses of the lower levels (communication upwards) should be conveyed quickly and correctly to higher levels. Horizontal communication between persons or sections at the same hierarchical level should also be encouraged. Through horizontal communication better teamwork, coordination and decision-making should be established. This can occur through discussions and exchange of information between sections or between co-workers aspiring as a team to attain the same objectives.

Diagonal communication (combination of horizontal and vertical communication) should be encouraged so that those employees who have the necessary knowledge and those

employees who require the knowledge can sometimes communicate directly (diagonal) with one another, irrespective of the fact that the communicator and the receiver of the message are not linked directly to one another hierarchically (e.g. within a matrix organisation). Although this may imply a deviation from the prescribed military communication channels, it is essential for the daily operation of air force bases and it is an important instrument to ensure coordination and control in order to enhance customer service (both internally and externally). Questions set positively (items G1 to G13) in section G of the questionnaire (see appendix C) serve as guideline of that which can be done to ensure effective communication in order to successfully establish TQM within an institution.

(b)   Communication between top management and sections

The analysis of the responses to the questionnaire clearly indicates that respondents are not sure as to whether effective communication does indeed exist between top management and sections. According to top management they are unsure as to whether the workers of air force bases do indeed receive all information required to properly perform their duties. In chapter 5 (paragraph 5.2.1) it is emphasised that (1) communication, just like leadership, plays a primary role in the service rendering of an institution to enhance service quality, (2) effective communication contributes to the fast and effective execution of tasks, while it also enhances decision making and teamwork, and (3) communication plays an important role in the process of problem solving, especially within team context.

In chapter 5 (paragraph 5.2.1) it is further emphasised that Stamatis (1996:34) considers communication as one of the most important factors to (1) guide and empower people, (2) form successful quality teams, e.g. quality circles, (3) establish effectivity of problem solving within team context, and (4) ensure continuous quality service rendering results. He also states that communication plays a central role in human interaction and interaction between employees. The interaction applies to communication between individuals, between the individuals of teams and between employees within institutional context. From these findings the deduction can possibly be made that there are factors present in the work situation that can lead to top management having this point of view that can lead to communication problems

between them and section heads. It is important to determine which communication factors (the frequency and intensity thereof) cause these problems between top management and section heads as well as between section heads and workers. The matter should be followed up with a separate investigation. The mentioned deficiencies also apply to the same matter, namely an apparent lack of effective communication channels between top and middle management and sections, as well as between section heads and workers. In circumstances of this nature it can be expected that sections maintain that their existence and role are ignored by top and middle management and should it therefore be accepted that this view dampen their enthusiasm in the work situation.

To solve this problem, proper communication channels to the relevant sections should in the first instance be created as soon as possible, or the existing communication channels should be utilised better and, secondly, clearer instructions should be given to sections via the communication channels on their conduct to ensure proper execution of instructions. The rationale for the instructions and other essential background information should preferably be provided together with the instructions in order to increase insight into the situation and to encourage a change in attitude, where necessary. It should be ensured that the mentioned information is provided to sections on a regular basis. Effective communication among sections and employees should be stressed, and barriers that limit communication should be broken. Top management should communicate even to the floor level and should not always expect a bottom-up approach. Top management should also solicit and hold continuous meetings with employees to communicate the TQM philosophy with the strategic intent to identify any problems at the work place before developing corrective actions.

9.8.8 Section H: Training

(a) Formal and informal long-term TQM training

In the analysis of the responses to the questionnaire it became clear that (1) the personnel of air force bases do not receive proper training (both formally and informally) in TQM and (2) that air force bases do not have a long-term training programme for employees in respect of TQM. The analysis of the responses to the questionnaire

already indicated at the dimension 'empowerment' [see paragraph 9.8.3 (b)] that uncertainty exists amongst certain employees at air force bases as to whether they really understand the TQM philosophy, or not. It is recommended that all employees of air force bases receive more training in the philosophy and principles of TQM. Knowledge of the philosophy and principles of TQM should also decrease resistance to the acceptance of TQM.

Training should be provided to employees in quality techniques and systems so that they can better understand the customer/supplier relationship. All employees should be involved in the institution's quality improvement programme. Employees should be introduced more formally (see Deming's sixth principle of "establish in task-training", chapter 2 paragraph 2.3.1.1) to the policy, procedures and culture of the institution, as well as the requirements of each employee's specific tasks. Continuous training is mandatory for the success of TQM. People can perform only the level to which they have been trained. Managers should develop a multidisciplinary background through training, education and hands-on experience. This exposure to different functional areas will help unite the functional goals to those of the organization. The priority of the topics in the training programme will be dependent upon organisational needs. Over time, all subjects should be covered.

A long-term training programme for training and self-improvement should be formulated and accepted in order to provide employees continuously with new knowledge and skills (see Deming's thirteenth principle as discussed in chapter 2, paragraph 2.3.1.1). Therefore, it is essential that air force bases take steps that will ensure that the required training in the TQM philosophy is put at the disposal of all employees. Not only should the necessity of formal training in the TQM philosophy be emphasised at air force bases, but greater efforts should be made by the SA Air Force's Directorate Education, Training and Development (in conjunction with other institutions who have knowledge of the management of the TQM philosophy) to address the matter. The reason for this recommendation is that the accessible population at air force bases, that was randomly involved in the research, is probably representative of the SA Air Force population and that the results could probably be generalised universally. Courses, seminars or training programmes addressing practical orientation in respect of the implementation possibilities of TQM should be provided to the employees of air force bases in order to

equip them to successfully apply TQM. All air force bases should implement a visible and executable training programme that will ensure that TQM really forms part of continuous training and development programmes. It is important to realise that greater efforts should be made to ensure proper formal training on the TQM philosophy. The positive questions (items H1 to H10) in section H of the questionnaire (see appendix C) provide guidelines of what can be done to ensure effective training in order to enhance the successful introduction of TQM at an institution.

9.8.9   Section I: Culture forming and change management

(a)   Culture forming

The analysis of the responses to the questionnaire clearly indicates that (1) top management of air force bases is not sure that their conduct always enhances their oral statements (slogans) in respect of TQM, and (2) top management and middle management are not sure that air force bases' culture is "preventative-orientated" rather than "reactive corrective orientated". The question that can now be asked is whether top management and middle management (1) refrain from committing to that which they preach and (2) really know what their responsibility is and how to go about to apply that which they say they plan to do. In chapter 5 (paragraph 5.4) it is indicated that culture forming is an important aspect in the implementation of TQM. One of the prerequisites mentioned, is that processes to change the culture of an institution, should be so well communicated that each employee understand them properly and truly support them.

Therefore, it is logical that a thorough understanding of an institution's culture serves as an important point of departure to understand the internal environment of the institution. The mentioned unsatisfying situation will in all probability be solved if top management analyses the culture of air force bases and identifies the factors that have the biggest influence on the relevant culture, so that culture, just like strategy, can develop in the right direction with time. It will require much insight, time, resources and the right attitude by top management. Strategy and culture are closely linked to one another and a TQM culture should receive the necessary attention during the formulation of the mission statement. The establishment of a TQM culture will then form part of the air

force bases' strategy. The implementation of TQM should be a strategic decision with long-term objectives and implications. Top and middle management should be committed to the aforementioned and to a new total quality culture and through communication should create an atmosphere in which the culture can be followed. Top and middle management themselves should present all culture forming training. In this way it can be ensured that the subordinate workers observe management's commitment and involvement, can integrity be awarded to cultural values and can open communication be enhanced. Through training management can establish a culture of trust that can make an important contribution to productivity improvement and employer commitment. The leader should join his or her vision, strategy and culture in order to create a culture of excellence. The conduct of employees at air force bases will then be in accordance with that which they preach (slogans) with regard to TQM and can their culture be regarded as being "preventative orientated". A leader who combines culture and strategy will not only react to changes (be reactive), but will act pro-actively should a change occur.

(b)   Change management

In chapter 8, paragraph 8.3.9 there are indications that respondents do not fully understand the reasons and need to change from the status quo to a TQM philosophy. Respondents are also not sure whether employees who are the most affected by the change to the TQM philosophy, really understand what is expected of them in order to support the changes. Great emphasis has been placed in chapter 5 (paragraph 5.5) on the fact that (1) the top management of institutions should be susceptible to changes, (2) top management should manage change in such a way that it is the least unsettling to employees and (3) institutions have to use their own training curriculum, resources and structures to aspire to attain institutional objectives and policy to change over to a better management philosophy. It was also mentioned that courses only have value if managers and supervisors mutually share the same values and objectives. It was further emphasised that managers should not attempt to establish foreign cultural values, as a change in culture implies a change in set values, norms and beliefs. The more "foreign" the planned culture, the bigger the probability that the implementation thereof will be unsuccessful. Institutions should rather build up a culture in time by

selecting cultural values and by strengthening those that are in accordance with the desired objectives of the institution.

In chapter 8 the analysis of the responses to the questionnaire indicates that there are indications that top and middle management do not fully understand the reasons and need to change from the status quo to a TQM philosophy. Top management is also not sure that employees who are the most affected by the change over to the TQM philosophy, really understand what is expected of them to support the changes. The mentioned deficiencies (1) appear to be a reflection on the management style of the relevant top management of air force bases who do not really succeed in managing change in such a way that it offers the least possible disruption to employees and (2) indicate poor training where workers do not fully understand the principles and techniques of TQM. Top management should manage change in a more organised manner, linked to a TQM policy for air force bases, so that the basic philosophy will result in an improvement in objective achievement for air force bases. By following this approach, even drastic changes should be acceptable to workers. Training plays an important internal role to supplement the limited experience of employees in the TQM philosophy. Proper training in respect of the TQM philosophy to all employees, with the emphasis on the principles and added value it offers, should make a major contribution to the elimination of the deficiencies identified. As the management of change represents a basic and critical element of the tasks of top management, eliminating these deficiencies should receive urgent attention. Top management should stress their full support. Both top and middle management should offer sufficient time/opportunity for the establishment of the TQM philosophy at air force bases in order to reap the benefits thereof.

9.8.10 Section J: Support structures, systems and resources

(a)   Responsibility of top management

It has already been emphasised that it is desirable that top management realise that they have an important role to play in the TQM efforts of an institution. The analysis of the responses to the questionnaire indicates that the situation is not what it is suppose to be and that the respondents have serious doubts in this regard, namely that (1) top

management does not really accept the guidance and responsibility to fully support the TQM effort by providing and allocating supportive structures, systems and resources and (2) top management does not provide the required support structures, systems and resources to support the workers' daily tasks.

The recommendations made in respect of the deficiencies in the dimension of leadership, namely "Top management's commitment to TQM" can also be applied to eliminate this deficiency. Allocating resources is a top management responsibility, as the matter affects the total air force base (or major parts thereof) and as the allocation of relatively major resources is involved in the TQM effort. Therefore, top management together with middle management has the primary responsibility to ensure that all that are applicable to the TQM effort are managed correctly and that all the processes applied at air force bases are supported through the provisioning and allocation of the right support structures, systems and resources (such as manpower, budget and information technology). Top management should link the air force bases' resources to their demands. The support structures of the air force base should not be static, but flexible and should encourage the flow of new ideas and information to improve the management of quality. Top management should ensure that the air force base has the ability to rapidly respond to changes in customer needs and external environmental pressures. Therefore, they cannot delegate the accompanying guiding, coordinating and supervising responsibilities such as the allocation of resources in respect of the TQM effort down to workers lower in the hierarchy, even though members at all levels play a contributing role. Top management's involvement in and responsibility towards the TQM effort is therefore essential for the successful execution of support structures, systems and resources. Training on the management of support resources in the work situation should also be offered. If these steps are followed, top and middle management should be able to act with more confidence.

Great emphasis was placed in some of the preceding chapters on the fact that the participation of top management in the implementation of TQM at an institution is essential for any institution to be successful and that it is the responsibility of top management to achieve the objectives of the institution in an atmosphere of cooperation and participation with all interested parties and at the highest possible productivity level. Employees are dependent on supporting resources to achieve

objectives. Top management should create a participative climate so that the potential of employees can be developed to the optimum. Such a climate entails encouragement of the participative process by top management. The analysis of the responses to the questionnaire indicates that top management have not committed themselves to becoming more involved in the allocation of resources required to support supporting systems.

It is recommended that the participation of top management should be focussed on providing a balanced operation to the activities of air force bases. In light of the importance and demanding nature to implement TQM at an institution, top management should participate at all hierarchical levels in order to remain involved in the process. Participation should not only occur on an *ad hoc* basis. Top management should refrain from a direct management style accompanied by unilateral planning, inhibiting organisational structuring and maintaining an external locus of control. Participative management, the maximum empowerment of the employee within the natural employee group as well as outside, based on the skills, abilities and training of the employee, group dynamic internal locus of control and full partnership between top management and the employee, should form the foundation of the renewed air force bases.

Top management is responsible for air force bases as a whole, as well as for the determination of air force bases' right of existence and objectives. Top management should also exercise control by means of resource allocation to ensure that the environment in which air force bases operate, is planned pro-actively within the framework of risks and uncertainties set by the external environment. Apart from this, top management should also be encouraged to communicate with their subordinates on a regular basis (formally as well as informally) in order to establish mutual understanding for one another's circumstances as far as resource needs are concerned and to address potential problem situations timely. Greater participation by top management will help keep air force bases in balance with their environment, to accommodate any environmental changes and to attempt to adapt the environment to the advantage of the institution. In this way top management can form a direct and independent opinion of the TQM philosophy.

9.8.11 Section K: Systems thinking

(a)   An air force base as an interdependent system

The analysis of the responses to the questionnaire clearly indicates that employees do not understand that air force bases should be managed according to the systems thinking approach based on a variety of interactions and interdependent forces. In chapter 5 (paragraph 5.7) it is stated that the systems thinking approach is an important supportive dimension that should be regarded one of the cornerstones to implement TQM activities at an institution. It is recommended that each air force base should be regarded as a system (i.e., a collection of interrelated and interdependent elements that work together to achieve the aim of the whole). An air force base as a system is simply (1) a number of interdependent components that form a whole and work together with a view to attaining a common goal and (2) the continuous interacting with its environment where this process takes in resources, information and energy, which it transforms into products and services to made it available to the environment (rest of the air force) in the form of outputs. Any air force base consists of inputs and processes to transform the input to an output. An air force base should operate like an open system where the air force base should take inputs from various external agencies and through a series of activities transforms the inputs into outputs to achieve some completed operational objective. Activities occurring in one part of the air force base affect what happens throughout the air force base. Air force bases have a continuous interaction with their environments and depend mainly on the external environment for their existence. Without the systems thinking approach to implement TQM activities, interdependence, which characterises these activities, is lost.

An air force base is a whole that cannot be divided into independent parts: the behaviour of the parts and their effect on the whole depend on the behaviour of other parts and are optimised in terms of the context of the system function. Effective management of an air force base as a system requires the management of the interactions of the parts, not the independent actions. These management actions include the monitoring of the systems interactions with the environment. The systems thinking approach provides a baseline for employees on how to manage air force bases. It is recommended that (1) each department at an air force base should work

together as a team in order to achieve the base's strategic objectives, (2) employees should understand that an intervention in one part of an air force base can cause havoc in another place or at a later stage, and (3) employees should not see events as individual incidents, but rather as the net result of many interactions and interdependent forces.

9.8.12 Section L: Self-assessment

(a)   The relationship between the enabler and result criteria

The analysis of the responses to the questionnaire indicates that respondents are not sure as to whether they should concentrate more on the enabler phase or rather on the result phase when implementing the SAEF model. It is important that each employee firstly understands that the SAEF model consists of 11 criteria that are subdivided into *enablers* (the first six criteria) and *results* (the last five criteria). Employees should understand that the two main criteria (enablers and results) are subdivided into several criterion parts. Employees should also understand that (1) the enabler criteria are concerned with **how** the air force base approaches each of the criterion parts, and (2) the result criteria are concerned with **what** the air force base has achieved and is achieving.

Employees should see the enabler phase as the major components of the air force base that create the total quality environment, whereas the result phase examines the air force base's performance in relation to its goals, its competitors and the "best in class" performance. Employees should see the full power of the SAEF model, which is derived from the relationships between the enabler and result criteria. At base level, if a process is key in an enabler criterion, then results related to the performance of that process should appear in one of the results criteria. As all 11 criteria in the SAEF model are linked, it is reasonable to expect a connection between results achieved (and presented in the results criteria) and the actions to improve performance in the enabler criteria. It is recommended that employees first concentrate on the enabler phase to create the total quality environment and only then start managing the results criteria to promote continuous performance improvement. The ultimate vision for air force bases

should be to use the SAEF model in order to create a culture of performance excellence throughout air force bases to enhance overall performance excellence.

9.8.13   Section M: Processes

(a)   The basic principle of processes

The analysis of the responses to the questionnaire indicates that respondents do not fully understand the basic principle of processes enabling them to do their work better. In chapter 5 (paragraph 5.9) it is emphasised that (1) employees should adopt a process view of air force bases, which is simply a structured set of activities designed to produce a specified output for a particular customer, (2) the process approach implies a strong emphasis on *how* work is done within an air force base, in contrast to a product's or service's focus on *what*, and (3) a process orientation to business involves elements of structure, focus, measurement, ownership and customers. Employees should understand that a process is a specific ordering of work activities across time and place, with a beginning, an end and clearly identified inputs and outputs: a structure of action. A process approach in air force bases implies a relatively heavy emphasis on improving how work is done, in contrast to a focus on which specific services or products are delivered to customers. Processes that are clearly structured are amenable to measurement in a variety of dimensions. Such processes can be measured in terms of the time and cost associated with their execution. Their outputs and inputs can be assessed in terms of usefulness, consistency, variability, freedom from defects, and numerous other factors. Processes need owners to be responsible for design and execution and for ensuring that customer needs are met. It is important that employees adopt a process view within air force bases which implies a commitment to process betterment.

(b)   Allocation of resources to support processes

The analysis of the responses to the questionnaire indicates that respondents are not sure that sufficient resources are allocated based on processes. Allocating scarce resources across the air force base is a major responsibility of top management. The capital allocation process is perhaps most familiar, but other resources – talented

people, research capability, technology, and so forth – may be scarce. Although most capital allocation processes are well defined, top management, whose interventions, if they do not yield poor results, may yield poor morale, frequently overrides the outputs of the process. At air force bases where the process is well defined, but some people are more familiar with the process than others, disproportionate allocations of capital may go to the knowledgeable. To address these issues, air force bases should develop a system to improve the capital allocation process. The system should improve the request process to support the allocation of resources to processes. Air force bases should develop a system to support not the requestors, but the allocators, of capital. This should make the allocation process of resources not only more efficient, but also less biased in favour of requestors known to individual executives.

In spite of the deficiencies identified in respect of the 14 TQM dimensions, personnel appear to be positive and satisfied with the way in which TQM is applied at air force bases. It appears as if the general TQM climate at air force bases is favourable for effective TQM. Objective seven is thus addressed in chapter 8, namely to determine the attitude of the personnel towards the nature and scope of the TQM dimensions of the literature model in figure 9.1, at air force bases.

9.9 OBJECTIVE EIGHT: TO DETERMINE EMPIRICALLY WHETHER PERSONNEL MEMBERS OF THE SA AIR FORCE BASES FIND THE APPLICATION OF TQM IMPLEMENTATION ACCEPTABLE

Chapter 6 provides an overview of amongst others the changes in the SA Air Force' s management approach to TQM, that have unavoidably influenced the entire SA Air Force and its personnel in some way or another. The year 2000 can in more than one way be regarded as a watershed for the eight air force bases, as far as the implementation of TQM is concerned. There are already indications that these changes had a positive influence on performance and TQM at air force bases. Taking this fact

as point of departure, the opinions of respondents in this regard were tested in the empirical survey in chapter 8, section Q of the questionnaire in Appendix C. The majority of respondents are of the opinion that they find the application of TQM at air force bases acceptable. The implication thereof is that any improvement in TQM in the future can have a favourable influence on the activities at air force bases. Objective eight is therefore addressed in chapter 8, namely to determine whether the personnel of air force bases are of the opinion that they find the application of TQM at air force bases acceptable.

9.10   SYNOPSIS

The hypothesis that has been formulated for this study, is that the attitude of personnel at SA Air Force Bases towards the primary and supporting dimensions of the framework for the implementation of TQM is positive. If the attitude of personnel at air force bases towards the nature and scope is indeed positive and TQM enables personnel to perform their daily tasks better, it will be possible to deduct that the more quality management principles are applied, the better work performance should be. However, if the attitude of the personnel at air force bases towards the nature and scope is negative, explanations will have to be found and recommendations be made on how to improve TQM at air force bases. With the aid of the computer-assisted reliability analysis (Alpha Cronbach) for the test, it was found on a statistical basis that the above hypothesis is indeed true. Therefore, by means of this study it was found that the attitude of personnel at the eight air force bases towards the primary and supporting dimensions of the framework for the implementation of TQM is indeed positive and that they accept the TQM effort, in spite of specific deficiencies. In light of the specific deficiencies that were identified, recommendations were made in this chapter that can contribute to the elimination of the identified deficiencies.

9.11   THE VALUE OF THE TQM FRAMEWORK

The value of the framework arises from four characteristics of the framework (see figure 9.1), namely:

- The conceptual nature of the framework.

- The open nature of the framework.
- The unique relationship between the 14 dimensions.
- The proactive orientation of the framework.

Each of the characteristics will subsequently be discussed.

9.11.1 The conceptual nature of the framework

The conceptual nature of the framework makes it possible to integrate the 14 dimensions: leadership and top management commitment, strategic planning, empowerment, teamwork, continuous improvement, customer and employee satisfaction, communication, training, culture forming, change management, support structures, systems and resources, systems thinking, self-assessment and processes, into a coherent whole. The literature cited in chapters 4 and 5 deals with each of these dimensions in isolation. It is evident from the literature that it is necessary to integrate all 14 dimensions according to the systems thinking approach, in order to develop an effective approach to implement TQM at air force bases.

9.11.2 The open nature of the framework

The open nature of the framework contributes to its value in that it allows for a holistic approach to implement TQM within an air force base by creating linkages between all 14 dimensions. It prevents the isolation of the 14 dimensions from other aspects of the air force base. To successfully implement the 14 TQM dimensions at an air force base, top management will need to manage an air force base according to the systems thinking approach.

9.11.3 The unique relationship between the 14 dimensions

The framework recognises that there is a unique relationship between the 14 dimensions. Recognition of this relationship provides the means by which to implement TQM at an air force base.

9.11.4 The proactive orientation of the framework

The proactive orientation of the framework allows the air force bases to anticipate future needs before they become crisis needs. The interaction of the framework's dimensions allows for assessment of the implementation process and monitoring of progress towards the implementation.

The TQM framework developed in this research based on the TQM philosophy, involves certain fundamental changes affecting the entire culture of air force bases. Bringing TQM or similar quality initiatives to an air force base requires a great deal of time and perseverance. The introduction of a TQM programme based on the TQM framework to an air force base involves multifaceted changes in person-job relationships, including training in a variety of new skills, a greater degree of goal setting for continuous improvement, feedback from customers and employees, and group approaches to problem-solving. The TQM framework offers a process and a system that can enable air force bases to better serve their customers. At the same time, it empowers employees to become more involved in defining problems and implementing changes that affect the total quality of their operations and the services they offer. The advantages of the TQM framework are both quantitative and qualitative as the air force base becomes proactive rather that reactive. It is a structural framework that creates a new way of doing business and it could extend beyond the interaction between customers and employees. To implement TQM, this process, however, is long and tedious as total quality must not only be taught, but absorbed, tested and refined. It must be understood that total quality is a never-ending process of continuous improvement. With the TQM telescopic framework new visions could begin to take shape, namely:

- Customers would receive what they ordered – without non-conformances, on time, in the right quantities, shipped, billed as agreed upon. Long-term partnerships would be built with customers.
- Suppliers would meet the air force bases' needs and requirements. Incoming inspections, inventory levels and administrative hassles would be reduced.
- New service delivery processes would be developed to agreed-upon requirements, as scheduled and at lower costs. Without the waste that results from changing

requirements and subsequent rework, more time would be available for positive, creative development.

- Employees would enjoy their work, as they become proactive in doing their jobs. They would stop spending large amounts of time responding to crises and dealing with a constant level of recurring non-conformances and errors.

9.12   RESEARCH CONCLUSIONS

From the evidence of this research study, it is possible to establish and reach conclusions, some of which confirm theorists' views, which are:

- The success of any TQM approach critically depends upon the commitment of top management, who must be, and must be seen, to be involved. Top management must establish unity of purpose and direction of air force bases. They must create and maintain the internal environment in which people can become fully involved in achieving the air force bases' objectives.

- Top management must be visibly involved in the development of a TQM transformation at an air force base.

- Changing the management style from an emphasis on command and control to an emphasis on leadership, with leadership being viewed as enabling and helping others to perform their work by removing barriers and constraints.

- The commitment to TQM, once made, is binding unless an air force base is prepared to see its reputation suffer and staff morale decline. Commitment implies considerable resourcing in the short term. The costs of training, facilitation, staff time and monitoring performance are considerable before the benefits arising from total quality are achieved.

- A well-designed strategic plan contributes to directing all activities towards achieving the air force base's mission, goals and objectives.

- Create a vision to direct decisions and actions in the air force base and increasing the emphasis on a strategic plan that is aimed at positioning the air force base optimally within its environment.

- Changing the institutional structure, from the mechanistic charts and boxes of command reminiscent of the military, towards an informal, organic institution with a flat, self-focusing team and involvement of people across functions.

- A TQM philosophy must be documented.
- Integrating the self-assessment procedure into the air force base's strategic planning process to ensure that it remains a central part of the air force base.
- Feeding progress back through self-assessment on an ongoing basis to drive the TQM programme forward.
- People at all levels are the essence of an air force base, and their full involvement enables their abilities to be used for the air force base's benefit.
- All possible sources for development of a TQM philosophy, including the ideas of people in the air force base, must be used.
- Relating air force base goals to those of individual departments and employees, and vice versa, in order to create a committed and motivated quality culture.
- Maintaining employees' motivation by promoting and championing quality successes and highlighting their long-term benefits.
- Involvement, training and empowerment of employees are a must, as well as recognition that they are the primary source of a competitive advantage.
- Using successes to show how far the air force base has progressed to date and how individual employees can contribute to future achievements.
- A change in the TQM philosophy affects the working life of people and as such can create resistance to change. Resistance to change must be translated to positive feedback that can direct the development process to establish a new culture.
- Training for all levels at an air force base is important, but must have reachable objectives.
- A TQM approach is top down through line management in a quality council and quality task groups, and bottom-up through quality teams. Communication of the success of quality programmes and of progress is vital. Finding ways to disseminate information and to obtain feedback is a high priority.
- The development of a long-term integrated total quality programme into a continuous and self-perpetuating improvement process is necessary at air force bases, which will provide goals and motivation for employees.
- Continuous improvement tools used must be fit for purpose and must be understood by management.
- Effective use of the latest technology is needed to improve the air force base's competitive advantage within the SA Air Force to remain ahead of competitors.
- Continuous improvement must be a permanent objective of air force bases.

- Devising or selecting a suitable method for assessing and measuring the total quality programme and benchmarking against other air force bases.

- Continuous innovation is necessary throughout air force bases, with all employees being committed to and involved in innovation.

- Establishing the most appropriate and effective ways to measure the results of the total quality drive, and the best ways to translate the data obtained into real and continuous improvements for the air force base.

- Constantly benchmarking within the air force base, and with external benchmarking partners, in order to update performance targets and check that the chosen measures are working.

- All parts of an air force base must be world class to ensure world-class performance.

- A desired result is achieved more efficiently when related resources and activities are managed as a process.

- Fostering a holistic systems approach to total quality in order to successfully integrate quality processes throughout the entire air force base.

- Identifying, understanding and managing a system of interrelated processes for a given objective improve the air force base's effectiveness and efficiency.

- Air force bases depend on their customers and therefore must understand current and future customer needs, meet customer requirements and strive to exceed customer expectations.

- As many as possible of the stakeholders must be involved in the development process to implement TQM at an air force base.

- Create a customer-oriented culture in which the needs of existing and potential customers are satisfied, which must be the primary concern of the air force base.

- Achievement of total quality, not only in respect of goods and services, but also regarding time, place, processes, people, safety, information, measurement and the environment, is important.

These conclusions, as prescriptions in the literature, are, in effect, signposts for air force bases to implement TQM successfully.

9.13   SUGGESTIONS FOR FURTHER RESEARCH

Flowing from this study, the following terrains for possible further academic orientated research in respect of TQM as applied at the SA Air Force have been identified, namely:

- To determine the impact of as well as nature and status of the 14 dimensions in the TQM telescopic framework (see figure 9.1) on the entire SA Air Force (levels 2 to 4).
- To collect and analyse data and draw conclusions about the factors that influence the implementation of TQM in the SA Air Force.
- To examine the attributes of air force bases performing below standard to establish whether there are any differences in the management of the types of air force bases.
- To determine how to establish a culture of improved service rendering at SA Air Force Bases.
- To collect and analyse data and draw conclusions about the factors that could enhance improved customer satisfaction at SA Air Force Bases.
- To determine how to establish 'improved employee satisfaction' at SA Air Force Bases.
- To determine what specific training and development programmes should be attended by the top and middle managers of the SA Air Force to be able to adapt to the demands set by TQM to the institution (Theart 2000:50).
- To determine what communication factors (frequency and intensity) causes disruption between top management and the section heads at air force bases.
- To determine how the TQM philosophy integrates with the new SAEF model.
- To collect and analyse data and draw conclusions about the factors that could enhance teamwork at SA Air Force Bases.

9.14   SUMMARY

This concluding chapter has focused on making practical and appropriate recommendations for the elimination of the deficiencies in implementing TQM at SA Air Force Bases that were identified through an analysis of the responses to the questionnaires.   The suggestions made for each objective are essential for the successful implementation of TQM at air force bases.   Furthermore, the recommendations made in this chapter, stretching over all 14 dimensions and ranging

from improved leadership to the management of processes, present a framework on which a full action plan can be developed for TQM at air force bases. It is also suggested that it is possible to evaluate the nature and scope of TQM implementation, based on a framework, as an internal organisational arrangement for personnel at SA Air Force Bases, in a scientifically responsible manner and to make recommendations on what can be done to eliminate specific deficiencies. It is believed that through this research a contribution has been made to both the theory and practice of Public Administration, which can possibly be used as point of departure for further research directed on improving the establishment of TQM at the SA Air Force. In an ever-changing world, however, no research can ever claim to be the last word on a specific topic. In this regard, areas for further research have been identified and it is hoped that other students will take these up in the future.

Being human inherently implies striving for something better. History records this phenomenon in great detail throughout the ages. This desire encompasses both individual, mental improvement and the improvement of the world we live and work in. The philosophy and principles of TQM provide a valuable tool in the quest for institutional excellence. This thesis attempted to make a contribution, in general, to the understanding of TQM and its implementation and, in particular, how this is to be achieved in the SA Air Force. This thesis is completed in the trust that the findings recorded here and the recommendations made will be useful.