Ontological Solution for IT-Organisational Change Problems: A Change and Constancy Management Approach

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DOI: 10.34190/MLG.19.027

Abstract: In modern dynamic business environments, organisations typically experience organisational and Information Technology (IT) changes. However, the reported success rates of organisational and IT changes are low, less than half. This paper proposed a management approach to address change and constancy together for improving the management and potentially the success rates of IT-organisational changes. The research problem was the scarcity of research about managing change and constancy together and the study responded to calls for further research on IT and change management perspectives. The paper was empirical, exploratory and qualitative. A grounded theory methodology was followed to collect and analyse interview data. The paper has value for academics in its theory development from an ontological basis. The interviewees did not elaborate on any failed IT-organisational change initiatives, possibly because such information was highly sensitive, and only alluded to experiencing unintended negative consequences of changes. The empirical evidence did demonstrate that both change and constancy exist in these IT-organisational environments, which corresponded with the ontological position of the paper, that change and constancy exist in cohesion. This answered the first research question and supported the central argument of the paper. However, the answer to the second research question was that the change and constancy ontology could be beneficial, but in what specific form is not clear, since the interviewees indicated potential benefits but also stated the impracticalities of its current proposal. Specifically, the interviewees considered constancy a default state requiring negligible active management in comparison to managing change. Thus, the idea of managing change and constancy together did not result in much interest when prompted by the researcher. Such a result could be due to the proposed approach being impractical or new and not yet contemplated or perhaps it is more appropriate as a theoretical lens for analysing. Further data collection is planned to investigate this. The paper involved two different organisations and five participants, which may limit the transferability of the findings, but, sufficient value is evident in the paper for interest, debate and evaluation among academics and application among practitioners.

Keywords: Change and Constancy, Change Management, Information Systems (IS), Information Technology (IT), IT Management, IT-Organisational Change

1. Introduction

Information Technology (IT) is indispensable for conducting business in modern organisations. As such, IT has become part of the fabric of these organisations and typically influences their competitiveness. As organisations compete and adapt to dynamic business environments they may undergo organisational changes, which often involve IT changes, and vice versa (McKendrick and Wade, 2010; Sligo *et al.*, 2017). In the paper, organisational change is viewed as a broad concept that includes all types of business changes, not just organisational structure changes and the paper uses the term 'IT-organisational change' where IT and organisational change occur together.

The paper acknowledges the real-world problem of high failure rates, well over fifty percent, reported for organisational changes (Salem, 2008; Nasim and Sushil, 2011) and IT changes or projects (Heeks, 2002; Cecez-Kecmanovic, Kautz and Abrahall, 2014; The Standish Group, 2015; Ebad, 2018) and aims to propose a management approach, based on a change and constancy ontology, to improve IT-organisational change success. This aim also addresses the scarcity of research about managing change and constancy together and responds to calls for further research on IT and change management perspectives (Nasim and Sushil, 2011; Dwivedi *et al.*, 2015). In addition, it has been reported that researchers often avoid studying any negative consequences of IT, possibly due to inherent pro-IT biases (Majchrzak, Markus and Wareham, 2016). However, such research is considered valuable for improving IT outcomes. The research questions were:

1. Do change and constancy exist in cohesion in IT-organisational environments?
2. Can a change and constancy ontology be beneficial for managing IT-organisational environments?

This introduction, which provided the paper's context, research problem and question, is followed by the paper's literature review. The literature review section analyses and synthesises prior research related to the topic to expose the current level of knowledge on the subject and substantiate the knowledge contribution of

the paper. Thereafter, the methodology section provides the study's research design and justifies it in terms of the research problem and research question. Subsequently, the paper presents the findings from the empirical work and this is followed by the conclusion section where the study's knowledge contributions are explained, the research question is answered and limitations and future research directions are provided.

2. Literature review

2.1 Change and constancy concepts

The ideas of change and constancy and how they relate to existence dates back to ancient Greek philosophical thinking (Talavera, 2014). There were ontological views that change was the only reality, where existence is in perpetual flux and change has primacy and there were other views that constancy was the only reality, where existence is essentially persistent and constancy has primacy. Each competing philosophical view has compelling logic; thus, it is difficult to concur with either extreme. Far more convincing arguments exist for change and constancy existing in cohesion (Loubser, 2013). Therefore, the ontological basis of the study is that change and constancy exist in cohesion, which provides a useful epistemology where change is known in contrast to constancy and vice versa. Essentially, the paper views change as difference and constancy as similarity. So, change and consistency are regarded as antonyms.

While the study focuses on social organisational systems where any aspects of change or constancy observed in these contexts is subject to the specific observer and contextual phenomena involved (Howard, 2018), there are, arguably, examples of physical constancy, such as the charge of an electron and the total mass and energy in the universe. Interestingly, the concept of constancy is an acknowledged mathematical concept (Ministers of Education of the WNCP, 2006). In mathematics, constancy is described by stability, conservation, equilibrium, steady state and symmetry and examples include the sum of the interior angles of any triangle is 180° and the theoretical probability of flipping a coin and getting heads is 0.5. Such constancy allows many important problems to be solved, such as those involving lines with constant slopes, constant rates of change and direct variation situations. Physical change is far more obvious.

In the paper, "both change and constancy are inextricably linked to the idea of classical time (Callender, 2010). Whether change or constancy is observed depends on the length of time of the observation, which is arbitrary.

Nevertheless, for any length of time, the paper argues that certain aspects of existence change and other aspects are constant. For example, imagine a social setting is observed surreptitiously at time t0. Then, at a subsequent time (t1), the same social setting is observed again. Certain aspects of that social setting may appear to be the same, in which case there is constancy, and/or certain aspects of that social setting may appear to be different, in which case there is change. In addition, for any given observation, at one level of abstraction change could be occurring while at another level of abstraction constancy. For example, people in an organisation may be changing as people leave the organisation and new people are hired. However, their roles may not change at all, thus, there is constancy at the role level and change at the individual personnel level. Similarly, in software development, from a high-level view, a general method may appear constant.

However, from one individual project to the next, the general method may be changed in various small or large ways as appropriate for each context, specific objectives and developers" (Howard, 2018, p.3).

A related business example is the concept of 'change the business–run the business (CTB-RTB)' where it is vital for a business to be able to CTB while simultaneously keeping the RTB constant or stable. This concept provides evidence that change and constancy exist practically and it may be sensible to manage them uniquely. However, the CTB-RTB concept is usually applied at a high level of abstraction and not entirely split by change and constancy at all levels since the RTB portfolio may be changed often though enhancements and maintenance changes, updates and patches (Murer, Bonati and Furrer, 2011). Even in these CTB-RTB environments a management approach that advocates coordinating both change and constancy at all levels of abstraction could be useful.

2.2 Organisations and change and constancy

Organisational leadership and management seem to give priority to change and consequently allocate many resources to and initiate frequent change initiatives, a large proportion of which are unsuccessful, for various reasons (Fay and Lührmann, 2004; Applied Trust, 2010). Failed IT changes have reported financial losses in the

tens to hundreds of millions of United States (US) Dollars and even bankruptcy (Dwivedi *et al.*, 2015). It should be noted that, while there is evidence that many change initiatives, both organisational and IT specific, have led to significant losses, such as reduced performance, profitability, market share, reputation, personnel and even bankruptcy, the paper does not advocate that change is detrimental, unnecessary or should not be undertaken. Change is vital for improvement, innovation, new revenue and processes and adaptation to dynamic business environments. Moreover, successful changes have recorded organisational benefits, improved performance, profitability, efficiencies and effectiveness (Dwivedi *et al.*, 2015; Josefy *et al.*, 2017).

Successful change is evidence that change can be correct conceptually as a decision and correctly implemented. Nevertheless, there is evidence that change may result in success or failure.

Notably, at any instant in time an organisation's resources, such as finances, people, capabilities and materials, are finite, which limits the number and size of IT-organisational changes that can be undertaken. This means that during any observed timeframe some aspects of an organisation appear constant and others changed and there is evidence that constancy, too, has resulted in both success and failure. There is evidence that constancy has led to significant losses (Lucas Jr and Goh, 2009; Trahms, Ndofor and Sirmon, 2013) and then there is the reality that many businesses survive and thrive through consistent, repeatable processes, which demonstrates that constancy has led to success and survival for many organisations. So, constancy is not always unfavourable or redundant, because constancy is necessary for repeatable and ongoing routines for transacting and generating revenue, stability and continuity.

The point is, it is important to carefully consider what to change and keep constant and how to do so to avoid failure and achieve success (Larsen and Myers, 1999; Teece, 2010; Dwivedi *et al.*, 2015), since success or failure is possible in either direction. The paper proposes that all relevant aspects of change and constancy should be exposed and evaluated in relation to each other during decision-making, and managed and controlled during action or implementation to improve the chances of success. The high focus on change should be balanced by an equivalent focus on constancy since both exist in cohesion and disregarding either deprives decision-makers and managers of important information. For example, after a failed large IT system change at a major governmental health organisation, it was reported that better approaches may have involved keeping certain technical and organisational aspects intentionally constant while changing specific technical aspects only, effectively reducing risk and increasing control (Southon, Sauer and Dampney, 1999).

Management should recognise and manage both change and constancy together for improved organisational performance.

In addition, IT-organisational change environments where change and constancy are regarded as existing in cohesion, and managed as such, accommodates many other change management approaches, such as planned versus emergent, static versus dynamic, incremental versus revolutionary, micro versus macro and piecemeal versus holistic change (Nasim and Sushil, 2011). Organisational success has been reported where change and constancy are regarded as existing in cohesion, balanced and managed as such (Nasim and Sushil, 2011).

3. Methodology

To answer the research questions, the paper followed an interpretivist epistemology, where knowledge is acquired through subjective experience of the world (Chen and Hirschheim, 2004). This view of knowledge acquisition facilitated deep insight into the organisational and social contexts (Klein and Myers, 1999), which fitted the purpose of the study. Within this epistemology, the paper employed an appropriate grounded theory methodology (Urquhart, Lehmann and Myers, 2010), which is particularly useful when there is little existing theory for addressing a research problem and a study involves complexity, process and change in organisational contexts (Urquhart and Fernández, 2006; Rodon and Pastor, 2007). In addition, grounded theory provides clear guidance on data collection and analysis for producing knowledge grounded in empirical data. Consequently, grounded theory has empirical validity (Rodon and Pastor, 2007), formative validity through data-based theory building (Lee and Hubona, 2009), rigour in established analysis and theory generating procedures, relevance through its close connection with the data, theoretical relevance and density from theoretical sampling (Urquhart, Lehmann and Myers, 2010) and strength in its flexibility in varied contexts (Urquhart and Fernández, 2006).

Importantly, grounded theory advocates theoretical sampling, which is a sampling technique where samples and interview questions are determined based on their theoretical relevance for developing the emerging theory, instead of achieving statistical generalisability (Charmaz, 2006; Corbin and Strauss, 2008). The study proceeded to select potential participants by searching for key informants who had strategic and management knowledge relevant to the research (Bhattacherjee, 2012). The search was conducted on LinkedIn (LinkedIn, 2019), which is a business and employment-oriented social media service designed for free and open professional networking. LinkedIn allowed the researcher to search for people with relevant experience, such as "change management", "organisational development", "IT transformation management", "IT project management", "information systems manager" and related derivations of these and then to request to connect with them by including a short message that motivated the connection. This approach allowed the researcher to contact professionals that were relevant to the research while ensuring that participation was voluntary, and participants could withdraw at any time, including before any connection was made, by not connecting. During the search, relevant senior management, a Chief Information Officer and Head of Enterprise IT, from two South African organisations, a large private company (Org01) and a large government-owned company (Org02), indicated interest in the study. The type of industry was not crucial since all industries use IT and undergo applicable forms of IT-organisational change. The study benefited from these IT professionals who had been involved in various IT-organisational changes.

Theoretical sampling terminates once theoretical saturation is achieved. At the time of writing, theoretical sampling had involved the two aforementioned organisations comprising five relevant individuals. While this sample is relatively small, all the participants were key informants and highly relevant to the study and their responses provided useful data saturation for theoretical value, interest, debate and evaluation among academics and application among practitioners. Nonetheless, the paper is part of a larger study that continues to gather more data for continued theory development.

The data collection involved face-to-face interview sessions at both organisations. Before data collection began, ethical clearance was obtained from the University of South Africa. The first interview was conducted in February 2019 with one individual and the second interview was conducted in March 2019 with four individuals. Each interview session was about one hour long, voice recorded and then transcribed. The transcriptions were imported into QDA Miner Lite (Provalis Research, 2019) for qualitative data analysis based on grounded theory principles. These principles include constant comparison and questioning, induction or deriving concepts from the data, a focus on data differences and similarities giving meaning to the data, breaking up the data, coding, conceptualising and developing concepts (Urquhart, Lehmann and Myers, 2010). In addition, data collection, coding and analysis was iteratively and jointly performed.

4. Findings

4.1 Drivers of change and constancy

In both companies, it was evident that there were many pressures and drivers for business change, however, the intensity appeared far greater in the private company. Responding effectively to the drivers for business change was essential for the survival of the private company and its drivers included remaining competitive in pricing and innovative services, obtaining new revenue streams and clients, reducing its cost of operations including rework and waste and automating repetitive work processes to free up professionals' time for new business opportunities. The government company's drivers for business change were determined by strategic targets, goals and objectives and the younger technology-oriented part of their organisational culture. In both companies, it was clear that business change should direct and determine IT change and not vice versa. Nevertheless, both companies explained that there were exceptional regulatory compliance and general obsolescence situations were IT change directed and determined business change.

In contrast, there were also drivers for constancy. For the private company these included the, sometimes, high costs of changing, traditional clients requiring traditional services and people interaction, certain processes and decisions that could not be automated, electronic data for certain automation not being at the required quality and packaged operational enterprise systems with the same core functionality. The government company's drivers for constancy stemmed from the occasions when there were no new business needs, compliance needs or system problems and the aging, less technology-oriented part of their organisational culture. Also, both companies mentioned that constancy may result from business users being too busy to get involved in change.

4.2 Manifestation of change or constancy

Implicitly, both companies appeared to have a management primacy for change where change was the main management focus. In terms of the relationship between change and constancy, the private company emphasised that innovation always involved change, especially IT changes in today's competitive business environment, and constancy was evident in the established operational systems and processes, which were important to maintain consistent services to clients and revenue generation, as evident in the following quotation:

So, when you say does it all change, the difficult thing is that it is all not changing. The revenue stream in the old traditional sense is still coming in yet there is a new client base that are demanding different services, different access to information that we need to be able to adapt to (Org01, line 154-158).

Both change and constancy appeared necessary and the relationship cyclical, where change occurred in innovations, which then became constancy in operations, as evident in the following quotation and illustrated in Figure 1:

Consistency is imperative and that's an operational change in terms of an upgrade or a major platform change, at least you've covered that because remember what's feeding that is your client services, your client services and an operational thing, they still going to want that information and suddenly if your new platform doesn't give that information then you've got a problem. When you do innovative change it's a different thing altogether, because you've almost got to understand what your client needs are and build that capacity platform application, whatever that might be or service and get it in place, tweak it, so that it fits as many of your clients as possible, sell it to a whole lot more, then once it's in, then it becomes an operational change again, because you've sold that service, it has to stay the same. You can't go and not deliver that specific service because of an upgrade. So, it transitions into an operational environment (Org01, line 567-577).

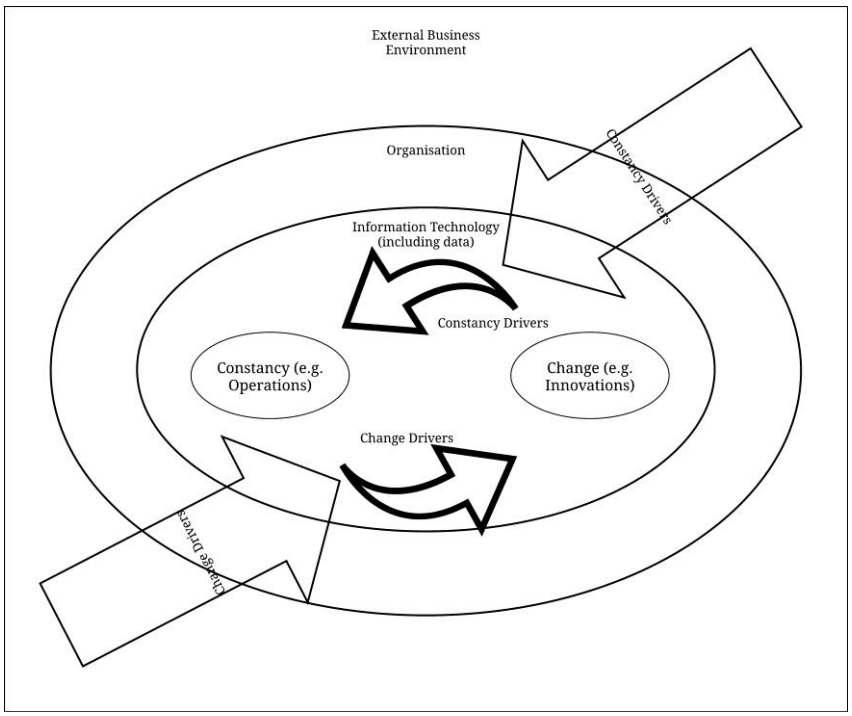

Figure 1: Cycle of change and constancy evident in the organisations

However, both companies did not mention constancy with the same frequency or vigour as change, although both expressed the imperative for stability and consistency of operational processes, systems and service and the need to avoid any unintended negative consequences of change, which was only alluded to. In addition, both companies indicated that, during any change initiative, it would be beneficial to have the exact details of all other organisational and system aspects that may be affected by that change to ensure that only the planned changes occurred, and that no unintended negative changes occurred. However, due to the inherent complexity in their organisations, it was felt that producing exact details was not practically feasible or

commensurate with the perceived risks of any unintended negative changes. Indeed, both companies managed many aspects of constancy, implicitly, during change initiatives, which seemed to be sufficient to mitigate such risks, as evident in the following quotation:

Researcher: Do you think it is worth, there is any value in mapping out all the interrelated systems and interfaces that should be kept constant during any change initiative or is that impractical? And that would allow management and predictability around the change? I am guessing. Is that something that would make sense?

Participant: It would make sense, but I don't think that we've got a map on that where it is interlinked. There are multiple systems and add-ons and modifications and so forth. So, I think a lot of those things are not integrated and showing how it's interlinked. So, there would be value gaining something like that, currently we don't have something like that (Org02, line 113-116).

5. Conclusion

The paper has addressed the scarcity of research about managing change and constancy together and responded to calls for further research on IT and change management perspectives. The paper began by introducing the real-world problem of high failure rates reported for organisational changes and IT changes or projects. However, the interviewees did not elaborate on any failed IT-organisational change initiatives, possibly because such information was highly sensitive, and only alluded to experiencing unintended negative consequences of changes. So, the data only tentatively relate to the introduced real-world problem and it was not possible to draw any empirical conclusions about whether the paper's proposed approach could mitigate the high failure rates reported for organisational and IT changes or projects. Nevertheless, the paper aimed to propose a change and constancy management approach, based on a change and constancy ontology, to improve IT-organisational change success, which still has merit alone without the interviewees elaborating on any failed IT-organisational change initiatives.

Importantly, the empirical evidence did demonstrate that both change and constancy exist in these IT-organisational environments, which corresponded with the ontological position of the paper, that change and constancy exist in cohesion. This answered the first research question and supported the central argument of the paper. However, the answer to the second research question was that the change and constancy ontology could be beneficial, but in what specific form is not clear, since the interviewees indicated potential benefits but also stated the impracticalities of its current proposal. Specifically, the interviewees considered constancy a default state requiring negligible active management in comparison to managing change. Thus, the idea of managing change and constancy together did not result in much interest when prompted by the researcher.

Such a result could be due to the proposed approach being impractical or new and not yet contemplated or perhaps it is more appropriate as a theoretical lens for analysing.

Further data collection is planned to investigate this, since this finding contrasts with the literature reviewed, which suggests that a change and constancy ontology could be beneficial for managing IT-organisational change since it exposes the aspects that require constancy or change. This should provide important and useful information to managers about how to allocate time and resources for the stability of operations and the innovations in change. It could assist managers to plan and contain changes to avoid any unintended negative consequences, and, conversely, assist managers to plan and contain constancy to mitigate organisational inertia. Furthermore, change can be thought of as effectiveness where changes are made to do the right business or adapt properly to dynamic external business environments and constancy can be thought of as efficiency where constancy is maintained to do business the right way. So, both can provide competitive advantage and should be managed together.

In addition, a change and constancy ontology could be beneficial for theorising about IT-organisational environments because it provides an epistemology for new knowledge and insights where change is known in contrast to constancy and vice versa. Also, a change and constancy ontology could provide an efficient and parsimonious way to conceptualise and understand very complex IT-organisational environments at high- or low-levels, without precluding the complexity. A change and constancy ontology presents opportunities for new insights about how IT-organisations are changing and staying the same.

A limitation is the involvement of only two different organisations and five participants, which may limit the transferability of the findings. However, sufficient value is evident in the paper for interest, debate and evaluation among academics and application among practitioners. In addition, the paper creates opportunities for further research based on a change and constancy ontology. A particularly interesting avenue may be applying this lens at the organisational level to understand how IT-organisations, impacted by varied phenomena such as the 4th industrial revolution, are changing and staying the same, and why.

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