GOVERNANCE OF INFORMATION TECHNOLOGY IN A COMPLEX ECONOMY

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Abstract

Globally, the energy sector is fast nearing a tipping point of no return, transitioning from fossil fuel to renewable energy. Business is turning to the IT department to leverage technology that will reduce organisational wide production and operational cost in a fast changing economy. The business expects the IT department to be innovative and build new IT competencies for a rapid response to the transition towards renewable energy. This study contributes new knowledge regarding the impact of management theory and approaches on the successful implementation of IT in the African Oil and Gas industry. The research shows that capabilities such as innovation and people competencies are growing in importance while IT leadership is becoming a critical role in supporting and delivering on the business objectives as enabler and transformational agent of business. Capabilities such as systems thinking, business acumen and interpersonal skills are key IT management competencies for transformation innovation leadership. Knowing the business needs, the IT department can provide integrated solutions that support the complete business value chain without exposing the business to a rigid IT structure. Remaining competitive, business-driven IT innovation is a vehicle for business to meet new realities. The research followed a multistage mixed-model design using the African Oil and Gas industry as case study.

Keywords: Alignment, Culture, Emotional Intelligence, Enterprise Architecture, Innovation, Management Theory, Teamwork, Transformation

1. INTRODUCTION

With the cost of oil production far exceeding the oil price, the Wall Street Journal reports that oil and gas production by Chevron, ExxonMobil and Shell has declined over the past five years (Gilbert & Scheck, 2014). The annual activity report published in February 2014 by the UK Oil and Gas Industry Association reports that the number of exploration wells drilled in the United Kingdom and North Sea is down with 44 in 2013 compared to six years ago. Production cost has increased by 15% over the same period, while the average extraction cost per barrel of oil is up by 27% (Oil and Gas UK, 2014). With exploration success levels at less than 30%, the Oil and Gas industry finds itself in its biggest challenge in 50 years. The energy produced from oil and gas is fuelling nearly every industry in the world, from agriculture to information technology (IT). Oil and gas are heating homes, powering vehicles and contributing to regional Gross Domestic Production (GDP). The global energy demand is expected to grow further by more than 33% by 2035, with oil and gas supplying most of the energy.

Business complexity and the competition for natural resources are on the increase. Organisations are pressured to make their processes more efficient to respond to the changing macro, socio, economic and environmental pressures (Fisk, 2010). At the same time, shareholders expect sustainable growth in revenue and market share. As an enabler and transformer of business, business expects the IT department to support, grow and maintain its existing portfolio of IT products and services while innovating and building new business and IT competencies to respond to the changing business environment (Nelder, 2014).

The alignment of business and IT strategies lays the foundation for business transformation (De Haes & Van Grembergen, 2015). Alignment between the strategies of the business and IT department allows for the development of a shared vision, while organisational performance improves as the relationship between the business and IT department matures over time (Chan, Sabherwal & Thatcher, 2006; Kearns & Sabherwal, 2007). However, organisations find it difficult to explain how they benefit from their strategic IT investments (Heath, Singh & Shepard, 2013). IT professionals are further challenged when explaining the value of IT investments to their organisations because of the complex nature of managing the business-IT relationship and the continuous efforts to align the business and IT strategies (El-Telbany & Elragal, 2014). The inability of IT professionals to build and manage relationships, as proposed by traditional management theory, results in the deterioration of business value and a possible loss of competitive advantages. Joseph, Ang, Chang and Slaughter (2010) argue that IT professionals do not possess the people skills required to fulfil their mandate to the business.

There exists limited empirical research investigating the implementation of an effective and

efficient IT department within a complex environment such as the African Oil and Gas industry. This research focuses on IT implementation and the development of organisational management, and how to bring about sustainable change in actual organisational behaviour. IT implementation in the context of this research is not limited to the development and deployment of new IT products and services; rather, it is inclusive of business process engineering, IT solutions engineering, development, implementation, maintenance and support, as well as IT portfolio management – as required by African Oil and Gas companies to run, sustain and grow their businesses. The significance of this paper is its contribution to the existing body of knowledge, proposing a framework for practical application in solving real-world problems to the benefit of the targeted industry, organisations and its people (Hofstee, 2009; Jansen, 2012). This paper explores 'the disconnect' between traditional management and the way IT implementation works within the African Oil and Gas industry. The research also explores the complexities of IT implementation, develops an understanding of the artefacts that lead to successful IT implementation, and identifies the transformational requirements to transform the IT department from rigidity to agility.

The research problem reads as follows: The implementation of an effective and efficient IT department within a complex environment remains problematic for business and IT management as traditional management does not necessarily support the implementation of IT within organisations in the African Oil and Gas industry. In response to the research problem three research questions were formulated. The research questions are: (1)What are the complexities of IT implementations within organisations? (2)Why do IT professionals find it difficult to respond to the demands of business in a traditionally managed environment? (3)How do organisations deal with the complexities of IT implementation?

2. LITERATURE REVIEW

2.1. Management theory

Originated during the industrial revolution, Kwok (2014) argues that traditional management theory can be categorised into three main branches, namely bureaucratic, administrative and scientific management theories which have been developed during the 19th century. Traditional management theories are directed to motivate workers to improve their efficiency and effectiveness.

Literature recognises Frederick W. Taylor (1856-1915) as the father of scientific management, while Henri Fayol (1841-1925) is recognised as the father of modern management (Gupta, Chhetri & Gupta, 2014; Bell, Kennebrew & Blyden, 2015). Fayol's administrative management school of thought is considered as the most influential contributor to modern management. Fayol describes management to be different from the functions performed in finance, production and marketing (Smit, Cronje, Brevis & Vrba, 2011). Fayol argues that management has to do with five basic administrative functions namely planning, organising, commanding, coordinating and controlling. Hellreiegel, Jackson, Slocum, Staude and Associates (2001) state that management styles further differ based on the different managerial levels and functions in the organisation. Olum (2004) argues that management refers to the development of a governance framework that derives its importance from the need for strategic planning, coordination, directing and controlling of large and complex decision-making processes. According to Shonhiwa (2006), management is the tactical execution and operationalisation of the organisational strategy where the manager uses the available resources to achieve the organisation's objectives.

Companies that foster a culture of innovation and creativeness among their employees show sustainable control over their operational cost, getting to the market quicker with their services and products whilst providing the quality expected from them by their shareholders (Grobler, Warnich, Carrel & Elbert, 2006). Smit *et al.* (2011) argue that management theories as a business tool are designed to enable organisations to plan for the future with confidence. It reflects on society and its need for constant change. It describes the impact of time (i.e. culture, technology, politics and socio-economics, among others) on the various business scenarios and predicts how a process will respond towards sustainable success when exposed to different environmental forces. Smit *et al.* (2011) state that business managers in Africa need to develop the ability to integrate traditional (meaning a commonly used approach or custom) and conventional management styles to resolve the unique challenges they face.

Authors of management literature agree that the business world is changing (Valocchi, Juliano & Schurr, 2014; Wang, Waldman & Zhang, 2014). These changes require managers to develop new competencies to ensure future business success (Agha, Alrubaiee & Jamhour, 2012; Chouhan & Srivastava, 2014). The use of traditional management as an approach to develop the people skills and competencies to manage the business and IT relationship is inadequate to meet the creative, innovative and changing expectations that the business and its shareholders have of the IT department regarding IT implementation (Van Blerk, De la Harpe & Cronje, 2014; Svejvig & Nielsen, 2014; Altahtooh & Emsley, 2015). The changes that IT professionals need to create to overcome the business challenges come with new requirements such as competitive strategies and the need for new management approaches (Agwu & Murray, 2015).

2.2. Talent management

Finding talented and experienced resources remains a challenge for most organisations across the world. Dreiling and Recker (2014) state that learning organisations (i.e. transformational organisations facilitating the learning of its members) get the right people on-board with the right mix of emotional intelligence (EI), intellectual qualities, experimental learning and business acumen. Building a winning team is a continuous journey and not a destination (Cocks, 2014). Taking advantage of market

opportunities is often dependent on the timely on-boarding of experienced human talent and skills.

Organisations need to recognise the need for change whilst striving for operational excellence (Dreiling & Recker, 2014). Developing new capabilities will create a competitive advantage for the business (Schilke, 2014). Organisations need to grow their expertise and knowledge across all spheres of business to develop and improve their business processes towards greater efficiency (Mell, Van Knippenberg & Van Ginkel, 2014). To do this, the business in conjunction with the IT department needs to develop a holistic workforce strategy and programmes to effectively attract and retain talent to remain competitive and deliver on the mandate as set by its shareholders (Mitsakis, 2014). Auguste, Lund, Manyika and Ramaswamy (2012) argue that employing smart people into organisations is not enough. Organisations need to keep on investing in their employees. They should develop the necessary skills and competencies of their employees to respond to the macro, socio and economic demands placed on them in a competitive world.

2.3. Teamwork

In a competitive world, organisations lack the ability to unite their employees to collaborate as a unified team (Wang *et al.*, 2014). Murphy and McMillan (2013) challenge leadership perspectives on teamwork and provide useful ideas on how effective team leadership can be implemented. The authors argue that there are many I's in teamwork and that these I's are the stitches holding high-performance teams together. Teamwork generates synergies among the individual members and this provides the organisation with a competitive advantage.

2.4. Culture

Schein (1985:9) defines culture as "the adoption of a set of universal solutions to external problems endangering survival over time which was passed on from one generation to another". Culture is thus a process of continuous evolution which applies to continents, regions, nations, ethnic groups, organisations, professionals or any combination thereof. According to Hofstede (1999), the perception that management is a universal set of principles, is a myth. Cultures are changing continuously as people's need for survival changes (Trompenaars & Hampden-Turner, 2002).

As Africa works towards liberating itself from a past marked by poverty and corruption, many of the management principles adopted in Africa are imitations of Western cultures which ignore the lessons learned from Africa's past and the African Ubuntu principle (Thurow, 1999). These management structures are developed by individuals and organisations that do not understand the cultural or practical nature of life for most Africans. Prah (2005) argues that the development and adoption of a management approach should be seen as a process considerate of the cultures and values of the African people. African leaders need to promote sustainable development through the opportunities offered by globalisation.

In the corporate environment, African leaders and managers experience difficulties in managing the dimensions of multiculturalism. Due to the sensitivity surrounding multiculturalism, organisations are afraid to acknowledge cultural differences (at employee level) and the impact it has on productivity, efficiency and effectiveness. As a result, corporate culture is used as an equaliser that can be controlled by leadership. According to Finestone and Snyman (2006), creating a cooperative environment in which the diverse cultures can interact, share and learn from each other sets the platform for greater productivity and innovation. To be an effective manager in Africa, an understanding of the African culture is a necessity as it directs the context within which leadership occurs and traditional management approaches are applied.

2.5. Emotional intelligence

Since the introduction of EI by Salovey and Mayer (1990), many studies have been conducted on the impact of EI on the business across all parts of the organisation. Little research has been done to determine the impact of EI on the IT department and the role EI plays in the IT department's ability to service the business. EI is described as an individual's ability to know, handle and manage one's own and the emotions of others. Interest in EI research has been growing since 1990, with Goleman (1995) taking a leading role in exploring the power and application of EI to improve workforce efficiency while the need for management to control employee behaviour in the workplace increased. Van Blerk, de la Harpe and Cronje (2014) show that EI plays a role as management tool within IT. The IT industry at large focuses on technical skills as the important contributing factor towards IT success within an organisation. Moreover, very few studies have been conducted on EI in the African context. The lack of interest in EI within the African and IT context might be a contributing factor towards the misalignment between business and IT strategic implementation endeavours in an already very complex environment.

2.6. Technology and management theory

As the pace of change in technology accelerates, it is difficult to predict which technologies will be the next game changer. What is known is that technology has a disruptive impact on all industries, increasing business risk. IT is constantly challenged to identify the support capabilities needed to execute the business plan and to respond timely to the changing socio-economic environment. The IT department needs to ensure it maintains capabilities that are sufficient and flexible, allowing for their organisations to thrive and not only survive (Dreischmeier, Lawecki, Deutscher & Arcuri, 2014).

2.7. IT implementation

Adaptive business models fulfil two key functions. Firstly, while creating business efficiency, adaptive business models capture portions of the value chain, which when put together in different combinations could open new markets through the creation of new

value added business products and services (Chesbrough, 2007). The second function of adaptive business models allows for organisations to create a position of competitive advantage similar to the exploration of fossil fuels in previously unchartered geographical locations through the use of technology. Developing and capturing these business models require people and technical competencies (Joseph *et al.*, 2010). Traditional management seems inadequate to meet the expectations that the business and shareholders have of IT implementations (Nagle & Golden, 2009; Tallon & Pinsonneault, 2011).

2.8. Alignment models

Academics and researchers continue to support the notion that IT and business alignment creates business value and growth through business enabled IT solutions (Trienekens, Kusters & Cuensa, 2014; De Haes & Van Grembergen, 2015). McKeen and Smith (2003) argue that alignment is achieved when the organisational goals and IT goals remain in a state of harmony. Chan and Reich (2007:300) define alignment theory as "the degree to which the organizational mission, goals and business plans are shared with and supported by the IT strategy". Many alignment models exist; this literature review represents a small sample that dominates the field of study (Chan & Reich, 2007; Cataldo, McQueen & Hardings, 2012).

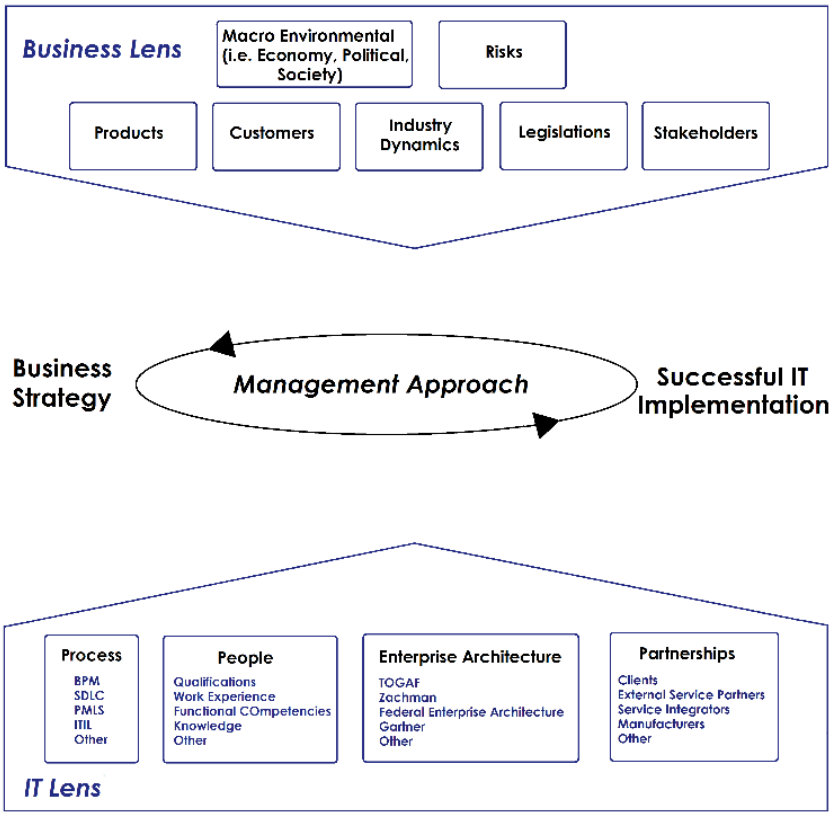
During the 1980s, the Massachusetts Institute of Technology (MIT) conducted research into the strategic power of IT and found that an investment in IT can bring substantial reward when strategy, technology, structure, processes and individual roles are aligned (Morton, 1991). The alignment models of MacDonald (1991) and Baets (1992), the Strategic Alignment Model of Henderson and Venkatraman (1993), Luftman's Alignment Maturity Criteria (Luftman & Kempaiah, 2007), and the Gartner CIO/IT Organisational Maturity Model (Gartner, 2010) followed.

Luftman (2003) argues that an understanding of the business and IT requirements provides the organisation with a roadmap that identifies opportunities for enhancing the relationship between business and IT. Delivering sustainable organisational value requires IT to improvise and adapt its processes frequently, using technology to create a competitive advantage for the business (Sledgianowski & Luftman, 2005). Chan and Reich (2007) recognise that alignment takes place in a broader context and incorporates factors such as competition, organisational change, human resource issues, the global IT platform, and IT implementation processes.

3. PROBLEM CONCEPTUALISATION

Developed during the 19th century, traditional management functions such as planning, organising, directing and controlling were set to provide management with a continuum for success, even more so with the implementation of IT in the 20th century, as illustrated by the 360° circular arrow in the conceptual framework in Figure 1, proposed by the researcher.

Figure 1. Conceptual framework



Different lenses are used to explore IT implementation from the perspective of business and IT, which gave rise to the conceptual framework in Figure 1. Through the business lens, the business expects IT to assist them in the race against time, neutralising the crippling effect of an unstable economy and political environment whilst growing market share and revenue. Through the IT lens, as an enabler of business, IT strives to service the business objectives by leveraging proven methodologies such as the Information Technology Infrastructure Library (ITIL), Systems Development Life Cycle (SDLC), Project Management Life Cycle (PMLC), enterprise architecture (EA), and strategic partnerships, to name a few. Using these methodologies, the IT department attempts to deploy secure and sustainable business solutions faster and more cost-effectively. The proposed conceptual framework presents conventional variables intended to contribute to the successful implementation of IT within organisations (Figure 1). The key variables in no specific order include management approach, business and IT alignment, process, people, enterprise architecture and partnerships.

Business and IT alignment, EA and IT governance have been well researched and documented. Although important and still relevant, these practices are applied in different shapes and sizes, yet the research shows sufficient evidence that organisations are still struggling to ensure successful IT implementation. The IT department has become a source of legacy rigidity, long lead times and complexity rather than a platform for adaptability (Chan & Reich, 2007). Scholtes and Tessone (2012) state the need for the IT department to provide for heterogeneous and dynamic processes that facilitate scalability, complexity, efficiency, manageability and robustness. As a result, IT leadership is blamed for being unable to service the evolving needs of their organisations. Traditional management approaches are failing IT leadership in responding to the rapid rate of change required to create competitive advantage for business.

The rate of implementing new products and services has a direct impact on organisational competitiveness, something that traditional management approaches do not provide for (Shane & Venkataraman, 2000; Institute of Directors Southern Africa, 2009). According to Cave (2014), the biggest barrier for successful IT implementation in Africa is not a lack of infrastructure, but human fears that technology might replace their jobs and that they might not be able to learn how to use the technology, thus making them redundant. To succeed, the IT department needs to acquire management skills and competencies to apply the management style that best serves the situation, enabling them to plan the future for predictable success (Sun & Chen, 2006; Smit *et al.*, 2011).

4. METHODS

The aim of this research is to explore and understand 'the disconnect' between traditional management and the way IT implementation works in the African Oil and Gas industry. An inductive research approach was followed. The ontological position was subjectivism while the research paradigm included exploratory and interpretive paradigms. The African Oil and Gas industry presented the case study. A multistage mixed-model research design (a subset of mixed-methods) was followed, combining quantitative data with qualitative data to add depth to the findings (Swanson & Holton, 1997). Using multistage mixed-model research, the quantitative data were converted into qualitative narratives to be analysed qualitatively (Figure 2). Data analysis was done sequentially. A coding schema was developed prior to the collection of data (Saunders, Lewis & Thornhill, 2009). The coding schema was built around the key focus areas which emerged from the research problem, research questions and literature review. These focus areas were grouped into themes. Each theme was given a clear description (McMillan & Schumacher, 2010). Coding of the statements presented in the survey questionnaires was done prior to the collection of data, while coding of the qualitative data was done by the researcher while reading through the transcriptions of the interviews and segmenting it into the corresponding themes (McMillan & Schumacher, 2010). The research validity was ensured using the "content validity" criteria to ensure adequate coverage of the investigation questions while the research reliability was ensured using the internal consistency method and triangulation.

Three data collection techniques were used to collect data. Qualitative data were collected using semi-structure interviews (Stage II). To support the interviews, observations were made to enrich the data collected by allowing the researcher to notice aspects that participants were possibly not aware of or unwilling to discuss. Surveys using questionnaires (Stages I and IV) and a workshop using Lewin's (1951) Force Field Analysis theory (Stage III) were used to collect quantitative data. The participants in each of the data collection stages changed with some overlap where participants contributed to the Stage I survey and Stage II interviews as well as the Stage III Force Field Analysis workshop and Stage IV survey.

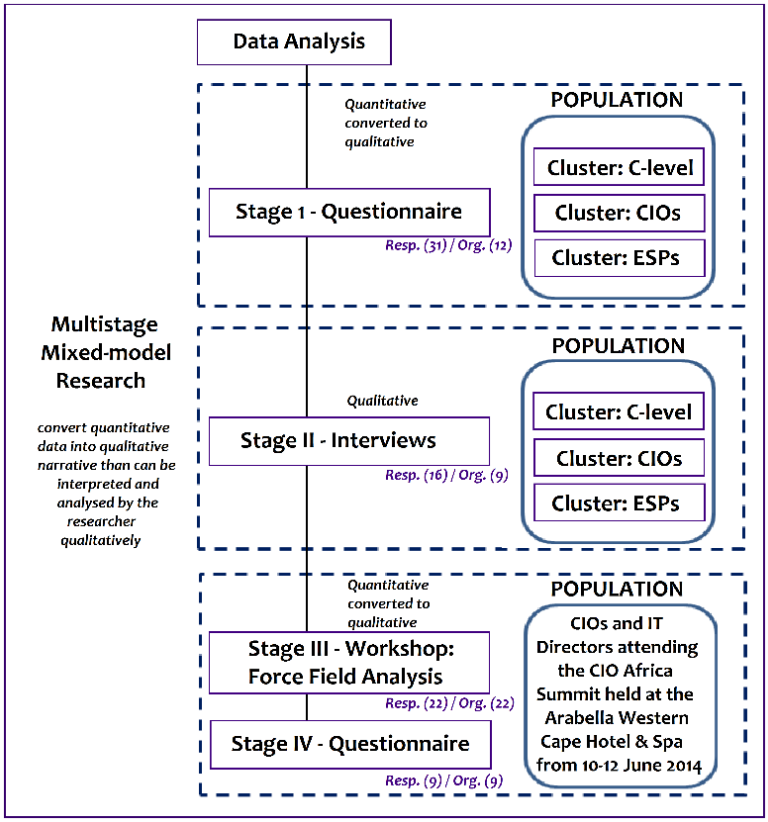
The sample was purposively done. Non-overlapping groups called clusters were chosen for the Stage I surveys (31 respondents from 12 organisations) and Stage II interviews (16 respondents from 9 organisations). For the purpose of this study, the IT population in the African Oil and Gas industry was divided into three clusters, namely the Chief Information Officers (CIOs) and IT Directors, C-level executives and General Managers, and External Service Providers (ESP) delivering IT services and products through an internal customer IT department. Snowball sampling was used to select representatives from each cluster to participate in Stages I and II of the research. Convenience sampling was used in the Stage III Force Field Analysis workshop (22 respondents from 22 organisations) and Stage IV survey (9 respondents from 9 organisations) to test the findings drawn from the African Oil and Gas population with a group of CIOs and IT executives at the CIO Africa Summit, held at the Arabella Western Cape Hotel & Spa from 10 to 12 June 2014.

5. FINDINGS

5.1. Stage I: surveys

In addition to the key focus areas—planning, organising, directing, controlling, intellectual qualities (IQ), emotional intelligence (EI), practical intelligence (PI), partnering, EA, business and IT alignment, and innovation—highlighted by literature, the questionnaire responses highlighted a number of additional performance areas influencing the successful implementation of IT. These additional performance areas identified are organisational change management, business acumen, and IT as an enabler and transformational agent of business. To deliver on these key focus areas, respondents agreed that the business and the IT department requires employees with the right mix of intelligence and experience who are emotionally well developed and qualified in their trade.

Figure 2. Multistage mixed-model research



5.2. Stage II: interviews

Interviewees argued that traditional management approaches in the African context need to be complimented with related management competencies such as business process management, portfolio management, project management, risk management and performance management, while they agreed that organisations lack the culture and ability to respond to change in a timely and collaborative manner.

Interviewees stated that EA can improve the success rate of IT implementation—as in the case of the construction industry—if organisations appoint people in the IT department with the right mix of intellectual qualities, practical experience and EI. In addition, the interviewees argued that management is evolving and should develop as the external world changes.

Organisations struggle to deal with the complexities of IT implementation because they do not understand the technology and the application thereof to solve the business priorities. On the other hand, the IT department's understanding of the business drivers and priorities is the difference between a winning organisation built to last versus a running organisation. Business and the IT department need to consult with each other when an initiative no longer aligns with the corporate drivers, priorities and objectives. In many organisations the business and the IT department function as separate units, resulting in a lack of feedback between them. This leads to a lack of collaboration between business and the IT department, which is a key contributor for the poor and incomplete user requirement specifications that often lead to scope creep and implementation failures.

In some companies, traditional management approaches tend to be driven by key performance indicators that do not induce the required organisational behaviour. To induce and control behaviour, high levels of emotional maturity, practical intelligence and structured governance are needed. The absence of collaboration and misalignment in organisations leads to mistrust between the business and the IT department, which

prevents the innovation of new business solutions to address present and future business requirements. While in some African companies the IT department is still not recognised as an enabler of business, this lack of recognition results in IT leadership not converting the business risks and uncertainties, through the use of technology, into certainty that enables the business to predict the future with confidence.

5.3. Stage III: force field analysis workshop

The participants were of the opinion that IT will remain rigid if business continues to exclude IT from strategy formulation and make mergers and acquisition decisions without IT, and if IT continues to depend on its technical skills, competencies and knowledge to services the business.

5.4. Stage VI: surveys

Collaboration and alignment are key components in building trust between business and the IT department and developing new innovative business solutions to address present and future business requirements. Teamwork unifies different competencies working towards a common goal.

The findings from this research show a disconnect between traditional management and the way IT implementation works. Traditional management (with emphasis on the classic and contemporary styles) is no longer sufficient to deal with the challenges faced by the IT department in a fast changing environment. Business acumen, innovation, business and IT alignment, organisational change management and a lack of emotional competencies are some of the contributing forces that prohibit the in-house IT department to service the emerging needs of the business. The analysis shows that the traditional management approach in isolation is no longer sufficient to ensure successful IT implementation and raises the importance of people competencies, agility and the need for innovation.

In conclusion, the research revealed that: (1)management styles do not evolve with the changes induced by macro socio-economic demands; (2)organisations use KPIs that do not instil the preferred organisational behaviour and culture – these KPIs create resistance to change while limiting innovation and collaboration between the IT department and business; (3)the IT department lacks EI, business acumen and alignment with business to serve as an enabler and transformational agent of business; and (4)teamwork unifies the business and IT to work towards a common goal.

6. DISCUSSION

The research rethinks the framework of traditional management theory as it applies to IT implementation in the African Oil and Gas industry. Rau and Bye (2003) describe the value of IT across four dimensions: expense containment, process improvement, customer advantage and talent leverage. The authors divide each dimension into three subcomponents: capital and operating expense, people, and innovation. It is the latter two subcomponents of Rau and Bye's definition that draw interest. Measuring the capital and annual operating expenses that are driven by accounting rules has its origin in traditional management theory. Measuring people and innovation moves the discussion beyond the well-worn path of valuing tangible assets into the area of valuing intangibles, thus challenging traditional theory, which is the crux of this research.

Management theories are designed to enable organisations to plan for the future with confidence. It should reflect on society and its need for constant change and alignment (Institute of Directors Southern Africa, 2009; Van Grembergen & De Haes, 2010; Brooks, 2011). It describes the impact of time on the various business scenarios and predicts how a process will respond towards sustainable success when exposed to the different environmental forces. Smit *et al.* (2011) argue that business managers in Africa need to develop the ability to integrate traditional and conventional management styles to resolve the unique challenges they face. These challenges include but are not limited to workforce diversity, employment equity, trade unions, industry charters, globalisation, mobile workforces, competition and shorter product lifecycles.

For the past five decades literature suggested a movement in traditional management theory towards a humanistic approach away from the bureaucratic command and control approaches. Organisations recognise that their competencies lie in the skills and abilities of their staff to create a competitive advantage over their rivals. Thus, to retain this competitive advantage, organisations need to retain the relationships and trust between the individual employees as well as between the employees and the organisation itself. From the research it seems that the IT department is still subjected to the command and control philosophy which is an artefact of the industrial revolution of the early 19th century. Organisations still believe that the IT department is an order taker, treated as an outsider to the organisation, a support function hidden within the organisational structures, a cost centre, instead of being an enabler and transformer of business that holds a competitive advantage to the organisation and its shareholders. To leverage the value that the IT department and its individual employees can offer the organisation, the organisation needs to develop a relationship between all its stakeholders, including the IT department. Sustaining this relationship requires a different management philosophy and organisational culture.

A sustainable organisation applies breakthrough thinking that results in true innovation. It calls for partnerships, cooperation and open honest dialogue with stakeholders inside and outside the company (Philips, 2002). While the Institute of Directors Southern Africa (2009) in the King Code of Governance for South Africa suggests that the Board of Directors leverages IT as an enabler of business, organisations struggle to give up the controls associated with the bureaucratic organisation. To meet the demands of a rapid changing environment, organisations must adopt a new style of system thinking to be flexible and remain competitive.

Involving IT during the initial phases of the organisational strategy formulation process will ensure that technology serves as an enabler of the business strategy while providing the organisation

the agility and creative thinking to thrive in a changing industry. The joint collaboration between the IT department and the business will lead to greater alignment of solutions and products to service the needs of the organisation and its customers (Brooks, 2011). Sharing the business risks, the IT department and the business take ownership of their performance, providing long-term sustainability and a higher return on investment for the organisation and its shareholders (Brooks, 2011).

Business acumen, innovation, business and IT alignment, and organisational change management remain a problem in the successful implementation of IT. To overcome these obstacles, business needs to complement its current business theories and practices with a workforce that is knowledgeable and emotionally well-developed to remain competitive, relevant and flexible – a view supported by van Blerk, de la Harpe and Cronje (2014).

From the research it is evident that traditional management theory in isolation is not sufficient to ensure successful IT implementation. It is a hybrid of management theories (i.e. traditional management, business process management, portfolio management, project management, organisational change management, risk management and balance scorecard management, among others), people competencies (i.e. intellect, emotional intelligence, practical intelligence, partnering, business acumen, culture, teamwork and collaboration) and agility (i.e. enterprise architecture, business and IT alignment, and innovation) that assists organisations to improve their success rate of IT implementation. Management theory is evolutionary and should be developed as the external world changes.

The study made the following practical contributions to the successful implementation of IT in the African Oil and Gas industry:

6.1. Business-driven innovation

As a multi-layered discipline, the IT department and its service providers often address components of the business value chain. Many IT solutions lack user-friendly interfaces to assist the business in accessing the information required to run the business effectively. Knowing the business needs, the IT department can provide integrated solutions that support the complete business value chain without exposing the business to a rigid IT structure. Business-driven IT innovation is a vehicle for business to meet new realities while remaining competitive.

6.2. Business acumen

Business requirements are sophisticated while decisions are often informed and influenced by social networks. Business stakeholders demand that their needs be met in an agile manner where their requirements are adjusted as they learn and gain more insights into the business process during the development phase. To meet these demands, the IT department needs to develop a better understand of the business needs – an existing gap that the IT department and business leaders are well aware of. This reinforces the need for the IT department to acquire business acumen of the industry they are servicing.

6.3. Data

Gathering data, structured and unstructured, enables the IT department to predict and offer relevant content and solutions that will make it possible for the organisation to reach their business objectives and goals. Not only will it improve the organisation's trust in the IT department to deliver on the business objectives, it will also ensure faster time to market while improving the organisational processes to maximise the return on investment. Innovative IT solutions offered to the organisation should be sensitive of the organisational culture and emotional impact on the business resources to maintain organisational trust.

6.4. Organisational culture

The IT department needs to be respectful to the organisational culture when deploying IT solutions. IT solutions should be deployed responsibly to ensure compliance with relevant and related laws, governance and security frameworks that inform the organisation's combined security framework.

6.5. Enterprise architecture

EA allows the business and the IT department to bridge the gap between rigidity and agility, providing enabling business solutions that can adjust rapidly to the changing demands of the organisation.

6.6. Transformational agent

As an enabler and transformer of business, technology can reveal opportunities to reach new markets, shed light on customer demands, and redirect business strategy in real-time based on data that the organisation did not even know existed. Technology can be a driving force behind tangible business outcomes, helping business to meet the ever changing consumer demands.

6.7. Emotional intelligence

Responding to the macro socio-economic demands, organisations need to bring together and align all its supporting functions, acting as one in order to be competitive and succeed in a changing world. Connecting with the organisation at an emotional level is still an unchartered art for both the IT department and the business – an art that the IT department needs to explore, develop and apply to efficiently and effectively reach out to the organisation in a language that the organisation understands. Cross functional teams, consisting of business and IT stakeholders which develop business enabled technology solutions, is a step closer towards organisational success and sustainability.

6.8. Corporate strategy

The IT department should be an integral part of the corporate strategy. If the corporate strategy fails to reference IT and the governance strategies of IT, it implies that the IT department is still viewed as a

separate entity outside the organisation. The latter gives rise to the need for intervention to align business and the IT department. Alignment starts with taking the time to listen and ask the appropriate questions to obtain a clear understanding of the organisational needs and by working together to establish measurable criteria for success.

6.9. Communication

As technology leaders, IT professionals are responsible to lead the business, clearly articulate their requirements, understand the business processes, and select solutions that best map the business requirements and culture. This takes effort but the rewards are great. Communication throughout the process is necessary, even if the business does not fully understand the technology requirements. Getting business expertise into the IT department to serve as a soundboard to test the communications which are sent to the organisation, helps decoding and communicating a clear message and assists with interpreting the responses that come back. Removing IT jargon helps business leaders to understand how technology can serve as an enabler of business.

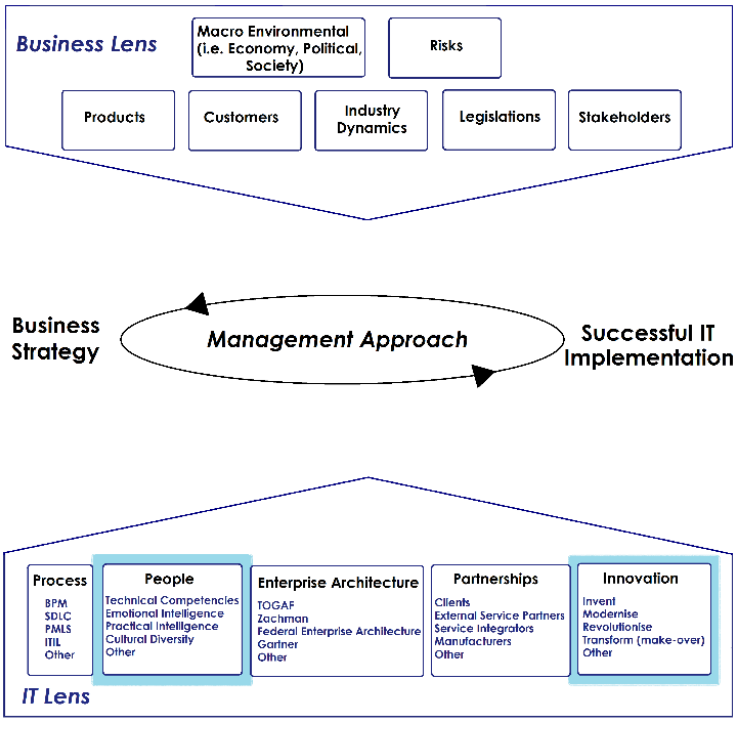
7. RECOMMENDATIONS

The priorities of business and the IT department have changed and new capabilities emerged which are considered important compared to traditional planning, organising, directing and controlling, which have faded in importance. These new priorities focus on advancing the business processes to improve the agility and efficiency of business operations. Capabilities such as innovation (creative thinking, idea generation and EA) and people (intellectual qualities, emotional intelligence, practical intelligence and partnerships) are growing in importance (Figure 3). Innovation management is changing the role of the IT department in the organisation as an enabler of business to a transformer of business by removing and solving business problems through creative thinking. People management ensures that the organisation has the right mix of people on board, providing them with an environment that supports personal growth to deliver futuristic and relevant business capabilities to secure the strategic positioning of the organisation within their industry.

The conceptual framework as proposed in Figure 1 falls short when considering the finding that traditional management does not necessarily support the successful implementation of IT. The framework was developed from a point of view that IT acts as an enabler of business. The findings show that business, especially the way in which business strategies change because of the volatility of the macro and micro environments within which the business operates, demands that IT departments become a transformational agent for business through innovation leadership.

The general framework (Figure 3) as proposed by the researcher is therefore amended to include innovation as a theme, with its supporting key focus areas, to the IT lens and highlights the importance of people competencies such as EI and practical intelligence within the IT department to enable the IT department to serve as an enabler and transformational agent of business, adding cultural diversity to the people element of the IT lens.

Figure 3. Proposed general framework



Little research has been done on the subject of cultural diversity and its impact on successful IT implementation in the African Oil and Gas industry. Further research is suggested in terms of the role of EI in creating a corporate culture where the business and the IT department collaborate as equals; how to define key performance indicators that drive the right corporate behaviour with regard to the usage of IT as an enabler of business; and how IT shows the business value they are adding to executive management and the Board of Directors.

8. CONCLUSION

IT leadership is becoming a critical transformational role in supporting the business in a changing world. Idea prioritisation and portfolio management are becoming key capabilities for meeting the increasing demand for innovation and agility. In addition, risk management is rising in importance due to concerns among regulators regarding the resilience of IT delivery, especially those of critical importance to the sustainability of the business (Institute of Directors Southern Africa, 2009). In summary: [(1)]traditional management fails to unite the business culture and the IT department's culture into a single business culture that services the needs of the organisation; [(2)]traditional management lacks the ability to transform the organisation and its resources in a changing environment; [(3)]traditional management does not recognise the importance of emotional intelligence as a key competency for organisational competitive advantage; [(4)]traditional management does not recognise the importance of innovation and creativity as a competency for organisational sustainability; [(5)]management styles need to evolve with the changes induced by macro, socio, economic and environmental demands to remain relevant in a changing world; and [(6)]as the transformational agent of business, the IT department needs to transform organisational thinking, culture and behaviour through collaboration and innovation.

Both business and IT management agree that the role of the IT department has changed and is increasing in importance in a changing world. While the implementation of an effective and efficient IT department remains problematic, heterogeneous and dynamic management approaches enable management to respond to the macro, socio, economic and environmental factors facing their organisation, industry, regions and countries. When choosing a management approach, the approach should be considerate of culture and values. Business acumen, business-IT alignment, emotional intelligence, organisational change management and innovation are management variables that provide for and promote IT scalability, efficiency, manageability, robustness and agility in a complex economy. Heterogeneous and dynamic management processes assist the IT department in its role as business enabler and transformational agent, leading shareholders effectively in the real world.

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