

Misalignment Between Business and Information Technology(IT) Strategies: Risks Implication for Johannesburg Stock Exchange Listed Companies

Nicholas Otu Mantey

Wisconsin International University College
School of Business, Accra, Ghana

ABSTRACT

This article examines some aspect of Information Technology (IT) Governance and highlights potential risks companies can possibly encounter as a result of misalignment between business and IT strategies. Using a five point- likert scale questionnaire and a convenient sampling technique, data was collected online from fifty Chief Information Officers (CIO's) operating on the Johannesburg Stock Exchange (JSE). The significance of this study can be viewed from two stand points- managerial and academic. From managerial standpoint this study examines the impactful consequences of misalignment of Business and IT strategies. From academic standpoint this study provides cognitive information for advancement of knowledge in the field of IT Governance research. The findings of this study revealed that from managerial standpoint there were various risks consequences associated with misalignment between business and IT strategies, ranging from management risks, operational dysfunctional of business processes, information security risks, financial risks, and reputational risks to companies.

Key Words: Misalignment, Strategic alignment, IT Governance, Corporate Governance, IT security governance, Business strategy, Benchmark, Competitive advantage, IT infrastructure.

INTRODUCTION

The extensive usage and reliance on Information Technology (IT) by firms has ushered in the need for companies to develop business-appropriate IT strategies (Business and IT strategies) in order to achieve corporate goals and competitive advantages (Silva, Figueroa, & Gonzalez-Reinhart 2007). The concept of business and IT strategy alignment (also called strategic alignment) refers to the degree of congruence, harmony, conformity or fit, between a business and its IT strategies (Buckby, Best & Stewart 2009; Silva et al. 2007:233). Business and IT strategic alignment enables Management to ensure that the business and IT goals are aligned with each other to meet business' requirements (Silva et al. 2007; Buckby et al. 2009). This is based on the premise that business and IT objectives should work in harmony with each other to achieve complete corporate objectives (Silva et al. 2007).

A company's decisions on IT investment, for example, should take cognisance of the fact that IT should have justifiable business case and also meet business requirements. In the past, IT was considered only as an enabler of an organization's strategy (Baporikar 2014; Buckby et al. 2009; Rusu, Huang, and Rizvi 2008), but is now regarded as an integral part of that strategy

(Tucci 2019; Institute of Directors (IOD 2009; Certified information systems auditors (CISA) review manual (CISA 2011). Consequently, it is logical to recognise that IT should be fully aligned with business strategies in order to attain overall corporate objectives (IOD 2009). The concept of alignment between business and IT has been investigated by researchers from various perspectives and using different constructs, models and frameworks. However, the subject has not been specifically researched from managerial perspective in the South African business environment. This is the core motivation for this study.

Additionally, the concept of strategic alignment of business and IT is becoming an increasingly widely accepted management concept with keen interest from business, control practitioners and researchers. This interest stems from the fact that companies are now extensively dependent on IT systems for their operations, and IT has become a pervasive element in business processes (Tucci 2019; Dehaes & Vangremburgen 2008). In order to achieve harmony between business and IT strategies, the IT Governance Institute (ITGI 2005) suggests that companies should implement and develop an IT governance framework as part of a company's corporate governance compliance requirements (CISA 2011). From South African perspective, using IT to effectively and efficiently support business operations will be regarded as partially fulfilling King III corporate governance requirements (IOD 2009).

This exploratory desk-top study and survey is intended to achieve four objectives namely: (1) to provide insight into IT Governance with particular reference to misalignment between Business and IT strategies (2) to highlight possible risks associated with misalignment of Business and IT strategies, on business operations (3) to examine possible risks impact associated IT Governance for misalignment of Business and IT strategies, on business operations. (4) making recommendations to management to address the risks of misalignment between Business and IT strategies. Two hypotheses, were examined in this study- details are provided in the analysis section of this article.

Hypothesis

H1: There are managerial and operational risks where a firm's Business and IT strategies are misaligned.

H0: There are no managerial and operational risks where a firm's Business and IT strategies are misaligned.

H2: There is the need to manage the risks associated IT Governance with regard to misalignment of Business and IT strategies.

H0: There is no need to manage the risks associated IT Governance with regard to misalignment of Business and IT strategies.

In conducting this study extensive literature was reviewed globally, although from South African prospect empirical research on Business and IT strategies is apparently non-existing. This section examines the literature underpinning this study.

LITERATURE REVIEW

Over the past three decades, there has been significant interest in business and IT strategic alignment research among academic researchers, control professionals and students Dahlberg & Kivijarvi 2006; Masa'deh, Hunaiti & Yaseen 2008; Silva, Figueroa, & Gonzalez-Reinhart 2007);

Bleistein, Cox & Verner 2005; PricewaterhouseCoopers (PwC) & IT Governance Institute (ITGI)(PwC/ITGI 2006; Tan & Gallupe 2006)

Increasingly, Executive Management and Boards are recognising that IT is now an integral and pervasive element of commercial business (Ghildyal & Change 2017; Fenwick 2015; Dehaes & Vangremburgen 2008; CISA 2011; IOD 2009). Consequently, the concept of business and IT alignment is gaining prominence in business management circles (Masa'deh, Hunaiti & Yaseen 2008). Indeed, the significance of IT and its strategic impact on the success of modern enterprises is unquestionable (Silva, Figueroa, & Gonzalez-Reinhart 2007); Bleistein, Cox & Verner 2005; PwC/ITGI 2006). Most enterprises are successfully using IT for competitive advantage and maximising IT investment (Tan & Gallupe 2006; ITGI 2005; Laudon & Laudon 2016). At this stage it is imperative to discuss certain key concepts in Business and IT alignment.

WHAT IS BUSINESS AND IT STRATEGIC ALIGNMENT

The concept of business and IT strategic alignment (also known as business -Information system (IS) alignment, or strategic alignment - (these terms are used interchangeably in literature) is becoming a top Management issue. One of the key goals of IT governance is to ensure that there is an alignment between a company's business requirements and IT capabilities, performance and sustainability objectives of the business (Symons 2005). This requires that management establishes appropriate structures and processes around its IT investments, IT management, IT resources and IT risk. Management should only approve and fund IT projects which are in alignment with business objectives and that fall within the broader context of corporate governance principles (Symons 2005). Effective corporate governance means that it is embedded with IT governance, business and IT alignment, and IT security requirements (Stallings and Brown 2018) for the attainment of wider corporate governance framework so that the overall strategic objectives of an enterprise can be achieved. Webb et al. (2006) is of the opinion that there is an established interrelationship between IT strategic alignment, IT governance and corporate governance. According to Webb et al. (2006) IT strategic alignment is one key aspect emanating from IT governance and corporate governance.

Prior research on business and IT strategic alignment has generated a variety of definitions which are worth reviewing. Luftman (2001:5) referred to business and IT alignment concept as "applying IT in an appropriate and timely way, and in harmony with business strategies, and goals". Other definitions of business and IT strategic alignment found in literature are: "The extent to which the IT mission, objectives, and plans support and are supported by their business counterparts" (Reich & Benbasat in Masa'deh et al.2008:180); "The conformity or fit between IS and business strategy" (Silva et al. 2007: 232; Byrd et al. 2006:308). Other definitions of business and IT strategic alignment found in literature are: (1)"The extent to which the IT mission, objectives, and plans support and are supported by their business counterparts" (Reich & Benbasat in Masa'deh et al.2008:180);(2)"The conformity or fit between IS and business strategy" (Silva et al. 2007: 232; Byrd et al. 2006:308);(3)"Strategic alignment of IT exists when an organization's goals and activities and the information systems that support them remain in harmony" (McKeen and Smith 2003);(4) "When all IS activities provide optimal support for the business goals, objectives, and strategies, then IS and business [are] in alignment. True alignment implies that the IS strategy and business strategy are

developed concurrently rather than sequentially so that technology enables the business strategy” (Cassidy 2006:7). (5) Strategic alignment involves making certain that business and IT plans are linked together; defining, maintaining and validating the IT value proposition; and aligning IT operations with overall business operations (Cuenca, Ortiz & Boza 2010; ITGI 2005: 6).

The business and IT strategic alignment construct is centred on the premise that IT is critical resource for business operations and should be utilised effectively to achieve corporate objectives. IT strategic alignment forms part of IT government structures, and is a process where Management tries to harmonise business objectives with IT objectives to attain a set of universal corporate governance objectives (Symons 2005). Broadly strategic alignment between business and IT is a concept which focuses on achieving harmony between IT and the business it supports, by ensuring the alignment of objectives in the domains of IT governance and corporate governance, in order to achieve the wider corporate objectives (CISA 2011). Specifically, strategic alignment processes involve the evaluation of the business environment, and identifying the IT requirements of the organisation which would enable IT to support the Organisation in the achievement of its mission, vision and strategy. At the same time IT functions or services should be aligned with all elements of the Organisation’s environment. This is important to ensure that common values and strategic direction are subscribed to by the whole organisation (ITGI: 2005:6). Generally, it is accepted among top Executive Management, researchers, and control professionals that IT should be aligned to business requirements to ensure its relevance (Masa’deh et al. 2008; Peak, Guynes & Kroon 2005; Bleistein *et al.* 2005 and PwC/ITGI 2006). By aligning IT to business requirements, it is envisaged that IT will be in a position to deliver value to an enterprise, and business objectives will be realized (Peppard & Ward, 2016; Ghildyal & Chang 2017).

Business and IT strategic alignment enables Management to ensure that the business and its IT goals are aligned with each other to meet business’ requirements (Silva et al. 2007; Buckby et al. 2009). This is based on the premise that business and IT objectives should work in harmony with each other to achieve corporate objectives (Silva et al. 2007). A company’s decisions on investments in IT, for example, should take cognisance of the fact that IT should have sustainable business case and also meet business requirements. In the past, IT was considered only as an enabler of an organization’s strategy (Buckby et al. 2009; Rusu, Huang, and Rizvi 2008:), but is now regarded as an integral part of that strategy (Institute of Directors (IOD 2009; CISA 2011). Consequently, it is logical to recognise that IT should be fully aligned with business strategies in order to attain overall corporate objectives (IOD 2009).

EARLY CONSTRUCTS ON BUSINESS AND IT STRATEGIC ALIGNMENT

In literature the concept of business and IT strategic alignment is the subject of many studies (Tan & Gallupe 2006; Masa’deh et al. 2008:180 and Chan & Reich 2007). Chan & Reich (2007) traced the history of scholarly literature on business and IT strategic alignment from the early 1980’s. Early studies on the concept concentrated on the significance of alignment between business and IT, and linking business and IT plans Chan & Reich 2007). The two concepts which emerged from these early studies were congruence and fit between business strategy and IT strategy (Buckby, Best & Stewart 2009; Byrd *et al.* 2006; Silva *et al.* 2007). These concepts have been developed and expanded over the years by other researchers.

Chan & Reich (2007) examined the motivation for strategic alignment research in the 1980s. They pointed out that the focus on strategic alignment in the 1980s was based on business planning and long-term IT planning from both business and IT perspectives, using both top-down and bottom-up processes, and also a departmental approach as used by IBM in 1981. In a more recent academic research (Silva *et al.* 2007; Byrd *et al.* 2006), the long-term IT strategic planning construct in dealing with business and IT alignment was emphasised. Companies face huge risks by adopting a short-term IT planning approach, rather than a longer-term approach (Gillies 2007, Grembergen 2014). A short-term IT planning approach means that a company cannot formulate effective strategic plans to meet future IT needs of the company. Information technology is constantly changing and therefore companies should adopt a long-term information technology strategic plan which would define the information needs of the company (Gillies 2007). In this regard, Cassidy (2006) supports the idea that in implementing an IT strategic plan, the plan should be finalised concurrently with the general business plan, and both plans should be linked to the mission, vision and objectives of the company (Tan & Gallupe 2006).

Cassidy (2006) further proposes that instead of companies preparing separate IS strategies, it is imperative to embed or integrate the IS strategy in the business strategy. Furthermore, Cassidy is of the opinion that a step-by-step approach is required to guide companies through the IS planning and development process, which must be linked to the company's business plan. Companies striving to achieve business and IS alignment should consider a long-term strategic implementation approach (Tan and Gallupe 2006). Consideration should also be given to external business environmental factors and constraints that impact on both the business and IS plans. The author of this study endorses the views of Tan & Gallupe (2006), and Cassidy (2006) that in the process of achieving alignment, business and IS plans should reflect each others' mission, goals, and strategies, as well as recognise the constraints inherent in each other's environments.

Another factor which has generated academic interest in alignment research is the hypothesis that organisations which have successfully aligned their business strategies with their IT strategies will outperform those that do not yet have strategic alignment (Chan & Reich 2007). There was also a theory that alignment ensures a more focused, strategic use of IT resources which in turn leads to increased performance, based on critical success factors (Chan & Reich 2007). The findings of researchers including (Chan and Reich 2007) and Silva *et al.* 2007 support the above hypothesis.

In the early 21st century, a resurgence of interest in the topic has seen the emergence of many new researchers, exploring new aspects and perspectives of business and IT alignment. Important members of this new wave of researchers include Silva *et al.* (2007); Fletcher (2006); Webb, Pollard & Ridley (2006), and Bleistein *et al.* (2005) among others.

Traditionally, business and strategy alignment research has centred on the Strategic Alignment Model (SAM), developed in the 1990s by Henderson & Venkatraman; (Byrd *et al.* (2006); Chan & Reich (2007); and Buckby *et al.* (2009). IS alignment is viewed as a dynamic fit between four domains, namely: business strategy; IT strategy; organizational infrastructure and processes, and IT infrastructure and processes (Chan & Reich (2007)

According to Tan & Gallupe 2006 the SAM model only defines the range of strategic choices during the alignment process, but does not describe the processes to be followed. However, the SAM model, which had been the foundation of all alignment research, was later extended by the development of a new model by MacDonald (in Tan and Gallupe 2006) in the late 1990s, called the Strategic Alignment Process Model (SAPM). The SAPM highlighted the need for organisational and managerial support in order to ensure that the required alignment processes are achieved (Tan and Gallupe 2006). Other models which have emerged over the past few years are Luftman's (2003) "Strategy Alignment Maturity Model" (SAMM), and the Reich and Benbasat model 2000 (quoted in Rusu, Huang & Rizvi 2008). The SAMM measures the maturity levels of strategic alignment along multiple key dimensions such as communications, governance, and skills (Khaiata & Zualkernan 2009:139). The Reich and Benbasat (2000) model rests on four constructs: the shared knowledge between the IT domain and the business domain; the IT implementation success; communications and planning connections between IT and the business, and finally the business direction (Rusu, *et al* 2008). The Reich and Benbasat (2000) model was expanded by Huang and Hu 2005 (in Rusu, *et al* 2008) with the addition of two new components: relationship management as an antecedent of alignment, and the balanced scorecard as the mechanism of alignment. Other important models are those of Baets (1992), and Chan & Reich (2007).

STRATEGIC ALIGNMENT DIMENSIONS

While these early models were pedagogically durable and creates a conceptual foundation for future research, other researchers discussed IS alignment from different perspectives. Prior studies on business and IT strategic alignment concentrated on the concept of intellectual and social dimensions (Tan & Gallupe 2006). In the 1990s, studies on strategic alignment focused on development of concepts and the empirical examination of the intellectual dimension. Tan & Gallupe's 2006 study was based on an earlier study by Reich & Benbasat (1996) who had introduced two new business alignment constructs, namely the intellectual dimension and the social dimension.

In the first construct, the intellectual dimension, Tan and Gallupe (2006) alluded to the alignment between a company's IS plans and its business plans. Furthermore, they stated that the business alignment (intellectual dimension) is epitomised by the existence of a high-quality set of interrelated business and IS plans, which in turn reflect a company's business plan, mission, goals, and strategies. This position has been supported by Cassidy (2006), who emphasised that the business plan of a company should refer to the IS plan, the IS applications and the IS systems used the business plan (Tan and Gallupe 2006). In this regard Gillies (2007: 56) suggests that companies should embark on a long-term planning strategy for business and IT instead of developing applications and infrastructure on a piecemeal basis.

The second construct which Tan & Gallupe (2006) introduced is shared cognition (social dimension) which deals with the shared understanding between businesses and IS executives. According to Tan & Gallupe cognition has two connotations. The first deals with commonalities (similarities) in individuals' cognition which is consistent with the notion that shared cognition is the overlapping set of individuals' cognitions which grows overtime as individual in a team interact, debate and clarify shared understanding. The second deals with individualities (differences) in individuals' cognitions reflecting diversity in the values and beliefs of individuals in a team (Tan & Gallupe 2006).

Earlier research on strategic alignment recognises the importance of maintaining an intense communication process between business and IT executives in order to achieve the desired alignment (Silva *et al.* 2007; Masa'deh, Hunaiti & Yaseen 2008). A mutually respectful relationship between business and IT enhances communication between executives, which is critical in implementing sound strategic alignment (Masa'deh *et al.* 2008). According to Masa'deh business and IT strategy have social and intellectual linkages, a confirmation of Tan & Gallupe's (2006) social dimension and intellectual dimension constructs as discussed above. Masa'deh however expanded on this assertion that the intellectual link deals with the content of plans and planning tactics, whereas the social link relates to the actors in the alignment process.

In addition to the above constructs, Silva *et al.* (2007) also evaluated three different IS alignment concept based on Henderson and Venkatraman's and other studies conducted in the 1990s. The first concept proposed by Henderson and Venkatraman 1999 (in Silva *et al.* 2007) is called *managerial perspective*, which sees IS strategic alignment in the context of an ideal model that managers should strive to attain. Silva pointed out that the *managerial perspective* considers IS alignment as a means for firms to increase their profitability.

Silva then identified the second perspective of IS strategic alignment as *emergent perspective*, based on the perception that IS alignment cannot occur as an automatic response to senior Management's plans and commands. In comparing the *managerial* and *emergent* concepts, Silva maintained that the two concepts differ in approach in dealing with IS alignment. While the latter concept (*emergent*) sees IS alignment as a top-down approach, the former concept (*managerial*), perceives it as a bottom-up approach (Silva *et al.* 2007: 234). However, Silva argues that that alignment impacts on profitability and efficiency (Tan & Gallupe 2006; Laudon, & Laudon 2016)

The third view of IS alignment Silva *et al.* (2007) called *critical*, is in contrast to the *managerial* and *emergent*, concepts. Silva considers alignment as hegemonic disclosure aimed at perpetuating the dominant ideology of capitalism (Levy, Alvesson & Willmott (in Silva *et al.* 2007).

The *critical* concept of IS strategic alignment does not concentrate on domain and implementation of IS systems alone, but also deals with the objectives for implementing such systems (Silva *et al.* 2007). This view is shared by Gallies 2007. The *critical* approach may be used in evaluating the arguments in favour of IT Investment, an idea that Silva *et al.* (2007), Gillies (2007) Tan & Gallupe (2006) all endorse. This approach is imperative as IT investments and IT projects' costs are rising (Webb *et al.* 2006,) and the return on investment in IT should justify its cost of implementation (Tan & Gallupe 2006).IT investment is a critical area of alignment and Tan & Gallupe (2006) emphasised the need for companies to implement IT systems strictly in accordance with business requirements.

Silva *et al.* (2007) further evaluated IS alignment from the perspective of four different domains, positions based on Henderson and Venkatraman's 1999 study. The first and the second domains, according to Silva *et al.* (2007), derive from information systems architecture, which are *portfolios of applications* and the *configuration of hardware* respectively. The third domain comprises *systems processes* which deal with information technology administration and

management, including the processes which define IT operations. Also included under this domain are IS function, maintenance and control systems, and IS infrastructure. The fourth domain concerns *skills* - the attainment of knowledge and expertise required for the competent management of the information technology environment (Silva *et al.* 2007).

One of the key elements of IT strategic alignment research is in the area of IT investment. Poor decision-making by management, by investing in inappropriate IT projects and systems for example, could lead to the wasting of financial resources. Alignment between business and IT strategies should enable companies to maximise their return on their IT investments, Tan & Gallupe (2006) and Silva *et al.* (2007), and achieve harmony between business and IT strategies (Buckby *et al.* 2009). This, in turn, usually leads to increased profitability and competitive advantage. Research conducted early this decade indicates that IT base line costs make up 75% of a company's operating budget and represents approximately four percent (4%) of gross revenue (Gartner Group report 2003 quoted in Webb *et al.* 2006).

Furthermore Webb *et al.* (2006) stated that IT is embedded in an organisation's operation to such an extent that IT-related failure or breaches can result in huge financial loss, a view supported by Gillies (2007), and may give rise to litigation against the organisation. It is generally accepted among researchers that IT investment decision-making is the responsibility of Management and the decision should not be left to the IT department to make (Thorp (2006); (Gillies (2007)). The only means by which IT can be beneficial to business is by adopting an integrated approach to its resourcing and implementation (Hill 2018).

The integrated approach ensures that IT and the business' executives work towards a common goal and take joint responsibility and accountability so as to maximise IT investments (Gillies (2007); Tan & Gallupe 2006). The ultimate purpose of every IT investment decision is that its outcome should fulfil business requirements. Therefore, business requirement should be the main driver of IT investment decision-making and the implementation of IT systems (Gillies 2007). In an attempt to align IT to business requirements, Management should assume a leadership role (Tan & Gallupe 2006). According to Gillies (2007) the business plan of the company, including its IT requirements, should be the main determining factor for IT budgeting and spending, and not the other way around.

SIGNIFICANCE OF BUSINESS AND IT STRATEGIC ALIGNMENT TO ORGANISATIONS

There may be five compelling reasons why alignment between business and IT are important to organisations. Firstly, organisations depend extensively on IT for its processes. Businesses' dependence on IT processes and controls is compelling Management to ensure that IT adequately meets business objectives and requirements. Information technology systems are responsible for storing and processing the organizations' most important asset: information. Any misalignment between the business' requirements and IT capabilities could severely impact on Management getting the desired information for decision making, which in turn would affect the general operation of the company. Misalignment of strategic alignment between businesses and IT means that IT will not be able to deliver value to the company (Alghazi.Li,Cui,Wamba & Shen 2018).

The second significance of IT Strategic alignment is that IT investment and IT projects may be severely impacted if Management makes decision on IT projects without due regard to the

business requirements of the company. A key benefit of aligning business and IT strategies is to improved decision making on IT-related Investments (ITGI 2005:17). A poor IT alignment may also affect service delivery to clients/customers as was the case of Government departments. Invariably IT systems which are implemented without due regard to business operational activity are unable to process simple transactions and all stakeholders including internal staff become frustrated. While investment in IT systems invaluablely promotes competitiveness of an organization, the image of the organization can severely be tarnished if IT Systems are effectively and efficiently deployed (Cuenca, Ortiz & Boza (2010). One can imagine a Bank which constantly has system and network downtime problems every month end due to high volume of transactions being processed. The image of this Bank may suffer and customers may be compelled to close their accounts and move to other Banks.

Information security management deficiencies are one of the key indicators that Management is struggling with effective IT governance and strategic alignment. This is the third significance alignment of business and IT is critically important. The risk factor associated with IT systems and applications in the area of information security management is crucial in companies (Stallings and Brown 2018). While IT enables company to process data with speed and accuracy, there is also the challenge of security of information and how it could be misused by staff, or could fall into the hands of unauthorised persons, and even misused by Management personnel. The solution to mitigate information security risk is for the company to develop effective information Security governance program (which is part of IT Governance) with strong information security policies and procedures to deal with this threat (Stallings and Brown 2018).

The fourth significance of IT Strategic alignment is that IT Strategic alignment is an embedded key component of IT governance and corporate governance strategies. Corporate governance objectives are unattainable if there is deficiency in business and IT strategic alignment. The effective use of IT is critical to the success of the enterprise's strategy. (Laudon, & Laudon 2016)

The fifth significance of IT Strategic alignment is that misalignment may result in the firm being exposed to many risks as succinctly expressed in the following quotation:

"The use of IT has the potential to be the major driver of economic wealth in the 21st century. While IT is already critical to enterprise success, provides opportunities to obtain a competitive advantage, and offers a means for increasing productivity, it will do all this even more so in the future. IT also carries risks. It is clear that in these days of doing business on a global scale around the clock, system and network downtime has become far too costly for any enterprise to afford. In some industries, IT is a necessary competitive resource to differentiate and provides a competitive advantage; while in many others it determines survival, not just prosperity" (ITGI 2005:9).

This paper now examines some of the possible risks and impact that may be associated with misalignment between Business and IT strategies.

POSSIBLE RISKS ASSOCIATED WITH MISALIGNMENT OF BUSINESS AND IT STRATEGIES

Achieving alignment between business and IT is one of the core essence of IT governance. Ideally, it may appear logical and easy for management to achieve alignment between business

and IT strategies. However, there is always the risk that management may not be able to align the two.

While this study is not about measuring strategic alignment, it is imperative to briefly review factors (symptoms) which may be considered as misalignment between business and IT strategies. There could be serious structural defect in an organisation in a situation where business and IT are not properly aligned or not in harmony with each other. Based on the reviewed literature and the survey, the following were some of the common risks and their impact on the organisation as a consequence for poor alignment. These are indicated in figure 4 below:

Table 1: Possible risks and impact of misalignment between business and IT strategies

QC.1	Risk: The lack of strategic direction for Business & IT by Management/Boards may negatively impact the firm	QC.2	Risk: Poor decision on IT investment projects may result in poor value delivery
	Risk Impact: -Business perusing a corporate objective devoid of IT support. - Business strategic plan not linked to IT strategic plan. -Lack of policy and procedures on IT- e.g. Non-existence of information security policy may expose the business to risk. -Management/Board may make bad decision on IT issues. -Failure to identify and capitalise on business opportunities that could be enabled by IT -Unable to use IT for competitive disadvantage for business.		Risk Impact: - Inability of the business to reach its full potential by not using IT strategies. -IT does not fully support business operations -Wasteful expenditure on IT systems which the company does not need -Absolute reliance on consultants and outsourcing services without developing internal staff capacity - Poor value delivery and inefficient IT services to stakeholders -IT does not contribute to the transformation and growth of the company
QC.3	Management/Boards indifferent towards IT issues	QC.4	Mismanagement of IT resources
	Risk Impact: -Unilateral decisions by the Chief Information Officer (CIO) or the Director of IT on IT issues -The likelihood of making bad decision if the CIO is not engaging with business stakeholders on IT issues and unilaterally making decisions - Over spending IT Budget by IT department -Abuse of authority by IT department -inadequate budget for the IT project - Questionable tender processes- awarding the contract to unqualified vendor.		Risk Impact: -Incorrect and ineffective focus on IT related resources - failure to replace expensive labour-led processes with lower-cost IT processes -Staff prefer to use manual procedures instead of computers, and unwilling to adapt to technological changes
QC.5	Lack of IT Governance structures are risks to the firm	QC.6	Lack of Monitoring Performance & Control is risk to the firm
	Risk Impact:		Risk Impact:

	-No IT Strategy committee and IT Steering committee - The lack of involvement by the Board on IT issues - Inability to recruit and retain high-qualified IT staff -Management's disregard or unaware of IT risk and its impact on business operational activities - No IT risk assessment is performed by Management		-No performance measurement mechanism on IT value delivery and capabilities -The lack of involvement by internal audit in IT matters. -Internal audit reports on IT issues are not addressed by Management and the Board. - The lack of involvement by the Audit Committee in IT matters. -The audit Committee does not have an expert member(s) vested in IT matters
QC.7	Over confidence of Vendors, system developers & IT team may mislead executive management to take poor decision. Risk Impact: -Vendors tend to suggest new IT products to companies when the companies do not really need them. - Some Executives buy these new products without any business case or a justifiable requirement. -Some IT staff tend to be over confident and anxious to go live without adequately testing the system.	QC.8	Lack of Information security policies may have negative impact on the business and IT alignment. Risk Impact: -Sensitive/vital information of the organisation may not be protected and unauthorised persons may have access to this information. - Lack of controls to protect information assets - the accuracy and authenticity of information emanating from the organisation's systems may be guaranteed. - Information security objectives of the organization will not be achieved - poor delivery of services and customers will be unhappy.
QC.9	Poor IT operation and service delivery Risk Impact: - IT failing to support operational performance of the firm - Constant break-down of the firm's systems which irritates customers/clients	QC.10	Financial reporting Risk Risk Impact: - Poor financial reporting - Inaccurate financial statements -Deliberately not capturing vita accounting Information with intention of distorting the Financial statement.
QC.11	Reputational Risk Risk Impact: - Constant break-down of the firm's systems which irritates customers/clients, which may negatively affect the reputation of the firm. - customers/clients dissatisfaction as a result of constant systems failures will lead to customers/clients spreading of "bad word of mouth" information about the entity.	QC 12	Management/Boards neglecting Internal/external auditors in IT governance and IT projects for fear of criticism. Risk Impact: -Some companies do not see the need to involve IS auditors in IT governance issues, specifically on IT implementation projects -Internal auditors not allowed to audit the system. - Management not responding to Internal External IT audit reports

Source: Developed by the Researcher 2021

The Table 1 above was translated into a likert –scale questionnaire with a scale of 1-5 and sent to the respondents to seek their opinion on risks associated with non-alignment of business & IT objectives in JSE firms. Each question/statement was assigned with a questionnaire Code (QC).

METHODOLOGY

This study adopted a descriptive approach focusing on cross-sectional analysis (sample survey) and a quantitative method to collect primary data. Using a five point- likert scale questionnaire and a convenient sampling technique, data was collected online from fifty JSE Chief Information Officers (CIO's) from 22- 31Jan 2021. The CIO were randomly selected from various industries. The targeted population for this research is 425 listed companies currently trading on the JSE. The sample (sampling size of 12%) was selected from the targeted population for the research survey. The sampled companies were selected cross different industries and sectors namely: banking/financial services, manufacturing, health, mining /construction & property, transport/logistic, wholesale/retail, information technology/communication. Selecting the sample across different industries enabled the researcher to obtain diverse opinion on how executives from different industries view IT governance. The originality of this study is that it provides new insight into risks associated with misalignment between business and IT. Conscious of the fact that almost every firm uses information systems the online questionnaire was sent to CIOs of the participating firms. The data was analysed statistically to determine the IT risks in relation to business in various industries.

ANALYSIS & DISCUSSION

After reviewing the literature an online questionnaire was designed and distributed via the Internet to participating respondents. The Table 2 below shows the outcome of the survey questionnaire.

Table 2: Analysis of possible risks associated with mis-alignment of business & IT objectives in JSE firms

QC	SD	%	D	%	N	%	A	%	SA	%	COUNT	STDV	Level of Risk
1	3	6	2	4	1	2	31	62	13	26	50	20.41922	H
2	6	12	4	8	2	4	27	54	11	22	50	16.67916	M
3	3	6	6	12	4	8	31	62	6	12	50	19.4615	H
4	2	4	8	16	8	16	23	46	9	18	50	13.46291	L
5	4	8	7	14	4	8	32	64	3	6	50	20.09353	H
6	4	8	8	16	2	4	22	44	14	28	50	13.1445	L
7	5	10	3	6	4	8	28	56	10	20	50	17.29242	M
8	3	6	7	14	3	6	33	66	4	8	50	21.08185	H
9	5	10	1	2	3	6	28	56	13	26	50	17.87301	M
10	1	2	4	8	6	12	30	60	9	18	50	19.07223	H
11	3	6	11	22	2	4	16	32	18	36	50	10.18577	L
12	4	8	3	6	2	4	22	44	19	38	50	13.83936	L

{Key: QC=Questionnaire Code; SD=Strongly Agree; D =Disagree; N=Neutral; A=Agree; SA=Strongly Agree; %= percentage; STDV=Standard Deviation; H= High risk; M=Medium risk; L=Low risk}

Source: Developed by the Researcher 2021

Respondents were asked whether the lack of strategic direction for Business & IT by Management/Boards pose any risk to JSE firms (QC1). The result was that 6% of the respondents strongly disagreed with the statement, 2% were neutral and 4% disagreed. However, 88% affirmed that the lack of strategic direction for Business & IT by Management/Boards pose risk to JSE firms. The standard deviation is 20.41922 therefore the statement was classified as a high risk confirms since its occurrence can negatively impact the firm.

The question (QC2) was about poor decision on IT investment projects and poor value delivery. From literature, this is one of the symptoms of mis-alignment (Silva et al. 2007). On this question 22% of the respondents were of the view that poor decision on IT investment projects and poor value delivery may result in mis-alignment of business and IT strategies. Another 54% agreed to the question. While 4% were neutral, another 8 % and 12 % agreed or strongly disagreed respectively. The standard deviation for this was 16.67916 and was evaluated as medium risk.

On the statement (QC3) of whether Management/Boards indifferent towards IT issues could lead to mis-alignment of business and IT strategies, 6% of the respondents strongly disagreed, and 12% disagreed with the question. About 8% were unsure about the question. However, 62% agreed and 12% strongly agreed, thus recording a standard deviation of 19.4615 with an assigned high-risk rating. The question (QC4) was about of IT resources. Respondents were asked if mis- management of IT resources are an indication of mis -alignment. On this question QC4) 4% of the respondents strongly disagree and 16% disagree with the question, while

another 16% were neutral to the question. About 46% and 18% agree and strongly agree respectively to the question. The standard deviation was 13.46291, thus recording a low-level risk.

The next question /statement was (QC5) which deals with – the lack of IT Governance structures are risks to the firm. Majority of the respondents (64%) agreed and (6%) strongly agreed to the question. On the same question (QC5) 8% of the respondents strongly disagreed to the question, 14% disagree and 8% were neutral. The standard deviation was calculated as 20.09353 and rated as a high risk. On (QC6), the question was whether the lack of monitoring, performance evaluation and controls of IT are risk to firms? The standard deviation calculated for this question was 13.1445 indicating a low risk rating. In relative terms 8% of the respondents strongly disagreed with the question and 16% disagreed. About 4% were neutral or were not sure. However, 44% of respondents positively agreed to the question and another 28 % strongly agreed.

On (QC7), the statement was that, over confidence of vendors, system developers & IT team may mislead executive management to take poor decision. About 8% of respondents were neutral about this statement. However, 56% agreed and 20% strongly agreed with the statement. About 10% and 6% respectively strongly disagreed and agreed with the statement. The statement (QC7) recorded a standard deviation of 17.29242, which is medium risk rating. On (QC8) the statement was that poor Information security policies is a risk and may have negative impact on the business and IT alignment. Respondents scored a high-risk response rating standard deviation of 21.08185 for this statement, thus indicating that respondents considered poor information security policies as high-risk factor. Additionally, 66% of the respondents agreed that poor Information security policies is a risk factor and may have negative impact on business and IT alignment. Some 8% of respondents strongly agreed, while 6% were neutral. However, about 14% disagree and another 6% strongly disagree with the statement.

The next statement (QC9) was on how Poor IT operations and service delivery may impact business and IT alignment strategies. On this statement 6% of respondents were not sure if poor IT operation service delivery will impact business and IT strategic alignment. About 10% respondent strongly disagreed and 2% disagreed with the statement. However, 56% agreed with the statement that poor IT operations and service delivery may impact business and IT alignment strategies and 26% agreed. The standard deviation for this statement was 17.87301 indicating a medium risk metrics. The statement was (QC10) was whether mis-alignment of business and IT may expose the business to financial risk with serious consequence on business operations. A high percentage of respondents- 78 % (60% agree and 18% strongly agreed) confirmed the statement. About 12% were not sure about the statement. However, 8% disagreed and 2% were strongly in disagreement. The standard deviation for this statement was 19.07223 measuring high risk metrics.

On the statement (QC11) the statement was that mis-alignment of business and IT may expose the business to reputational risk. Some 22% disagreed with the statement and 6% were strongly in disagreement. Some 4% of the respondents were neutral on this statement. But 32 % of the respondents agreed to the statement and 36% strongly agreed to the statement. This statement recorded a standard deviation of 10.18577 and is tagged a low risk. On (QC12)

statement was that Management/Boards neglect Internal/external auditors in IT governance and IT projects for fear of criticisms and this may impact strategic alignment. The respondent 44% agreed with statement and 38% strongly agreed with the statement. However, only 8% strongly disagreed with the statement and another 6% disagreeing. But 44% agreed, while 38% strongly agreed with the statement. About 4% were neutral. The standard deviation for this statement was 13.83936 and was tagged a low risk.

Hypothesis analysis

In addition to the above analysis two hypothesis were tested to confirm or disprove existing construct and perception on Business and IT strategic alignment. Respondents were therefore asked if a firm could face operation problems if Business and IT strategies were not appropriately aligned. Table 3 provides the data underling the two hypothesis *H1 and H2*.

Table 3 : Hypothesis testing for alignment between Business and IT strategies

	SD	%	D	%	%	%	A	%	SA	%	COUNT
H1	2	4	1	2	1	2	41	82	5	10	50
H2	1	2	3	6	1	2	42	84	3	6	50

H1 = Hypothesis 1; H2 = Hypothesis 2 SD=Strongly Agree; D =Disagree; N=Neutral; A=Agree; SA= Strongly Agree; %= percentage

H1: There are managerial and operational problems where a firm's Business and IT strategies are mis-aligned.

The null hypothesis H0 is considered to be that: there are no managerial and operational problems where a firm's Business and IT strategies are mis-aligned. However, the test in Table 3 indicated an overwhelming 92% of the respondents (strongly agree 10% and agree 82%) do not agree with the null hypothesis therefore, does not hold. This means that the hypothesis H1: there are managerial and operational problems where a firm's Business and IT strategies are mis-aligned, is valid and acceptable.

H2: Managing risks associated IT Governance with of Business and IT strategies

Using the Table 3 above the null hypothesis H0: There is no need to manage the risks associated IT Governance with of Business and IT strategies, was invalid and not acceptable. This is because majority of the respondents endorsed the H2 Hypothesis statement that: H2 there is the need to manage the risks associated IT Governance with of Business and IT strategies. The evidence from Table 3 (row 2) indicate that 90% (6% strongly agree, and 84% agreed) with the H2 hypothesis statement that: H2 there is the need to manage the risks associated IT Governance with of Business and IT strategies, valid and acceptable.

Prior studies

The underlining importance of business and IT strategic alignment is that most Executive Management and Boards now appreciate the intrinsic and pervasive contribution of IT in business operations (Alghazi A., Li M, Cui., Wamba, & Shen 2018; Hill 2018). Prior studies have revealed that Executive Management view strategic alignment as one of the critical areas in business (PwC/ITGI: 2006). In the PwC/ITGI 2006 survey, the following findings were made:

“Approximately 60% of the interviewees (CIOs across the globe) stated that alignment of IT with the business is a driver for, or a result of, implementing IT governance-related projects. The importance of IT and business alignment is related to the current IT decision model: - Where organisation has a predominately decentralised decision model, IT alignment as a driver for or as a result of IT governance is not mentioned. In contrast, approximately 70% of the (IT) centralised organisations confirmed that they aim to improve alignment between IT and business within the organisation” (PwC/ITGI 2006:11)

The above survey results and earlier research indicates the prominence IT strategic alignment is gaining among top executives Management. The IT Governance Institute advocates that the process of strategic alignment between business and IT should emanate from top executive Management (CISA 2007). The leadership role in implementing IT strategic alignment is critical for successful alignment (*IOD 2009*). IT strategic alignment cannot be discussed in isolation, but should be considered in the broader context of overall corporate governance and the managerial strategies of the organisation. However, it is unknown how Executive management in South African listed companies evaluate the importance of IT Governance and Business and IT strategic alignment, hence this study is intended to examine this matter.

SUMMARY OF KEY FINDINGS

This study has (1) provided further understanding on IT Governance with particular reference to non-alignment of Business and IT strategies and associated risks. **(2)** *Established that there are managerial and operational problems where a firm's Business and IT strategies are mis-aligned.* **(3)** Highlighted possible risks /impact associated with non-alignment of Business and IT strategies, on business operations including - lack of strategic direction for Business & IT by Management/Boards pose any risk to JSE firms (QC1) **(4)** There is the need to manage the risks associated IT Governance with non-alignment of Business and IT strategies.

RECOMMENDATIONS

The achievement of a strategic alignment between business and its IT processes ensures that business is run smoothly, using IT resources optimally to achieve corporate governance objectives.

- The role of management in assisting the achievement of a Business and IT strategic alignment cannot be underestimated.
- In general, Management should give leadership on strategic alignment to meet the business' requirements. This is particularly important for Management of companies and organizations in order to meet their business requirements.
- In the light of the findings of this study Management should recognise the complementary, independent roles played by internal audit in supporting Management's efforts to strengthen internal controls and to achieve corporate objectives. The King III report, which became effective on 1 March 2010, significantly impact on business and IT strategic alignment compliance as performed by Management, the audit committee and the Board.
- For example, under the functions of the audit committee, a section of the code says that: "Audit committees should consider IT risk as a crucial element of the effective oversight of risk management of the company. In many cases the audit committee may need to rely on expert advice from within or outside the company. The audit committee should play an oversight role regarding: IT risks and controls; business continuity and data

recovery related to IT; and information security and privacy” (IOD 2009:69). It is highly recommended that management and Boards should comply adhere these recommendations.

CONCLUSION & FUTURE RESEARCH AREAS

The research study addresses the key features of the achievement of a strategic alignment between businesses and their IT processes. This study revealed that from business management perspective there are various risks as consequences for mis-alignment of business and IT strategies, ranging from management risk, operational malfunctioning of business processes, information security risk, financial risk and reputational risks to the organization. Future researchers should examine the subject from an internal audit perspective, within the context of IT governance for JSE companies. The roles of Management and internal audit, in respect of business and IT alignment, are critical in modern business and future researchers should examine the extent to which internal auditors could assist in ensuring alignment between business strategies and IT strategies. The current study has laid down the key pedagogy areas where future researchers could be examined.

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