MANAGING IT OUTSOURCING RISKS: A CASE OF MANUFACTURING ORGANISATIONS WITHIN SOUTH AFRICA

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INTRODUCTION

Today, information technology (IT) serves as the backbone of most organisations (Dibbern, et al., 2004; Bourgeois, 2014). IT refers to the hardware and software used in facilitating the collection, storage and dissemination of data, information and knowledge (CSIT, 1995; Bourgeois, 2014). Almost every organization is dependent on IT in order to achieve their business objectives (Dibbern *et al.*, 2004). This is because IT serves as an enabler of corporate strategies and a catalyst of change to the business models of various organisations (Applegate, Austin & Soule, 2009; Kumar, 2016). Different IT solutions have been developed, and they are evolving to enable organisations from different sectors meet their growing challenges successfully (Srinivasan & Jayaraman, 1999). One of the sectors benefiting from the enabling feature of IT, is the manufacturing sector (CSIT, 1995).

The manufacturing sector consists of organisations (whether machine tools or consumer goods producing firms) that work towards producing "the right product, with the right quality, in the right quantity, at the right price, and at the right time" (Rana, 2013, p. 435). They also endeavor to satisfy their customers, who are the primary reason for their business operations (CSIT, 1995; Rana, 2013). In order to achieve an efficient and effective business operation, it is necessary that the appropriate information is received from customers and communicated to staff at the appropriate time, so as to make real time decisions (Srinivasan & Jayaraman, 1999). The managers of manufacturing organisations have found it necessary to adopt technological systems, because they facilitate real time communication of business operation's information (Rana, 2013).

IT in manufacturing organisations play a vital role in the sustenance and improvement of the business (Grant, 2000; Rana, 2013). Different functional units (such as account and finance, sales and marketing, manufacturing and production etc.) in manufacturing organisations use different types of IT systems and applications to enhance their business processes (CSIT, 1995). Examples of these IT systems and applications include: Database Management system (DBMS) (Rana, 2013), barcodes (Srinivasan & Jayaraman, 1999), Customer Relationship Management (CRM) systems, and Enterprise resource planning (ERP) system (Askenäs & Westelius, 2000). The integration of IT into manufacturing technologies, have resulted in computer integrated solutions that are helping to restructure the manufacturing plant in becoming lean and efficient (Rana, 2013). Computer-integrated manufacturing, which came about as a result of the combination of factory automation and IT, is helping to improve manufacturing operations (Srinivasan & Jayaraman, 1999). Organisations such as Boeing, Alley–Bradley and Black and Decker are using computer-integrated manufacturing to improve their manufacturing operations (Srinivasan & Jayaraman, 1999; Rana, 2013).

Another important aspect that IT has helped, is the digitalisation of supply chain process (Eamonn & Kelly, 2015). Supply chain management is one amongst other essential functions for manufacturing organisations. This is because the success or competitiveness of a manufacturing organisation relies on how efficient and cost-effective the flow of resources (i.e. material, funds and information) moves from the supplier, to the manufacturer, and then to the consumer (Holma & Salo, 2010). IT has changed the dynamics of how the supply chain works (Eamonn & Kelly, 2015). As a result of the involvement of IT in the supply chain processes and the proliferation of the Internet by technological advancement, supply chain has evolved

from the physical exchange of information between artisans and consumers, to a virtual chain of suppliers, manufacturers and consumers, now referred to as the value web (as shown in figure 1) (Srinivasan & Jayaraman, 1999). The value web is a virtual supply chain, that allows for the efficient exchange of information between organisations and their trading partners, irrespective of their location (Eamonn & Kelly, 2015).

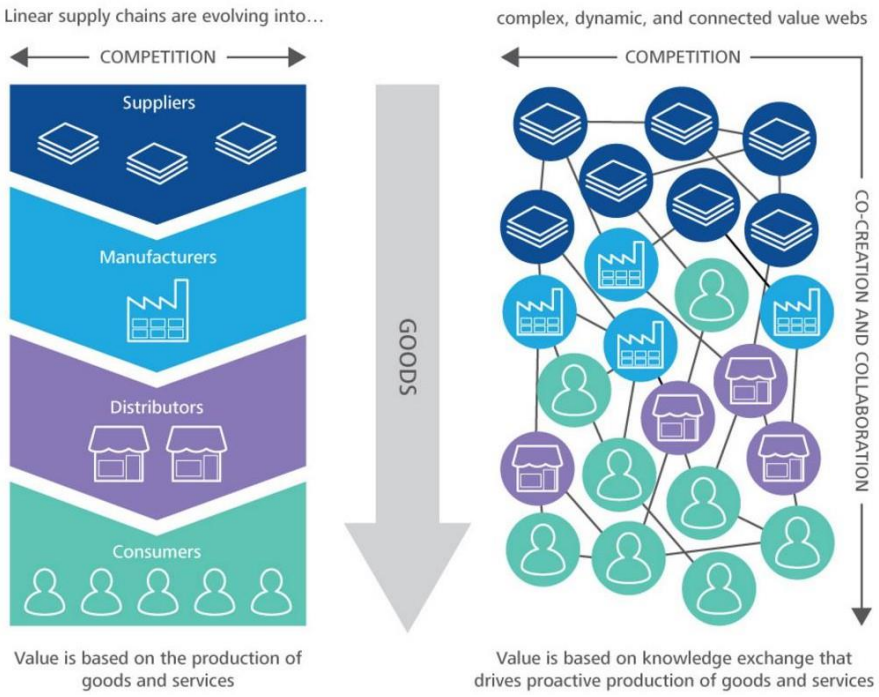

Figure 1. Supply Chains evolve to Value Chain (Eamonn & Kelly, 2015)

Also, new technologies (such as enterprise resource planning (ERP) system; SharePoint; Cloud storage) are enabling the integration of all units, stakeholders and activities in the manufacturing business (as shown in figure 2) (CSIT, 1995). Thereby facilitating globalisation in the manufacturing sector (Dahlman, 2007; SAP & INFOR, 2007; Globalization101, 2012).

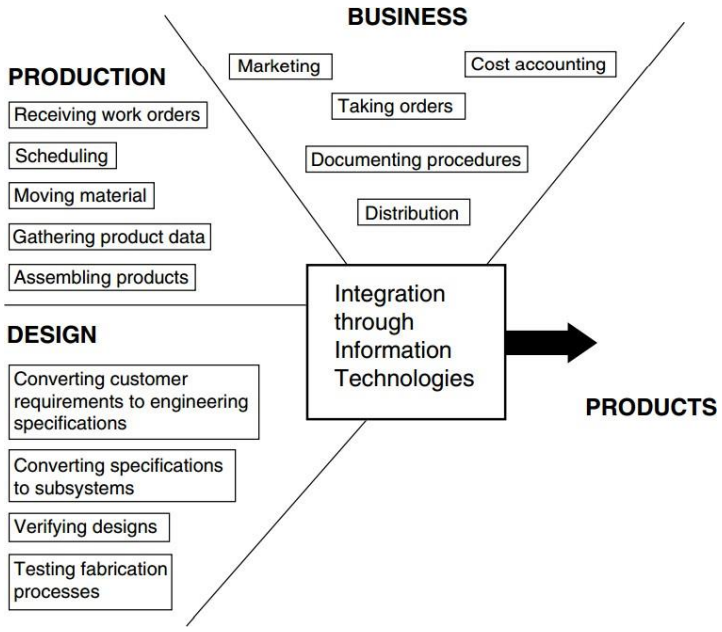

Figure 2. IT as an integrator of all business activities in manufacturing organisations (CSIT, 1995)

In spite of the criticality of IT in the manufacturing sector, it is often considered to be a support tool or function and not a core function to the entire manufacturing process (Srinivasan & Jayaraman, 1999). Hence, organisations outsource their IT functions. However, outsourcing comes with some risks such as vendor lock-in, unsatisfactory service quality, loss of intellectual properties, expending extra cost, security issues etc., which could be more complex and challenging (Gonzalez, Gasco & Llopis, 2009; Demaria, 2011). Hence, the presence of inherent risks in ITO is necessitating that organisations identify, evaluate and institute possible risk treatments before engaging in ITO (Tompkins, Simonson, Upchurch & Tompkins, 2005; Deloitte, 2014b).

BACKGROUND OF THE STUDY

Today, organisations are working towards cutting operational cost in order to maximise profit. Hence, they are outsourcing part or whole of their functional unit in order to deal with organisational limitations and overall expenses (Beaumont & Sohal, 2004). IT remains the most outsourced functional unit in most organisations (Ramanujan & Jane, 2006). IT unit is usually affected when organisations intend to cut cost. This is because, IT is most often regarded as a complex and expensive support function (Carr, 2003). Some organisations outsource selected parts of their IT functions while some outsource all of their IT functions, to a third party, who in return, renders IT as a service to them (Dibbern *et al.*, 2004; Applegate *et al.*, 2009).

Outsourcing first came into limelight in the 19th century through a British economist known as David Ricardo, who came up with the economic principle of "comparative advantage" (Ritchie, 2015). Before the advent of the business concept "outsourcing", organisational model consisted of large integrated companies that managed and controlled their assets internally (Ritchie, 2015). Managers of organisations observed that, the bloated strategy of managing all business

activities in-house was hindering their (respective) organisations from competing globally (Handfield, 2008; Ritchie, 2015). This observation caused organisations to search for a more flexible and cost effective way of managing their asset and resources (Handfield, 2008). The outcome of this search, resulted in the business concept known as "outsourcing" (Davis & Knox, 2004; Handfield, 2008). Outsourcing as explained by Gilley &Rasheed (2000), is the contracting out of an organisation's assets and resources to a third party organisation. Over the years, outsourcing has evolved from contracting external suppliers for ancillary services to operational outsourcing (contracting external suppliers for support services) and now, to strategic outsourcing (contracting external suppliers for core business services) (Handfield, 2008).

ITO was first operationalised in the 20th century by Eastman Kodak (Loh & Venkatraman, 1992; Dibbern *et al.*, 2004; Ritchie, 2015). In 1989, Kodak (an imaging solutions company) braced the IT outsourcing market by outsourcing all its IT functions to IBM (DiRomualdo & Gurbaxani, 1998; Dibbern *et al.*, 2004), DEC and Businessland (Hirschheim & Lacity, 1997; Dibbern *et al.*, 2004). This marked a significant event referred to as "the Kodak effect", in the IT industry (Loh & Venkatraman, 1992). This is because Kodak, who regarded IT to be a strategic asset and also had the capability to manage their IT internally, was the least expected organisation to move IT outside (Applegate & Montealegre, 1991). Other large and small organisations such as J.P. Morgan, Xerox Corporation, Dupont where influenced by Kodak's approach to outsource IT. Hence, they followed the same footstep as Kodak, by engaging in ITO contracts that were worth billions of dollars (DiRomualdo & Gurbaxani, 1998).

The outsourcing market experienced fluctuation (i.e. unstable engagement of organisations in ITO) between year the 2000 and 2015 (Statista, 2015). However, due to the recent and continuous technological advancement, industry analysts have projected that outsourcing engagements will increase exponentially in the years to come (Arshad, May-Lin & Mohamed, 2008; Deloitte, 2014a). Presently, the adoption of technological innovations such as cloud computing, big data, business intelligence etc., by organisations, are contributing to the growth observed in the ITO market (Deloitte, 2014a). The development and management of these technological innovations involves a lot of challenges and risks (Kumar, 2016), however, most organisations understand the importance of technological innovations in supporting their core business operations (Deloitte, 2014a). Hence, organisations fall back on ITO in order to gain the benefits offered by IT innovations, while at the same time transferring the challenges and risks involved in the development and management of IT innovations to a third party organisation (Deloitte, 2014a).

RESEARCH PROBLEM

Outsourcing, IT, globalization, customer satisfaction etc. have been listed as some of the business challenges faced by today's organisations (Tompkins *et al.*, 2005; Bernard, 2015). IT is listed as a challenge due to its complexity, while outsourcing is understood to be a more unique challenge because it is both a solution to other business challenges and a challenge on its own (Tompkins *et al.*, 2005). Consequently, ITO is a more complex and unique business challenge (Arshad *et al.*, 2008). Organisations are facing outsourcing challenges such as defining their outsourcing strategy, selecting the right vendor, managing their outsourcing contract etc. (Paul, 2004; Syed, Arshad & Mohamed, 2007). However, despite these challenges,

organisations are still engaging in outsourcing. If these challenges are taken care of, outsourcing is more of an opportunity than a challenge (Tompkins *et al.*, 2005).

Today, outsourcing of business functions is becoming a practice in almost every organisation (Ritchie, 2015). The opportunities and benefits of ITO have been proven by different studies (Rochester & Rochester, 1995; Dhar & Balakrishnan, 2006; Tayauova, 2012; Ritchie, 2015). However, ITO comes with risks (Dhar & Balakrishnan, 2006; Arshad *et al.*, 2008; Deloitte, 2014b). Catherine (2004), identified some of these risks, which include: vendor lock-in; loss of control over physical IT security; logical IT security risk; confidentiality; privacy concerns etc. If these risks are not well managed, the outsourcing organisation could be faced with threats such as reputational damage, value leakage, adverse effect on organisation's operating model, financial performance and total engagement failure (Deloitte, 2014b).

In 2000, Oxford University's Institute of Information management, and the University of Missouri (USA) conducted a study that tracked 29 outsourcing contracts for eight years. It was reported from this study that, more than 35% of the contracts failed (Catherine, 2004). This indicates that almost half of outsourcing initiatives are unsuccessful (Gregg, 2003). MacInnis (2003) indicated that one third of outsourcing deals fail in their first year, while half request for contract renegotiation with their service providers. Paul (2004) in his article "most outsourcing is still for losers" stated that all participants of the largest ITO engagement in the world ended up as losers. Also, a survey done by Deloitte Consulting LLP in 2012 on global outsourcing and insourcing, showed that 48% of outsourcing contracts were terminated due to concerns over service quality, while 24% rated their outsourcing contract as unsatisfactory (Deloitte, 2014b).

Majority of these ITO failure stories were attributed to the incompetence of the outsourcing organisations in overcoming the challenges of ITO (MacInnis, 2003; Paul, 2004). Most organisations do not have a clear picture of the function they are outsourcing, thereby making the outsourcing engagement complex and difficult to manage (Paul, 2004). Some other organisations get disappointed at the end of an outsourcing deal or half way into the engagement, due to their over expectation from outsourcing and lack of risk management (MacInnis, 2003). Manufacturing organisations in South Africa are partakers of ITO (Johnston, Abader, Brey & Stander, 2009). A typical example of such engagement is Nampak's (a Global Manufacturing Limited) IT service outsourcing to Dimension Data (a Global Technology Organisation), which is just one amongst several other ITO contracts engaged by South Africa manufacturing organisations. The increase in the adoption of ITO by organisations is necessitating the continuous research in ITO field. Also, the constant change in business requirements and IT evolution is forcing a continuous revisit of the risks and risks management practices of ITO, so as to propose better ways of managing potential ITO risks.

RESEARCH QUESTIONS

The research questions are as follows:

1. What are the risks associated with ITO in manufacturing organisations?
2. What are the impacts of ITO risks on manufacturing organisations?
3. What are the risk treatments used by manufacturing organisations in managing ITO risks?

RESEARCH OBJECTIVES

The research objectives are as follows:

1. To identify ITO risks in manufacturing organisations.
2. To investigate the impact of ITO risks on manufacturing organisation.
3. To investigate the risk treatments used by manufacturing organisations to manage ITO risks.
4. To propose means that can be used to manage the risks of ITO in manufacturing organisations

LITERATURE REVIEW

Outsourcing has been defined as the use of external resources to perform internal business goals (Demaria, 2011). Tayauova (2012, p. 189) also defined outsourcing to be the "delegation of operations or jobs to a third party, who can do it better, cheaper and faster". Outsourcing is being adopted globally by small, medium and large enterprises in both the private and public sector for so many reasons (Varadarajan, 2009; Plugge, Bouwman & Molina-Castillo, 2013). Researchers have identified economic reasons such as cost cutting, conservation of resources (Statista, 2015) and reduction in overhead staff as the major motivation for outsourcing. However, Gonzalez, Gasco & Llopis (2010) findings shows that economic reasons are not the priority for outsourcing in today's organisations. Organisations are now outsourcing with the motive of improving business efficiency, focusing on core competencies (DiRomualdo & Gurbaxani, 1998; Gonzalez *et al.*, 2009; Johnston *et al.*, 2009), avoiding certain costs (Statista, 2015) (such as taxes) and risks (Dibbern *et al.*, 2004; Gonzalez *et al.*, 2009). Outsourcing is also increasing the opportunity for organisations to tap into external resource base, add value to processes and mitigate business risks (Statista, 2015). Organisations are outsourcing different business units such as logistics, human resources (HR), customer representation etc., however Information Technology (IT)/Information Systems (IS) is one of the most outsourced business unit (Ramanujan & Jane, 2006).

According to the literature, information technology outsourcing (ITO) is "the use of a third party to successfully deliver IT enabled business processes, application services and infrastructure solutions for a cost effective business outcome" (Samantra, Datta & Mahapatra, 2014, p. 4010). Similarly, ITO is the allocation of in-house IT functions to an external service provider. (Bradley, Frederick, Jeanot, Dragon, Michael & Cesar, 2012, p. 2). ITO has been in existence and have evolved for over 20 years, which started from the moment Kodak decided to outsource all its IT functions to IBM (Samantra *et al.*, 2014). Although, Kodak was praised to have initiated ITO, their bravery however, were soon criticised, as inexperience in ITO caused them a lot of challenges (Robert, 2011). Mitchell (2014) claimed that, over-outsourcing led to the dismissal performance of Kodak, who declared bankruptcy in 2013.

Organisations are aware of the benefits of ITO but are still conscious and careful of their outsourcing decisions (Robert, 2011). This is because ITO can be dangerous to the business if not well managed (Mitchell, 2014; Samantra *et al.*, 2014). Business analyst's (Deloitte, 2014a) report shows that there is a high rate of failure and dissatisfaction of ITO engagements. As a result, ITO is gaining so much interest from the academic research field. Researchers have carried out studies on different aspect of ITO which covered areas such as - effective

management of ITO, factors resulting to successful ITO engagement, ITO theories, models and frameworks and most recently risks and risk management of ITO (Liang, Wang, Xue & Cui, 2015). Earlier studies on ITO, such as the study of Bragg (2006), have focused more on the management of ITO initiatives such as, contract management, vendor management, ITO lifecycle, ITO strategy, types and scope of ITO. Although, studies on the management of ITO has helped to build and structure ITO practices (Lacity, Khan & Willcocks, 2009; Liang *et al.*, 2015). Some researchers (Syed *et al.*, 2007; Bradley *et al.*, 2012; Samantra *et al.*, 2014), however, noted that the study on the management of ITO is insufficient in achieving a successful ITO engagement. Studies such as that of Gonzalez *et al.* (2010), Lacity *et al.* (2009), Liang *et al.* (2015), Deloitte (2014a) and Samantra *et al.* (2014) on ITO also shows that there are potential benefits of ITO, however, risks are also involved.

According to the Institute of Risk Management (IRM, 2002), risk can be defined as the combination of the chances of an unknown event occurring and the consequences (negative or positive) of the event's outcome. There are different perspectives to risk (IRM, 2002), but the context in which its being used matters (Aubert, Patry & Rivard, 1998). For example, in the safety field, risk is defined in relation to negative outcomes or harm to a certain event. Risk in ITO is defined with respect to negative consequences, as mentioned by Fan, Suo & Feng (2012) that, risk in ITO could lead to undesirable outcome. Also, Adeleye, Annansingh & Nunes (2004, p. 170) stated that, the purpose of risk assessment in outsourcing, is to evaluate the chances of adverse events occurring. The occurrence of undesirable outcomes in ITO are due to some factors known as risk factors (Aubert *et al.*, 1998).

From the literature, different studies have identified risks and risk factors of ITO. Catherine (2004) for example identified 5 risk areas of ITO - logical IT security, physical IT security, human resource issues, total dependency and legal consequences. After conducting risk analysis survey (with responses from 3 organisational settings – academics, financial institution and retailer), Catherine (2004) deduced that logical IT security risks, total dependence/exist barrier and legal consequences are the top three potential risks of IT outsourcing. In a more recent study, Samantra *et al.* (2014) identified 11 risks of ITO – Environmental risk, strategic risk, information risk, managerial risk, time management risk, relationship risk, financial risk, legal risk, operational risk, business risk and technical risk. Samantra *et al.* (2014, p. 4014) also identified various risks factors, which includes – task complexity, obsolete technology skill, supplier's deficiency in experience and expertise on the outsourced activities, loss of organisational competency, lack of contingency plan, supplier service quality etc.". These identified risks and their respective risk factors need to be properly managed so as to establish an effective ITO engagement (Deloitte, 2014b; Samantra *et al.*, 2014).

Deloitte (2014b) stated that organisations need to carry out risks analysis at the initial stage of planning an ITO initiative, in order to identify potential risks and mitigation techniques. This need is necessitating the establishment of risk management practices in order to ensure the successful outcome and sustenance of the ITO initiative (Osei-Bryson & Ngwenyama, 2006; Syed *et al.*, 2007; Prado, 2011; Bradley *et al.*, 2012; Thanapol, Settapong & Navneet, 2013). Prado (2011) also noted that the level and severity at which organisations conduct risk analysis differs and depends on the organisation's size and type of industry. He further highlighted that manufacturing organisations give less relevance to risks analysis when outsourcing IT. This thus impact on their risk management practices. Philip &Scott (n.d) identified ITO risks

management practices as a factor of successful ITO engagement. Studies and reports (Alexandrova, 2012; Bradley *et al.*, 2012; Thanapol *et al.*, 2013; de Sá-Soares, Soares & Arnaud, 2014; Deloitte, 2014b; Samantra *et al.*, 2014; Yildiz & Demirel, 2014) are now focusing on risks and risk management practices of ITO. However, constant change in business requirements, customer needs, organisation innovation and short technology cycle remains important risk factors in today's ITO engagements and business environments (Prado, 2011).

THEORETICAL FRAMEWORK

This study will adapt two risk management frameworks in order to achieve its objectives. A conceptual framework of risk management in ITO developed by Aris *et al.* (2008) will be adapted to identify the risks in ITO, and a risk management framework developed by Aubert *et al.* (1999) will be adapted to: assess the impact of ITO risk; and investigate the risk treatments of ITO used by manufacturing organisations. Adapting these two frameworks, this study will be investigating the risk management of ITO under 3 constructs, which are

1. Risk Identification
2. Risk Assessment
3. Risk treatment

1st Construct – Risk Identification – In every risk management framework, risk identification is usually the first step to consider (Aris *et al.*, 2008). The process of risks Identification helps to reveal the what, when and how questions about threats and vulnerabilities associated with an event (Gary, Alice & Alexis, 2002). Using this construct in this study, the researcher will investigate the risks associated with ITO. The risks will be investigated across the activities of the ITO lifecycle (Figure 3), which includes the - Analysis of decision to outsource; Selection of service provider; Contract management; On-going monitoring, phases as used by Aris *et al.* (2008).

Figure 3. A Conceptual Framework of Risk Management in IT Outsourcing (Aris *et al.*, 2008)

2nd Construct – Risk Assessment – Risk assessment is the process of analysing and evaluating potential or anticipated risks (Aubert *et al.*, 1999). This process helps to understand the probability of occurrence and the impact of risks. This construct will allow the researcher to analysis the probability of occurrence and the impact of ITO risks. These analysis will then be

used to categorise the risks into 4 risk management strategic groups as indicated in Aubert *et al.* (1999)'s risk management framework, which are

- Strategy I (Tolerance) – Impact of risk is high and probability of occurrence is low
- Strategy II (Prudence) – Impact of risk is low and probability of occurrence is high
- Strategy III (Mixed) – Impact of risk is high and probability of occurrence is high
- Strategy IV (Monitoring) – Impact of risk is low and probability of occurrence is low

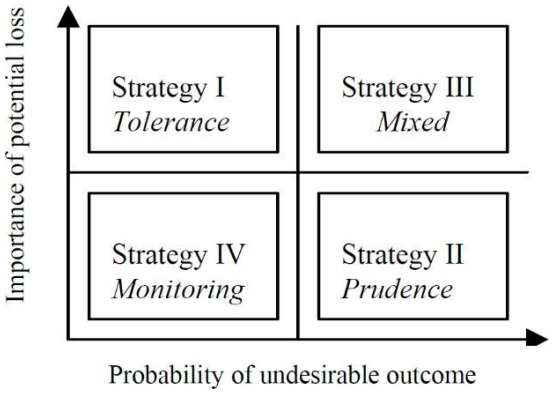

Figure 4. A Risk Management Framework (Aubert et al., 1999)

3rd Construct – Risk Treatment – This involves the mitigation of risks, by reducing the impact of risks or the probability of risks occurring (Aubert *et al.*, 1999; Gary *et al.*, 2002). This process is used to bring risks to an acceptable level. Using this construct in this study, the researcher will investigate mitigation techniques or control measures established by manufacturing organisations in bringing the risk of ITO to an acceptable level.

SIGNIFICANCE OF THE STUDY

Many studies have investigated the practice and management of ITO (Gonzalez, Gasco & Llopis, 2006; Ritchie, 2015; Vaxevanou & Konstantopoulos, 2015; Kumar, 2016). However, only few amongst them have focused on the risk management practices of ITO (Catherine, 2004; Syed *et al.*, 2007; Aris *et al.*, 2008; Arshad *et al.*, 2008; Demaria, 2011; Bradley *et al.*, 2012). Also limited study was found to have investigated the risk management practices of ITO in manufacturing organisations. This study intends to fill the research gap on risk management of ITO in the manufacturing field. Hence, identifying the benefits, risks and effective ways of managing risks associated with ITO. Also, findings from this study will serve as risk management resource for manufacturing organisations willing to engage or already engaging in ITO. As it will provide insight on prospective risks and ways of managing risks associated with ITO.

JUSTIFICATION

In spite of the high rate of unsuccessful ITO engagements recorded by outsourcing analysts (Statista, 2015), organisations keep engaging in ITO (MacInnis, 2003; Catherine, 2004; Paul, 2004; Deloitte, 2014a). This continuous interest shown by organisations in ITO, has necessitated the need to investigate the risk management practices established by organisations, in order to scrutinise, evaluate and recommend better means of identifying and managing ITO risks.

Secondly, the rapid growth and evolution of IT is resulting in the emergences of new technologies such as cloud computing (Muhic & Johansson, 2014). These technologies are now informing new ways of IT service delivery (Muhic & Johansson, 2014). As a result of this, new sourcing varietals, challenges, and risks of ITO is evolving. Hence, necessitating the research on risks, that organisations are facing with their ITO engagements.

RESEARCH METHODOLOGY

Research methodology is a systematic approach towards solving a specific research problem (Rajasekar, Philominathan & Chinnathambi, 2013). It comprises of the science of examining how research is being conducted. It involves the procedures, step by step approach and techniques a researcher has decided to use in investigating the research problem or achieving the research objectives.

Research design

Research design helps to guide the data collection process of a study (Bhattacherjee, 2012). It is the blueprint that entails the procedures and techniques that will be used by a researcher to go about acquiring and analyzing applicable data that will be used to answer specific research questions. Research design encompasses the sampling method, data collection process and the research instrument development process. The research design that will be used in this study is the exploratory research design.

The exploratory research design

Exploratory Research design allows the researcher to carry out a clear and systematic search for new insights on the phenomena under study, as well as assessing the phenomena in a clearer perspective (Robson, 2002). This research design also gives room for further understanding of a problem, thereby providing the researcher a clearer picture of the research problem being investigated (Saunders, Saunders, Lewis & Thornhill, 2011). The adoption of the exploratory research design to this study will provide a deeper and clearer understanding of the risks and risks management practices of ITO in manufacturing organisations within South Africa.

Research approach

According to Rajasekar *et al.* (2013), research method refers to the schemes, algorithms and systematic procedures used by researchers in order to attain the objectives of their research. The two types of research methods are the quantitative methods and qualitative methods (Saunders *et al.*, 2011). Quantitative method is used when the research findings and results will be measured in quantity or amounts, while qualitative method is used when the research objective is focused on answering problems of how and why, about the phenomena being studied (Rajasekar *et al.*, 2013). The results and findings generated when using qualitative research method is not usually generalizable to a larger population (Patton, 1990).

The qualitative method will be employed in this study because it will give the researcher an avenue to carry out an in-depth investigation of the risks associated with ITO in manufacturing organisations within South Africa, and it will also enable the researcher to explore and analyse measures that are put in place to manage these risks.

Study site

The physical location or place where data will be collected is referred to as the study site. The study site for this study will be a manufacturing organisation (within South Africa) that has agreed to participate in the study. The organisation will be used as a case study.

Population of the Study

Population of the study could be referred to as the total number of units, people or individual present in a geographical location or in the study site where data collection will be carried out (Lavrakas, 2008). Considering the total number of units in a study site, data collection will be focused on a subset of the population of study known as the target population. According to Burns &Grove (1997), target population is the total number of units, people or individual present in a certain area or location that are of great interest to the research due to certain attribute or expertise they possess. For this study, the target population will be the managerial staff of the organisations under investigation, who are responsible for the decision making and management of ITO. The characteristics of a population is known as the criteria that defines who is eligible or not eligible to participate in a study (Stommel & Wills, 2004). Therefore, for this study, some of the responsibilities or characteristics of the target staff would include: decision making analyst, contract management, risk management, vendor relationship management etc. This means that the respondents of this study are expected to have knowledge about the principles of outsourcing and at the same time understand the risk management techniques used in outsourcing.

Sampling methods

Due to the adoption of qualitative research methodology for this study, the non-probability sampling method will be used to select the participants for the study. The non-probability sampling method is a subjective type of sampling method which allows the researcher to select the participants of the study based on a non-random criteria (Bhattacherjee, 2012). Hence, some of the units in the population will have a zero chance of being selected (Saunders *et al.*, 2011). The expert sampling technique will be used to choose the samples from the population of this study.

The expert sampling technique is a sampling technique in which participants of a study are selected on a non-random based criteria, hence samples are chosen based on their expertise on the phenomena being investigated (Bhattacherjee, 2012). In this study, interviews will be conducted for ten staff from each of the two organisations where data will be collected. The interview participants will include executive management staff and other management staff of the organisations, whose responsibilities includes the management of ITO in their respective organisations.

The sample size and sample

A sample is a subset of a population whose characteristics when studied, is duly representative of the entire target population Cherry (2015). According to Yin (2003), the sample size of a study is the total number of observations or respondents that have been selected to participate in the study. The rules for selecting the number of respondents to partake in a study depends on the research methodology. According to Patton (1990), there are no specified rules for measuring the sample size in a qualitative research. He further explains that; qualitative sample

size depends on the dimension (depth or breadth) the researcher seeks to inquiry. Considering the research method (qualitative methodology) for this study, 15 respondents will be interviewed. They will comprise of Executive managers (5) such as Chief Information Officer and IT Risk and Governance manager; and other management staff (10) such as Project managers who have a stake in the decision making on ITO in the organization.

Data collection methods

According to Saunders *et al.* (2011), there are different methods of collecting data when conducting a research. However, the choice of data collection method depends on the research methodology used in a study (Bhattacherjee, 2012). Interviews are used for qualitative studies, while surveys are suitable for quantitative studies (Saunders *et al.*, 2011). Since this study will be adopting the qualitative approach, interviews will be used as the mode for data collection. According to Saunders *et al.* (2011), interview is a purposeful discussion between two or more people in order to achieve a certain objective. Semi-structured interviews will be conducted for the respondents of this study. The semi-structured interview technique will be adopted over structured and unstructured interview techniques. This is because semi structured interviews are more flexible than structured interviews, and also systematic when compared to unstructured interviews.

Data quality control

In order to ensure that the data that will be collected and analysed are reliable and valid, data quality control techniques will be applied (Saunders *et al.*, 2011). According to DataONE (2012), error of commission and error of omission are two types of errors that could contaminate the dataset that have been collected and analysed during the process of data collection and analysis of a research. Error of commission occurs as a result of the respondent giving inappropriate information about the research phenomena, while error of omission occurs due to omission or inadequate documentation during data collection process (DataONE, 2012).

In this study, error of commission will be addressed by conducting a pilot study. A pilot study is the prior administration of the research instrument to a smaller number of the entire size intended for the study (Saunders *et al.*, 2011). Conducting a Pilot study, will enable the researcher to assess the clarity of the content in the research instrument (Saunders *et al.*, 2011). Then the result of the pilot study will be used to refine the content of the research instrument that will then be administered to the entire sample population. According to Bhattacherjee (2012), conducting a pilot study helps to validate the research instrument (Bhattacherjee, 2012). Hence, assuring the credibility of the research findings and results (Bhattacherjee, 2012). Error of omission on the other hand, will be addressed by recording the interviews using an audio recorder. The researcher will request the permission of the respondents to record the interview sessions, in order to avoid omissions or misinterpretation of the respondents' responses during coding and analysis of the collected data.

Data Analysis

Data collected during the course of this study will be analysed using the thematic technique of data analysis. The thematic technique of data analysis is a qualitative analytic/analysis method used by researchers to gain insight and generate knowledge from the data collected when a qualitative research method is used (Braun & Clarke, 2006). Using the thematic data analysis

technique in this study, the collected data from the interviews will be analysed and reported in sections of identified patterns known as themes.

ETHICAL CONSIDERATIONS

According to Resnik (2011), ethics could be defined as the procedures or methods that defines good and bad practices. Ethics in research helps to guide and monitor the researcher's mode of practices while undergoing a study. It also ensures that the researcher's objective is not basically focused on collecting data from its respondents but must at the same time consider the respondent's safety and dignity (Gregory, 2003). Ethical considerations that will be preserved during the cause of this study includes: confidentiality, anonymity and privacy of the respondents.

In order to assure the respondents that all ethical considerations will be preserved, an informed consent, which will serve as a written agreement between the respondent and researcher will be given to respondents to sign. This will also be a prove to show that respondents were informed of the motive and objectives of the research before data was collected and that respondents agreed willingly to participate in the study. In order to uphold the ethics of confidentiality and privacy, respondents would be informed that they have the right to conceal information they do not feel comfortable to disclose. And then anonymity will be maintained by withholding any form of respondent's identity such as name, address, job designation and company while presenting the findings and results of this study, except with the permission of the respondents

LIMITATIONS TO THE STUDY

A limitation of ease to access and availability of respondent will be encountered during the data collection exercise of this study. This will be due to the position and level the respondents hold (as key decision makers) in the organisation. This limitation will be managed by establishing good rapport with the secretary or personal assistant of respondents. Also, interview schedules will be planned to suit the respondent's most suitable time and reminder will be sent to them to confirm their availability on the expected day for the interview. Another limitation that will be encountered during the course of this study is the limited literatures on the risks and risk management practices of ITO in the manufacturing sector. In order to deal with this limitation, literatures on risks and risk management practices of ITO in other sectors such as education and banking will be considered in this study.

WORKPLAN

MONTH	ACTIVITY	OUTCOME
May	Preparation of research proposal for supervisor	First Draft

June	Review of research supervisors correction and contributions Final adjustments	Correction of research proposal after supervisor reviews it Present the ready research proposal for formal review by the academics
July	Begin work on the Literature review	Work in Progress
July	Concluding of the literature review	Completed Literature Review
August	Theoretical framework design Research methodology/approach The filling and submission of Ethical clearance form	Theoretical framework should be identified. Ethical clearance obtained
August	Data collection Data analysis and Processing Cleaning of analyzed data	Raw and unorganized data collected Results from field study generated Data analyzed and ready
September	Data analysis and Presentation	Chapter completed
October	Conclusion, Recommendation and Report	Research dissertation ready for submission
November		Submission of research Dissertation

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