

Determinants of Enterprise Resource Planning Intergration on Supply Chain Performance in Motor Vehicle Assembly in Kenya: A Case of Toyota Kenya.

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Research project submitted to the College of Human Resource Development in partial fulfillment of the requirements for the award of Master of Science in Procurement and Logistics Management of Jomo Kenyatta University of Agriculture and Technology.

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Abstract: *The research study aimed at establishing the determinants of the Enterprise Resource Planning integration on supply chain performance in motor vehicle assembly in Kenya; a case study of Toyota Kenya. The study was guided by the following specific objectives. To determine the influence of ERP integration on supply chain performance of motor vehicle industry in Kenya , to establish the influence of cost of implementation of ERP system on supply chain performance in motor vehicle industry in Kenya ,to establish the influence of staff skills and training on supply chain performance in motor vehicle industry in Kenya ,and lastly to determine the influence of top management support on adoption of ERP system on supply chain performance in motor vehicle industry in Kenya . The study was a case study in nature but adopted descriptive research design and data was collected using well-structured questionnaires from top and middle level employees of Toyota Kenya the target population was all the employees of Toyota Kenya and the sample will be 89 employees. The study findings were as follows organization culture, cost of implementation, staff training and top management support significantly affect integration of ERP systems and does affect supply chain performance*

Date of Submission: 05-04-2019

Date of acceptance: 20-04-2019

LIST OF ABBREVIATIONS /ACROYNMS

ERP	-	Enterprise Resource Planning
ICT	-	Information Communication Technology
USA	-	United states of America
IT	-	Information Technology
CEO	-	Chief Executive Officer
MD	-	Managing Director
GDP	-	Gross Domestic Product
AST	-	Adaptive Structuration Theory
MHS	-	Material Handling System
WIP	-	Work-in-process
UK	-	United Kingdom

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I. Introduction

1.1 Background of the study

When markets become increasingly competitive, firms seek new opportunities to improve their competitiveness. Therefore, firms use advanced information technology, such as Enterprise Resource Planning (ERP) systems, in order to achieve advantages over their competitors. ERP systems have been used on a large scale by firms in the hope to increase, among others, their market agility since the introduction of these systems in the 1990s (Grabski& Leech, 2007). An ERP system has the potential to integrate all the data and the information flowing throughout the entire firm (Davenport, 2008) and these systems have been defined as “enterprise wide packages that tightly integrate business functions into a single system with a shared database” (Quattrone& Hopper, 2005).According to Koch (2006), Enterprise Resource planning (ERP) system is a system that integrates all departments and functions across a company onto a single computer system that can serve all departmental needs.

Addo&Helo (2011) observe that an enterprise resource planning system is universally accepted in the corporate world as a practical solution for purpose of facilitating smooth flow of common functional information and practices across entire organization. In the foregoing definitions, an ERP system can therefore be defined as a collection of an application that cover a wide variety of an organization's business functions, such as production, inventory, finance, human resource, among others, and consequently presents them as a monolithic system for purpose of enhancing operational efficiency and effectiveness.

Over the whole world, we can see a rapidly increasing number of firms that adopt an ERP system (Granlund&Malmi, 2012). An obvious example of the rising importance of ERP systems is the considerable sales increase of the largest vendor, SAP, which has grown from less than \$500 million in 1992 to \$17,6 billion in 2014 (Davenport, 2008; SAP annual report, 2014). This has to do with the fact that firms seem to think that an implementation of an ERP system leads automatically to higher efficiency, and hence for better performance relative to non-adopting firms (Bernroider 2008; Davenport 2008). Further, expectations are that an ERP implementation has major implications for the organizational structure, the manner of working and also on management control (MC) (Grabski& Leech 2007; Kallunki, Laitinen&Silvola, 2011).

The potential suggested benefits regarding ERP systems have attracted significant attention from researchers in the area of accounting (Booth, Matolsky&Wieder, 2000). Vandael, 2011). Moreover, in recent years ERP has incorporated other business extensions such as supply chain management and customer relationship management to become more competitive. Lured by guarantees of improved business productivity, streamlined business operations, and increased cost savings (Tilley et al., 2013), organisations worldwide have launched initiatives to integrate ERP systems into their existing business environments.

Several studies in the accounting literature have demonstrated that the results, regarding the changes that ERP implementations may entail, are inconsistent (Dechow&Mouritsen, 2005). In many cases, the expected changes are only partially realized or even not at all (e.g. Granlund&Malmi, 2002). This is caused because ERP systems, among others, are a complex phenomenon (Poston &Grabski, 2001). Due to their complexity, business problems and technical challenges arise and many firms fail to implement an ERP system in a proper way (Davenport,2008). In 2008 it is reported that 70% of ERP implementations failed to reach their corporate objectives (Bernroider, 2008). In recent studies, it is mostly only investigated whether the expected results of an ERP implementation are achieved, but there is little discussion regarding the impact of ERP systems on MC of a firm (Granlund, 2011). In current literature, there is also no distinction made between a strategic implementation, involving the expectation that there are changes regarding MC, and a technical implementation. The latter is usually applicable in practice and involves little or no change in MC. Furthermore, Hyvönen, Järvinen and Pellinen (2010) argue that there are many important questions unanswered and need more investigation. Especially, how MC systems are influenced by ERP systems is a question which should be given more attention.

Recently, Mahama, Elbashir, Sutton and Arnold (2016) propose in their paper that the agency of information systems, such as ERP systems, have to be reinterpreted as relational. They showed multiple limitations concerning the technocentric view, in which ERP systems are viewed as technology with predefined functionality and predictable effects, and the anthropocentric view, in which ERP systems are seen as a tool and agency is attributed to human beings. Mahama et al. (2016) argued that the social and material entities that make up ERP systems should not be viewed in isolation, but that their collective force defines the agency of ERP systems.

The significance of information flow and by implication the significance of information communication technology, as he defines of logistics as "The process of strategically managing the procurement, movement and storage of materials, parts, and finished inventory (and the related information flows) through the organisation and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfilment of orders." In the past, management used information technology to simply automate routine business tasks (Ward and Griffiths, 2011).

1.1.1 Global perspective on the effect of Enterprise Resource Planning Integration

The decade of 1990, as far as business information systems (IS) are concerned, was characterized by the implementation of enterprise resource planning (ERP) systems as the de facto standard for replacement of legacy systems (Parr & Shanks, 2000). ERP systems are commercial software packages that provide cross-organization integration through embedded business processes and are generally composed of several modules, including operation and logistic, procurement, sales and marketing, human resource and finance (Davenport, 2008).

This technology promises to replace discrete, home-grown systems with an integrated, enterprise-wide infrastructure that will streamline organizational activities and eliminate duplication of effort and data (Markus & Tanis, 2010). There are several characteristics of ERP systems, which distinguish them from conventional IS (Markus & Tanis, 2010). ERP systems are much more integrated and flexible than conventional IS because of

their integrated component-based software and their evolving architecture and expanding functionality, promising cross-functional integration of all information flowing through a company. These systems, unlike normal IS, are not developed by the organization itself, like normal IS, but are developed and sold by specialized software vendors. These soft-ware vendors try to sell their ERP systems with 'industry best practices' which are generic business processes that may differ substantially from the way any particular organization operates. These shared IS, which integrate all departments and functions across a company onto a single computer system, can serve each different departments' particular needs and therefore have multiple users and stakeholders who have different cultures and approaches to work (Pawlowski *et al.*, 2012). ERP systems are nothing more than generic representations of the way a typical company does business. In this way, an ERP system affects the whole of the organization simultaneously rather than a single department as was the case with functional IS in the past whose implementation was mostly limited to departmental boundaries. Organizations have to customize the software packages and to change their existing suboptimal business processes and organizational arrangements. This way of operating may change the way an organization works. Therefore, ERP system implementation implies a much wider organizational change (Robey *et al.*, 2012).

The implementation of an ERP system like any large project is fraught with danger. The Standish Group surveyed approximately 8000 applications and found that only 16% were successful. The significant risks attaching to technology investments discourage many firms from committing resources to enhance their performance into the future (Bowersox *et al.*, 2010).

1.1.2 Kenyan Perspective on the Effect of Enterprise Resource Planning Integration

Kenya has embarked on a concerted effort in joining the league of industrialized nations in the acquisition, deployment, consumption and utilization of ERP. It has become an indispensable tool for individual and national empowerment, improvement, development and actualization of service. Debela (2009) emphasized that automation of physical activities has been affecting the blue-collar workers. He went further to say that automation of information activities in office has changed the nature of office work and has highly affected the activities of knowledge on workers. The use of ERP assists and improves the delivery of services in civil service due to the high qualities of processing, service delivery and maximum efficiency in all areas that involve the knowledge of computer. ERP is also relevant to both public and private organization as well as to individuals. ERP are used in assisting in the organizational functions such as administrative planning, coordinating, controlling, directing, budgeting, reporting and staffing.

Over the years ERP has remained Kenya's top development agenda as evident in the country's National plans and other government initiatives such as the E-Government Strategy (2004-2009) which provide a road map on ERP implementation.

In 2012 the Minister of State for Civil service in Kenya said automated office systems represent structured methods of handling business text processing and communications through an integrated network that may include word processing for generating correspondence, electronic message systems from person-to- person communication, teleconferencing services, facsimile transmission, electronic filing systems, on-line calendar systems, and links to corporate files and outside services. The greatest potential of office automation is not expected to be from the improvement of clerical and administrative tasks, but from the ability of managers to gain increased control over their operations (Canning, 2008).

1.1.3 ERP System Integration

ERP is one of the information technologies that enjoy a widespread diffusion worldwide. In the Middle East region, about 60-70 per cent of ICT spending is on ERP systems American Chamber (2012). These implementations represent considerable investments in any company's information system budget, in terms of both monetary and intellectual resources, and are thus an important issue for developing countries. The increased demand for mergers and acquisitions demand that companies must have the ability to control and coordinate increasingly remote operating units An ERP system can help achieve this by enabling the sharing of real time information across departments, currencies, languages and national borders given the trend of globalization (Fiona *et al* 2011). The following theories explain the concept of ERP system.

By the late of 1980s and early 1990s many companies were suffering from an enormous IT integration problems and were in need for an absolute software solution that can integrate different functional areas and at the same time allow these functional areas to share from a single and centralized database without any data inconsistency problems and without losing flexibility. Therefore, software vendors established ERP system in the mid of 1990s in order to solve integration problems, make effective business solution, and provide companies with all IT needs under a single software system (Loonam and McDonagh, 2005).ERP system was emerged in the beginning of 1992, however, in the recent years ERP system has become one of the most well-known business software in the marketplace and an essential part of everyday IT investments for many companies that believe ERP system will provide solutions for their IT problems and therefore provide effective

online transactions with the current e-business era. Moreover, one of the significant and global developments of IT is the broad acceptance of ERP system by many companies worldwide which reached today to consider ERP system as the most rapid growing system in operational area (Lopes, 1992; Zhang et al., 2004; Molla and Bhalla, 2006). In fact, ERP is software for business management system which integrates all business functions, processes, and information between different departments inside the company. This business software system will allow companies to automate and integrate the majority of their business processes, share common data and practices across the entire enterprise, and produce and access information in a real-time environment (Lopes, 1992; Deloitte, 2011).

1.1.4 Toyota Kenya Limited

Toyota Kenya Limited is the sole distributor and service provider of Toyota, Yamaha, Hino and Case IH brands in Kenya. The Company aim to be an innovative company that contributes to the creation of a prosperous society through wide ranging business as well as CSR activities. The Company have Head Office in Nairobi and branches in Mombasa, Eldoret, Kisumu and Lodwar. With regional dealer representation in Nyeri, Nanyuki, Nakuru, Kericho, Meru, Kitale, Kakamega, Naivasha, Malindi and Voi. Toyotas were first introduced to Kenya in 1964 when Toyota Tsusho Corporation (TTC) opened a representative's office and appointed Westland's Motors (WM) as its distributor. WM was subsequently purchased by Lonrho's Motor Mart Group. The company has invested heavily in ERP systems to speed up the operations so that they can have a competitive edge in the market. The systems they have adopted have not entirely made the firm the regional market leader. This study will look into how they can use these systems to increase their performance as distributors and service providers of Toyota models.

1.2 Statement of the problem

Several scholars have carried out research concerning the enterprise resource planning (ERP) Systems in Kenya. According to Nyaga (2012) who did an investigation of critical success factors for successful Implementation of enterprise resource planning (ERP) Systems in Kenya concluded that "Teamwork and composition in the ERP implementer-vendor-consultant partnership, good communication between the implementation partners, cross functional ERP core team, presents of partnership trust in the team members working well together and change management program and culture are critical successful factors in ERP implementation.

While there is 89% adoption of ERP systems in Europe and North America, developing countries like Kenya has only adopted it 27% (Huang & Palvia, 2001; Huang et al., 2014). This can be attributed to among others; lack of top management commitment, poor staff training on use of ERP systems, high costs of implementing the systems and how well is integrated within the organization. Many studies in literature have shown the importance of ERP system in companies' effectiveness, and this is because ERP system have become one of the main prerequisites, a price of entry, and a strong and integrated IT infrastructure for many companies enabling them to compete in the local and global marketplace, and ensuring them to gain a competitive advantage in the global economy particularly with the current e-business era (Al-Mashari & Zairi, 2000; Huang et al., 2001; Rashid et al., 2002; Al-Mashari, 2003; Al-Mashari & Al-Mudimigh, 2003).

Karimi (2010) did an investigation of the business value of enterprise resource planning systems by firms in Kenya. Njuguna (2011) carried out research on implementing enterprise resource planning system at Kenya Revenue Authority. Kang'ethe did an evaluation of the successful implementation of enterprise resource planning system at HACO Industries. Otieno (2015) notes that determinants of ERP integration in Kenyan manufacturing companies needs to be investigated. Based on the above studies therefore there is a need for further research on the determinants of enterprise resource planning (ERP) integrations and its effects on supply chain performance in the Motor Industry sector this area has not been explored locally. The integration of ERP system leads to important changes in companies and affects the way of conducting business, and reorganizes the supply chain of the companies and therefore this study therefore will seek to fill this gap by doing an assessment on the determinants of ERP integration on supply chain performance in manufacturing sector in Kenya: a case of Toyota Kenya Ltd.

1.3 Objectives of the study

The main objective of this study will be to assess the determinants of enterprise resource planning integration on supply chain performance in manufacturing sector in Kenya: A case study of Toyota Kenya Ltd.

1.3.1 Specific Objectives

I. To determine the influence of organization culture as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

II.To determine the influence of Cost of implementation as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

III.To establish the influence of staff skills as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

IV.To determine the influence of top management support as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

1.4 Research questions

I.What is the influence of organization culture as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

II.What is the effect of cost of implementing as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

III.What is the influence of staff skills as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

IV.What is the effect of top management support as a determinant of ERP integration on supply chain performance in motor vehicle manufacturing sector in Kenya?

1.5 Significance of the study

1.5.1 Manufacturing Sector

The study will provide organizational variables that can contribute to achieve successful usage of ERP system. It contributed in reducing the likelihood of ERP system failure; elucidates the benefits of ERP system that can enhance supply chain performance; encourages Industries to implement ERP system through the success cases of ERP system;

1.5.2 Government

Encourages Kenyan Government to provide financial assistance and grants to organization to implement and support the ERP systems implementations; it will also contribute toward stimulating the ERP systems among Kenyan Industry; and contributes in technology diffusion.

1.5.3 Researchers

This study will contribute to the body of knowledge through the following: focused on ERP system functionality that related to supply chain performance. Investigates the relationship between ERP systems functionality and supply chain performance and helps researchers to come up with better and cheaper ERP systems.

1.5.4 Procurement Managers and staff

With enterprise resource planning (ERP) systems firmly entrenched in most firms today are considered the backbone to managing business processes, understanding the influence of these systems on process implementation. Such enhanced visibility and quality with controlled access may improve understanding of the process context within which individual managers and staff members work and of the impact their work may have on other aspects of business

1.6 Scope of the study

This study will focus on the effect of enterprise resource planning implementation on supply chain performance in manufacturing sector in Kenya: a case of Toyota Kenya Ltd. The company is chosen since it has been implementing ERP for the last five years and gave viable results. All levels of management will be used in this study from top management to lower level management. The ERP roles include: integration, materials management, production planning, and production planning and workflow management of the supply chain performance. This is supported by Patterson *et al.*, (2003) who proposed that there is need to integrate the ERP and supply chain activities to accomplish supply chain competitiveness. The target population for this study will be staff at Toyota Kenya Ltd (Nairobi), specifically the study will seek responses from top management, procurement personnel and the IT departmental staff who know better about ERP systems.

1.7 Limitations of the study

The researcher faced few limitations like lack of enough information from the respondent's due fear of unknown, time constraints was also another limitation and lack of enough financial resources.

II. Literature Review

2.1 Introduction

This chapter reviews literature relating to past relevant literature from other researchers who have done research in the same area. The literature review has been organized in the following sections opinions, attributes, findings and conclusions from the past research work by various personalities and organizations to offer relevant and guiding materials to be used in this chapter. It includes the theoretical Review, empirical studies and critical review to identify gaps in the studies done before on the concept of enterprise resource planning ERP system Implementation.

2.2 Theoretical Review

A theory is a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena. It can also be defined as a branch of a science or art consisting of its explanatory statements, accepted principles, and methods of analysis, as opposed to practice. According Kothari (2004) a theory is a coherent group of tested propositions commonly regarded as correct that can be used as principles of explanation and prediction for class of phenomena. Game theory will be used to explore the role of top management decision making and the input of organization culture in integration of new systems in organization resource based view theory will be used to explore the rationale for allocating the cost required to implement and integrate new systems in organizations and also to explore the rationale for allocating funds for enhancing employee skills through training.

2.2.1 Game Theory

The major tenets of the game theory will be applied in investigating the influence of organization culture and management decision making skills on the integration of ERP systems in the organization. Game theory is a mathematical theory of decision making by participants in conflicting or cooperating situations. Its goal is to explain, or to provide a normative guide for, rational behavior of individuals confronted with strategic decisions or involved in social interaction (Netessine&Shumsky, 2001). The theory is concerned with optimal strategic behavior, equilibrium situations, stable outcomes, bargaining, coalition formation, equitable allocations, and similar concepts related to resolving group differences. Game theory has a profound influence on methodologies of many different branches of sciences, especially those of economics, operations research, and management sciences. Traditionally, game theory can be divided into two branches: non cooperative and cooperative game theory. Non cooperative game theory uses the notion of a strategic equilibrium or simply equilibrium to determine rational outcomes of a game (Osborne& Rubinstein, 2000).

Organization culture is an integral part of logistic systems common to all sectors of the economy including industry, agriculture, and defense. In a perfectly predictable economy, management decisions may be needed in order to take advantage of the economic feature of a particular technology, to synchronize human tasks, or to regulate production process to meet the changing demands (Netessine&Shumsky, 2001). When uncertainty is present, inventories are used as a protection against risk of stock being out game theory therefore will be very meaningful in assessing the structure of decision making and the role of which organization culture plays in integration of new systems in organization.

2.2.2 Resource Based Theory

The knowledge based literature of the firm fosters and develops the resource based theory in that it considers knowledge to be the most complex of an organization's resources (Alavi and Leidner, 2001). According to resource-based theory which was developed by (Barnley 1991) the intangible and tangible assets are the main source to improve enterprise growth. Therefore, intellectual capital has been studied by many past researchers who investigate the influence of intangible assets on business performance. However, most past researchers focused on the impact of individual intangible assets on performance while neglecting the effects of specific elements of the assets.

The currently dominant view of business strategy – resource-based theory or resource-based view (RBV) of firms – is based on the concept of economic rent and the view of the company as a collection of capabilities. This view of strategy has a coherence and integrative role that places it well ahead of other mechanisms of strategic decision making. Rauch *et. al.* (2005) used the Resource Based Theory (RBT) to explain the importance of human capital to entrepreneurship. According to RBT, human capital is considered to be a source of competitive advantage for entrepreneurial firms. Ownership of firm-specific assets enables a company to develop a competitive advantage. This leads to idiosyncratic endowments of proprietary resources (Barney, 1991). According to RBT, sustainable competitive advantage results from resources that are inimitable, not substitutable, tacit in nature, and synergistic Davila, Epstein & Shelton (2006). Therefore, managers need to be able to identify the key resources and drivers of performance and value in their organizations.

The RBT also states that a company's competitive advantage is derived from the company's ability to assemble and exploit an appropriate combination of resources. Such resources can be tangible or intangible, and represent the inputs into a firm's production process; such as capital, equipment, the skills of individual employees, patents, financing, and talented managers. As a larger. Through continued use, these “capabilities”, defined as the capacity for a set of resources to interactively perform a stretch task or an activity, become stronger and more difficult for competitors to understand and imitate. (R&D expenditures) and can be used to augment future production possibilities. The resource based theory explains the rationale of allocating the cost of acquisition and intergration of ERP systems in organizations , training and improving the skills of employees depends on organizations resources hence this theory explains the rationale of allocating resources .

2.3 conceptual framework

A conceptual framework is a logically developed, described and elaborated network of interrelationships among variables integral in the dynamics of a situation being investigated. It explains the theory underlying these relationships and describes the nature and direction of these relationships Mugenda & Mugenda(2003)

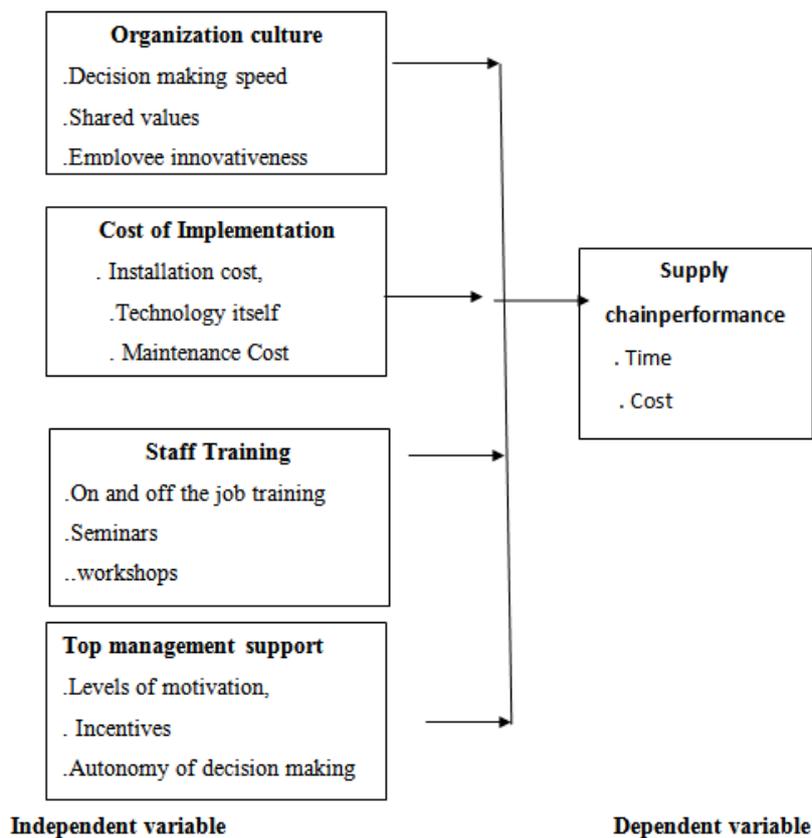


Figure 2. 1 Conceptual Framework

2.3 REVIEW OF STUDY VARIABLES

2.3.1 Organization Culture

Lack of awareness and readiness by public authorities to understand markets and technologies can be regarded as an additional barrier (Lemberet al 2011). The adoption of appropriate organization culture can be considered as strategic in so far as these cultures can impact value chains and industries structures and can in particular create value from intangibles in business activities. (Kauffman, 2006). Organization culture contributes significantly to statistically significant positive contribution to business performance as it enhances information exchange, accuracy, documentation and monitoring. The challenge confronted in all cases is to strike an appropriate balance and convince all actors in the supply chain on commitment to appropriate organization culture despite their varying goals and objectives. Kauffman (2006) points out that organizations have goals that they wish to meet organization structures and culture contributes significantly to how organization achieves its goals as organization gets larger the structure and culture shaping the organization should be developed so that the organization can adapt to the changing externalities. Leidner(2001) advocates for

contingency kind of organization culture where open systems and emergence of interdependence relationships with environment, human beings depend on environment for survival,

Sila (2010) points out that beside the cost of implementing any change in organizations the systems theory simplifies the interdependence between organic structures in organizations he points out that organization culture should be adaptable to the changing environment in which the organization places itself in. Hofstede (2001) views organization culture as mostly concerned with symbolic values concerns with how certain events and visible signs are invested with meanings procurement organizations shares similar values, customs and norms. Generically a good organization culture affords its leaders in an organization to provide the vision, the leader strategically thinks and plans administrate the operational activities. Further a leader tries to fit organization according to the requirement of situation. Leaders spread energy, boost the morale by spirit. A leader develops the relationships with all the stakeholders. And most importantly a leader ensures teaching and learning in the organization (Shelton 2006). Leadership is responsible to direct the subordinates to perform the organizational tasks effectively (Mason, 2011). Organization culture is a process that transforms organization into successful organization by proper strategies. It is the responsibility of leadership to motivate and inspire the people in the organization to work jointly so that the organization's vision can be translated into reality. Mostly in organizations efficient leaders, perform the common tasks in the strategy making and executing process. Organization culture develops a strategic vision and mission, sets goals and objectives, craft the strategies, execute it and then evaluate the performance (James & Sean, 2005). The process of achieving good organization culture starts when a leader tries to change the thinking of people. Everyone should clearly understand the need for change and try to reflect flexible behavior for proper implementation of ERP systems (Shumsky 2011).

2.3.2 Cost of implementation

According to Sila (2010), ERP can minimize the total cost of production through 'sourcing'. The cost in this case is reduced by limiting the number of suppliers used by the firm and providing them with necessary training and technology. The efficient functioning of an operation will then depend on how well the suppliers meet up with the expectations of the organization. This is why the supply chain principle emphasizes the totality of ERP adoption in all facets which includes the suppliers. ERP endorses the total quality approach in creating customer satisfaction. (Zhang, *et al* 2006).

ERP systems implementation like any other strategy implementation is deemed to be successful only when an organization achieves its mission and objectives through envisaged functional policies according to (Jacob 2010). Implementation of ERP systems is viewed as the set of decisions and actions that result in the formulation, implementation and control of plans designed to achieve an organizations vision, mission, strategy and strategic objectives within the business environment in which it operates (Pearce & Robinson 2007). Implementation of ERP is an integral component of the supply chain management process and is viewed as the process that turns the formulated strategy into a series of actions and strategic objectives of the organization are successfully achieved as planned (Thompson & Strickland 2003). Although implementation is usually considered after strategy has been formulated, (Daft 2009), states that even the most creative strategies have no value if they cannot be translated into action.

ERP systems implementation is that phase in supply chain management process when actions are taken to actualize approved plans (Sila 2010). It involves analysis of long term plans and breaking them down to small workable annual or short-term plans. It also includes division of work and assigning duties to individual departments and individuals to carry out the actual work. According to (Sila 2010), Implementation of ERP systems strategy requires leadership involvement. The ERP adoption approach creates an integrated method of analyzing operation by focusing the processes of production on customer satisfaction. Thus, it requires that quality be built into all the processes so as to be efficient in the overall operation (Andrle, 1994). Kaynak (2003), suggested that the effectiveness of ERP integration should be measured by the degree of integration with their supplier bases because supplier quality management is a critical component of ERP integration. Operational effectiveness is then a function of how well the various units of an organization carry out their functions with quality.

2.3.3 Staff training

Training helps in preparing employees towards managing the supply chain ideology in the process of production. Training equips people with the necessary skills and techniques of quality improvement. It is argued to be a powerful building block of business in the achievement of its aims and objectives (Shumsky 2001).

Training is the process of developing, changing and reinforcing job related behaviors. ERP management is a new culture and a way of thinking, hence, without training such changes cannot be achieved. Oakland (2007) argues that employees, including supervisors are to be won over, not by compulsion but by training, leadership and recognition. Thus the fundamental to ERP improvement is the availability of adequate supply of people who are educated in the philosophy and technical aspects of quality. Crosby (2010) recognizes

the need for quality awareness to be raised among employees through education. His emphasis was on developing a quality culture within the organization so that the right climate exists. As we know that training and development refers to the process to obtain or transfer KSA (Knowledge, skills and abilities) needed to carry out a specific activity or task; therefore, benefits of training and development both for employer and employees are strategic in nature and hence much broader (Leidner 2001).

Kauffman (2006) argues that in order to meet the current and future challenges of our business, training and development assumes a wide range of learning actions, ranging from training of the employees for their present tasks and more so, knowledge sharing to improve the business horizon and customer's service. It also focuses on their career development, thus expanding individual, group and organizational effectiveness. A comprehensive training and development program helps in deliberating on the knowledge, skills and attitudes necessary to achieve organizational goals and also to create competitive advantage (Shumsky 2001). In fact, at the start of the twenty-first century Human Resource Managers have opined that one of the main challenges they are to confront had involved issues related to training and development (Shelton 2006)

Sila (2010) argues that in order to ensure that our employees are equipped with the right kind of skills, knowledge and abilities to perform their assigned tasks, training and development plays its crucial role towards the growth and success of our business. (Abdus, 2011) By choosing the right type of training, we ensure that our employees possess the right skills for our business, and the same need to be continuously updated in the follow up of the best and new human resource practices. to meet current and future business demands, training and development process has assumed its strategic role according to (Capon 2009).

2.3.4 Top Management Support

Top management support is very important for the success full implementation of ERP management practices in an organization. According to Hackman and Wagenman (2005) ERP adoption is viewed as ultimately and inescapably the responsibility of top management because top management creates the organizations systems that determine how products and services are produced; the quality improvement process must begin with management's own commitment to ERP adoption. Pheny & Teo (2003) also observed that top management must communicate ERP adoption to the entire organization to create awareness, interest, desire and action.

Top management should provide good leadership for any successful execution of a ERP system (Sila 2010) he argues that leadership is the ability to influence others to behave and do certain things as directed. Influential leaders usually mobilize resources, choose a strategy and ensures the chosen strategy succeeds. Strategic implementation is deemed to be successful only when an organization achieves its mission and objectives through envisaged functional policies. In Africa, strategy implementation is affected by external factors like political upheavals, changes in the macro-economic environment, major shift in policy and civil wars; all these complicate the atmosphere upon which organizations operate. According to Leidner, (2001) the internal factors that affect ERP systems adoption especially by top management include inadequate communication, shortfall in employee capabilities and implementation taking longer than anticipated.

Top managers should adopt a realistic approach to identify the strategic gaps so that proper strategies can be formulated (Fairholm, 2009). According to Sophocles "what you cannot enforce, do not command". For effective implementation of ERP systems, leaders have to introduce the need for change. That can only be possible by creating such a culture that integrates the strategic and operational activities. Once the culture has been developed the whole procedure of strategy formulation and implementation would be easy (Jacob, 2010). a leader performs various roles. A top managers should introduces the environment for change. Secondly he/she creates the leadership team by selecting key players from the organization by breaking down the current hierarchy and formulates the vision and strategy by the help of a visionary process that clarify the strategy for understanding of the whole organization (Moesia, 2007). Top management are tasked with responsibility to creates an evaluation system that evaluates the strategy at every stage of the work within the organization. Finally it helps to change the culture which facilitates the strategic management (Venohr, 2007). A leader performs various roles in the process of strategy formulation & implementation. Such as innovator, strategist, care taker, analyst, guide, organizer, motivator, developer, change enabler or change driver, decision maker. Collaborator, risk manager, debtor, and evaluator (Mackenzie, 2006, Ashim, 2009 & Loren, 2008).

Peter Drucker (1992) considers leadership as a human characteristic which lifts a man's vision to higher sights; raises and builds his performance to high standards and builds a man's personality beyond the norm. Leadership is a process of influencing the activities of an individual towards goal achievement in a given situation (Drucker 1992). A leader is a managerial employee who is tasked to implement the execution of strategic initiatives. Leadership is the activity of influencing people to strive willingly for group objectives.

2.3.5 Supply chain performance

Supply chain performance defined as the procedures to measure the effectiveness and efficiency of the supply chain, and that includes the measures of cost, quality, time and customer responsiveness, and flexibility (Neely *et al* 2005). Davenport (2004) noted that supply chain contributes toward the reduction of inventory and working capital. It also makes a close relationship between suppliers and customers. In fact, supply chain is a coordination and cooperation between suppliers and customers to share information and exchange goods and services.

Supply chain contains activities that can facilitate the movement of goods and the flow of information from the raw materials to end customers. It helps companies to improve the relationship between suppliers and customers in order to produce a high-quality product at a lower cost. This is to gain a competitive advantage in the global market (Chuang & Shaw, 2005). In the present economy supply chain considered as one of the most important and powerful management strategies that has significant impact on business performance. However, when companies place supply chain in their business model they can provide products with premium quality at low price in order to attract customers. In fact, supply chain is an important component to extend and link with suppliers, distributors, and retailers in one distribution network whereby companies can obtain the best products at the lowest cost and thus increase profitability and gain a competitive advantage in the business world (Chou *et al* 2004)

In fact, supply chain facilitates the movement of products through the supply chain, managing the associated information flow, organizing the business relationship with customers and suppliers and other partner in the supply chain, and creating customer value to achieve customer satisfaction and loyalty (Burcaet *et al*, 2005). On the other hand, supply chain can be perceived through managing upstream and downstream operations, which resulted in reducing the operational costs in order to improve the profit margin, and in delivering the products to the market in order to reach the customer on time (Sundaram& Mehta, 2002). The goals of supply chain are to reduce uncertainty and risks related to the supply chain, and this can contribute in decreasing inventory levels and cycle time, improving business processes, and enhancing customer service, and finally increase profitability and enhance competitiveness of the company (Turban *et al.*, 2008).

2.4 Empirical Review

In 2000, a survey was conducted on large manufacturing companies in USA indicated that, companies with a solid supply chain are able to reduce their operating costs, inventories, product life cycle, and cycle time tremendously, and that will certainly increase cash flow, working capital, efficiency of transactions in supply chain, customer services, and on-time delivery (Zheng *et al.*, 2000) a study done by Otieno (2015) however argues that supply chain is considered as one of the most important success factors in the future of business environment, meanwhile managing the entire supply chain is very challenging and not an easy task, therefore companies began to consider and redirect their efforts toward information systems, such as ERP system, in order to improve their supply chain performance and give them the opportunity to gain a competitive advantage in the global economy (Lambert & Cooper, 2000). Therefore, all data and information related to supply chain will be accessible and retrieved from one system. The ease of access to one system from various functional units and the advancement of IT and computing research can result in enhancement of supply chain performance (Rashid *et al* 2002).Zheng *et al* (2000) pointed out that, the main five parts of any supply chain is plan, buy, make, move, and sell. Supply chain contains applications such as, manufacturing planning, demand planning, distribution planning, transportation management, warehousing management, performance management, production scheduling, freight payment, capacity planning, customer clearance, sourcing and procurement, and finally supply chain optimization.

Ngulube&Tafor (2006) in a study on impact of ERP systems on management of procurement records in the public sector in Africa found that records and information management in developing countries was significant in success of supply chain performance. This is because effective record management leads to accountability. However, the researchers observed that procurement record management in most public sectors in developing countries were poorly management and hence the poor performance of most public institutions. One of the problems identified was lack of staff and appropriate training, inadequate funding to maintain records and the digital divide. This implies that if these problems are looked at, stores management in the public sector could be managed.

In a study on the relationship between ERP systems and inventory operations , (Maria, 2011) it was found that inventory operations management depends highly on the skills of the human resource handling them. It was observed that every task and action required to be carried out by the operatives will impact the inventory as well as the delivery lead times and other parameters.

World Bank (2000) in a study on managing procurement records as the basis for effective service delivery and public accountability in development; it was found that the quality of any records management program was directly related to the quality of the staff who operated it. The study established that lack of

considering the quality and quantity of staff needed to run a store in the civil service often led to incompetence and ineffective procurement management. It was also found that because the care of records calls for a continuous management process at any phase of the life-cycle of the records, the functions of registrar, records manager, records center manager, and archivist should be performed within an integrated structure, with no rigid boundaries that limit professional collaboration and development.

2.5 Critique of existing literature

ERP require implementation of an information system that facilitates and expedites the exchange of data and information between supply chain partners, integrate functional units, and allow everyone in a company to access to a single database and use the same data and information without any data inconsistency problems. (Kutswa 2011). During the implementation of ERP system, companies should seek assistance from the external consultants in order to provide the above-mentioned facilities and avoid system failure (Nyaga 2012)

In order to create an effective and successful supply chain, it requires cross-functional integration, as well as many companies need to integrate the whole supply chain, which includes suppliers, warehouses, factories, distributors, and retail outlets, and provide cooperation between all supply chain partners through planning, coordination, and information sharing which is critical to achieve successful and effective operation of supply chain (Stevenson, 2012). In fact, the key to achieve effective supply chain is accomplishing customer demand on time. However, there are several steps must be taken in order to attain an effective supply chain that includes developing a strategic objectives and tactics, creating strategic partnerships, coordinate activities with suppliers and customers, and finally organize planning and execution within the supply chain (Lambert & Cooper, 2010). Therefore, the success of supply chain depends on how efficient and effective each part and application of the supply chain, and also on how well these parts and applications integrated with each other in order to assist the entire supply chain to move smoothly and efficiently (Zheng *et al.*, 2010). ERP system is able to integrate all parts and applications of the supply chain, and also able to facilitate the efficiency of each part and application in the supply chain.

2.6 Research Gap

ERP market found a great acceptance in developed countries such as USA, UK, Canada, and Australia, while in developing countries, ERP systems is a new idea and still in infancy stage because there are many untapped countries such as China, Korea, and Malaysia. ERP could be an effective system that assists companies in creating effective and successful supply chain. In fact, ERP system introduced to integrate all functional units of a company and its supply chain in order to make it in one system. Karimi (2010) did a study on investigation of the business value of enterprise resource planning systems by firms in Kenya. Njuguna (2011) carried out research on implementing enterprise resource planning system at Kenya Revenue Authority. Kang'ethe did an evaluation of the successful implementation of enterprise resource planning system at HACO Industries. Otieno (2015) notes that determinants of ERP intergration in Kenyan manufacturing companies needs to be investigated.

III. Research Methodology

3.1 Introduction

This chapter discusses the research design that was used, the target population, sampling methodology data collection and data analysis method employed. The pilot study and validity and reliability of the research instruments are also discussed.

3.2 Research Design

Since the study is case study by nature the researcher adopted descriptive research design where information which explores and describes the study variables was collected and analyzed. According to Cooper and Schindler (2000), a descriptive research design is concerned with finding out the, who, what, where, when and how much. The design is deemed appropriate because the main interest is to explore the effect and describe how the factors support matters under investigation. Orodho & Kombo, (2002) argues that this choice of this design is appropriate for this study since it utilizes a questionnaire as a tool of data collection and helps to assess of the effect of enterprise resource planning implementation on supply chain performance in manufacturing sector in Kenya: a case of Toyota Kenya Ltd. It is also a framework that guides the collection and analysis of data. Creswell (2010) observes that a descriptive research design is used when data is collected to describe persons, organizational settings or phenomenon.

3.3 Target Population

Population refers to an entire group of persons or elements that have at least one thing in common. Population also refers to the larger group from which a sample is taken Orodho& Kombo, (2002). A population can also be defined as including all people or items with the characteristic one wish to understand. The target population of this study comprised of the general staff of Toyota Kenya Ltd which are 300 source (www.toyota kenya.com). The determinants of ERP intergrationon supply chain performance in manufacturing sector in Kenya: A case of Toyota Kenya Ltd and its application are relevant at this level prompting the choice of the population.

3.4 Sampling Frame and Sampling Technique

A sample is a set of observations drawn from a population by a defined procedure .The sample represents a subset of manageable size. Samples are collected and statistics are calculated from the samples so that one can make inferences or extrapolations from the sample to the population. Random sampling was used in this study. The samples size of this study was 89 respondents which represents 30% of the target population which according to Mugenda&Mugenda (2003) a sample of 10 to 30% of the target population was suitable and since the population is highly homogeneous. The technique gives more accurate results when most of the variation in the population is within group (Orodho& Kombo, 2002).

Table 3.4.1: Sampling Distribution

Category of employees	Target pop	Sample pop
Top Management	3	2
Departmental Managers	8	6
Supervisors /Technical	45	31
Other employees	244	50
Total	300	89

Source: www.toyota.org.ke (2017)

3.5 Data Collection Instrument

According to Creswell (2002) data collection is the means by which information is obtained from the selected subject of an investigation. The researcher will collect primary data using a questionnaire. The questionnaire will contain both structured and unstructured questions. The open-ended questions will be used to limit the respondents to given variables in which the researcher is interested, while unstructured questions will be used in order to give the respondents room to express their views in a more pragmatic manner.

3.6 Data collection procedure

The researcher issued questionnaires to the respondents physically and collected after two weeks after explaining to them the intentions filling out the questionnaires and assuring them that the information will be kept confidential and is intended for research only

3.7 Pilot Study

According to (Mugenda&Mugenda 2003) pilot test is necessary to confirm the validityof theinstrument. A pilot test will be conductedusing 8respondents this constitutes 10% of the sample population which according to (Mugenda&Mugenda 2003) a pilot study on 1-10% of the sample population is suitable for social science research.

3.7.1 Reliability

Reliability is the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Joppe, 2000). The researcher therefore conducted factor analysis to select a subset of variables from a larger set based on the original variables with the highest correlations with, the principal component factors. Reliability analysis will be done using Cronbach's alpha to determine whether the data gathered on each variable will have significant relationship with supply chain performance.

3.8 Data Analysis and Presentation

This study wasbe expected to produce both quantitative and qualitative data. Once the questionnaires are received they will be coded and edited for completeness and consistency. Quantitative data will be analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). This technique gives simple summaries about the sample data and present quantitative descriptions in a manageable form, Gupta (2004). Together with simple graphics analysis, descriptive statistics form the basis of

virtually every quantitative analysis to data, Kothari (2004). Product Pearson moment Correlation coefficients was used to test hypothesis The data was then be presented using frequency distribution tables, bar charts and pie charts for better understanding.

IV. Research Findings And Discussions

4.0 Introduction

This chapter highlights the analysis of data based on research questions, objectives and independent variable and presentation of research findings and discussions of the results.

4.1 Socio demographics characteristics of respondents

The researcher distributed a total of 89 questionnaires to top management , middle level managers , supervisors as per the sampling technique used in the research study, total of 78 questionnaires were collected from respondents representing a response rate of 87.6% the researcher felt that this response rate was significant enough to form the basis for these study and answer research questions.

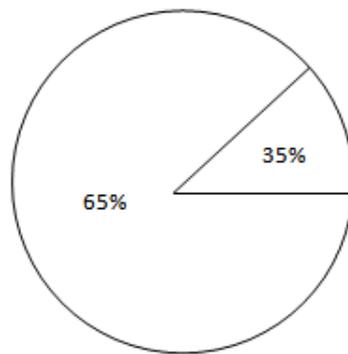


Fig 4.1.1 Gender

A total of 57 respondents were male representing 65 % of the total respondent while 21 respondents were female representing of 35 % of the total respondents.

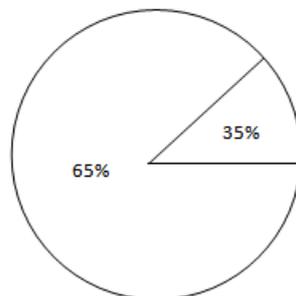
Table 4.1.1: Age Category of Employees

Years	Frequency	Percentage
18-30	13	16.6
31-40	28	35.8
41-50	22	28.2
50 and above	15	19.4
	78	100

The study established that 16.6 % of respondents are aged from 18-30 years, 35.8% of the respondents are aged from 31-40 years, 28.2 % of the respondents are aged from 41-50 years and 19.4% of employees are above 50 years of age .Therefore this findings indicates that majority of the respondents are above 31-40 years of age

4.2 Organization culture

The first objective of this study sought to establish the effect of organization culture as a determinant of ERP integration on supply chain performance



65 % of the respondents feel that organization culture does impact greatly on the integration of ERP and hence has an effect on supply chain performance while 35% of the respondents believe that organization culture has no impact on integration of ERP and hence doesn't affect supply chain performance.

Table 4.2.1 Levels of agreements

Levels of agreement	Frequency	Percentage (%)
Strongly agree	20	25.6
Agree	42	53.8
Neither agree or Disagree	3	3.8
Disagree	9	11.5
Strongly disagree	4	5.3
	78	100

From the findings 25.6% of the respondents strongly agree that organization culture impact greatly on the integration of ERP systems and as result affect supply chain performance ,53.8 % of the respondents agrees that organization culture impacts integration of ERP systems and therefore influence supply chain performance 3.8 % of the respondents neither agree nor disagree with the fact that organization culture affect integration of ERP systems 11.5 % of the respondents disagrees with the fact that organization culture affect integration of ERP systems while 5.3% of the respondents strongly disagree that organization culture doesn't affect integration of ERP systems and hence has no effects on supply chain performance.

Table 4.2.2 Statements related to organization culture

Statements	1	2	3	4	5
No 1	42.8 %	53%	1.2%	3.3%	0.7 %
No 2	43.1%	52.3%	0.5%	2.1%	2%
No 3	41.8%	49.2%	2.4%	3.4%	3.2%

From the above findings flexible work structures enables efficient and faster integration of ERP systems in the organization and hence improves supply chain performance. the ability of the organization to adapt to changing technology enables successful integration of ERP and hence enhanced supply chain performance and lastly working well within teams in organizations enables faster integration of ERP and hence improved supply chain performance the above findings agrees with Mutua (2014) who established that organization cultures decide the pace of organizational transformations among public parastatals

4.3 Cost of Implementation

The second objective of the study sought to establish the influence of cost of implementation as a determinant of determinant of ERP integration on supply chain performance

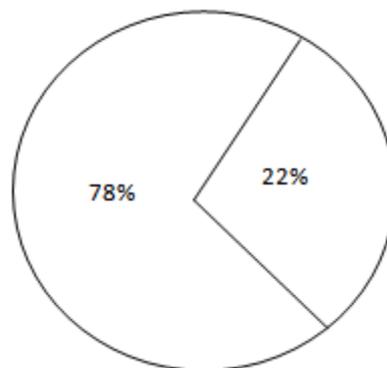


Figure 4.3.1 cost of implementation

From the findings 78% of the respondents indicated that cost of implementation affect integration of ERP systems and hence contributes to supply chain performance while 22% of the respondents indicated cost of implementation doesn't affect integration of ERP and hence doesn't affect supply chain performance.

Table 4.3.1 Statements related to cost of implementation

Statements	1	2	3	4	5
No 1	43.8 %	52%	1.2%	2.3%	0.7 %
No 2	44.1%	53.4%	0.5%	1.5%	0.5%
No 3	40.8%	47.2%	2.2%	5.4%	4.4%

From the findings above most respondents agree that higher cost of installation of ERP systems hinders faster integration and hence reduces supply chain performance this is indicated by 43.8 % of the respondents who strongly agrees and 52% of the respondents who agrees its also clear from this findings that higher cost of acquisitions of ERP systems , high cost of computer hardware and software hinders faster integration of ERP and hence reduces supply chain performance this is indicated by 53.4% and 44.1% of the respondents who strong agrees and agrees the above fact . high cost of maintenance of ERP systems affect rate of integration of ERP systems this is indicated by 40.8% and 47.2% of the respondents who agrees and strongly agrees to that fact its therefore clear from this findings that cost of installation ,cost of acquisition and cost of maintenance of ERP systems and other support systems like hardware and soft wares plays critical role in enabling faster integration of ERP systems in organizations the above findings agrees with (Ouma 2015) who established that cost element of any new project can either positively influence or negatively influence the rate of its completion among infrastructural constructions firms in Kenya

4.4 Staff Training

The third objective of this study was to establish the effect of staff training as a determinant of ERP integration and its effects on supply chain performance

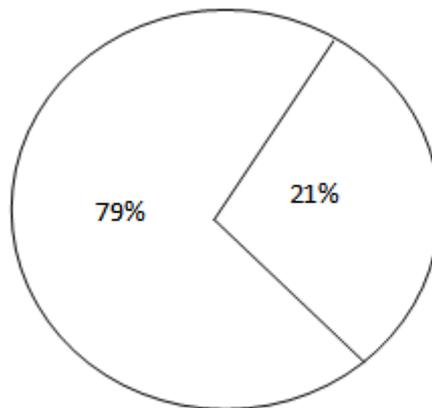


Fig 4.4.1 staff training

From the findings 79% of the respondents indicated that staff training can influence integration of ERP systems and hence affect supply chain performance while 21% of the respondents indicated that staff training does not affect integration of ERP and hence has no effect on supply chain performance.

Table 4.4.2 Statements related to staff training

Statements	1	2	3	4	5
No 1	45.8 %	51%	1.1%	2.0%	0.1 %
No 2	46.1%	44.4%	1.5%	3.5%	4.5%
No 3	42.8%	45.2%	2.2%	5.4%	4.4%

From the above findings continuous training of employees either on the job or off the job enables faster integration of ERP systems and hence improves supply chain performance this is indicated by 55.8% of employees and 51.0% of employees who agreed and strongly agreed respectively .This findings also established that regular workshops , training through seminars open days and conferences relating to changing technology if afforded to staff then can enable them to easier integrate ERP systems into their regular activities and hence can improve supply chain performance

4.5 Top level management support

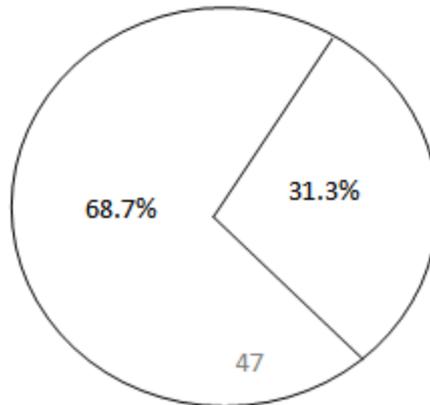


Figure 4.5.1 Top management support

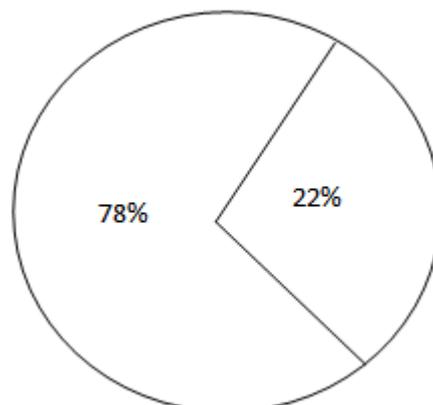
From the findings 68.7% of the respondents indicated that the level of top management support contributes greatly to faster integration of ERP systems and hence improves supply chain performance while 31.3% of the respondents do not agree that the level of top management support can influence the integration of ERP systems and hence has no effect on supply chain performance this agrees with the findings of Kangogo (2013) she found out that the nature and the level of top management support plays crucial role in the successful implementation of any organizational changes

Table 4.5.1 Statements related to top management support

Statements	1	2	3	4	5
No 1	40.8 %	56.1%	1.0%	2.0%	0.1 %
No 2	42.1%	49.4%	1.5%	3.5%	3.5%
No 3	41.8%	49.2%	1.2%	4.4%	3.4%

The findings established that when top organizational leaders are highly committed to the integration of ERP systems then the process of integration becomes easier and faster this is indicated by 40.8% and 56.1% of the respondents respectively who highly agrees and agrees respectively. 42.1% and 49.4% of the respondents agrees and strongly agrees that when top management decides to standardize the supply chain process then easier integration of ERP systems canbe achieved 41.8% and 49.2% of the respondents believes that if top management makes positive efforts to establish quality controls and accountability then integration of ERP systems can be achieved faster and hence there can be improvement on supply chain performance.This finding agrees with Kamau (2006) who cited that efficiency along the supply chain among public sector parastatals in Kenya can only be achieved if the top managers are highly committed.

4.6 supply chain performance



From the findings above 78% of the respondents agrees that supply chain performance can only be attained if there is successful integration of ERP systems while 22% of the respondents doesn't agree the fact that integration of ERP has an effect on supply chain performance

Table 4.6.1 Statements related to supply chain performance

Statements	1	2	3	4	5
No 1	40.8 %	51%	1.1%	7.0%	0.1 %
No 2	41.1%	44.4%	6.5%	3.5%	4.5%
No 3	43.8%	44.2%	2.2%	5.4%	4.4%

From the above findings 40.8% and 51% of the respondents believes that positive organization culture improves greatly the levels of integration of ERP and hence improve supply chain performance while 41.1% and 44.4% of the respondents believe that cost of implementation contributes significantly to integration of ERP and hence affect supply chain performance 43.8% and 44.2% of the respondents believes training of end users and support staff on ERP systems can improve its integration and hence improve supply chain performance

4.7 Correlation Results for Study Variables

To derive appropriate conclusion about the direction and strength of relationship of the study variables independent variables were tested against dependent variables using Correlation Pearson Product Moment analysis.

Table 4.6 Correlation Analysis results for study variables

Independent variables	Pearson product	N
Organization culture	Pearson correlation 0.09 sig (2 tailed)	78
Cost of implementation	Pearson correlation 0.062 sig (2 tailed)	78
Staff training	Pearson correlation 0.042 sig (2 tailed)	78
Top management support	Pearson correlation 0.064 sig (2 tailed)	78

Correlation values are significant at 0.01 level of confidence ,using 2 tailed test , N(78) is the number of total respondents, Positive value of coefficient relationship indicates positive relationship while negative values of coefficient relationship indicates negative relationship.

The results indicated that organization culture has a significant positive relationship with ERP integration and supply chain performance in organizations, organization culture has correlation coefficient of 0.09 which is greater than 0.01 and it meets the threshold since 0.09 > than 0.01, (Omuoso 2010) ascertained that organization culture is very critical in implementing organizational processes changes.The results also indicates that cost of implementing ERP systems organization has positive influence on integration of ERP and hence positively affect supply chain performance ,cost of implementation has correlation coefficient of 0.062 which is greater than 0.01 level of significance. Staff training has positive influence on ERP integration and hence affects positively supply chain performance, this is indicated by positive correlation coefficient of 0.042 which is greater than 0.01 level of significance. Top management support influence positively integration of ERP systems and hence affects supply chain performance this is indicated by a positive correlation coefficient of 0.00634 which is greater than 0.01 level of significance (David 2005) points out that top management commitment towards organizational objectives increases the chances of successful execution of organizational changes.

V. Summary, Conclusions And Recommendations

5.1 Introduction

This chapter presents the summary of the research findings, conclusions and recommendation on important issues that contribute to existing body of knowledge.

5.2 Summary

The general objectives of this study was to establish the determinants of enterprise resource planning integration on supply chain performance in motor vehicle assembly in Kenya case of Toyota Kenya and the following were the specific objectives, to establish the effects of organization culture as a determinant of ERP integration on supply chain performance , to determine the effects of cost of implementation of ERP as a determinant of ERP integration on supply chain performance ,to establish the influence of staff training as a determinant of ERP integration on supply chain performance and lastly to establish the influence of top level management support as a determinant of ERP integration on supply chain performance .The study came up with many important findings ,this findings are presented according to socio demographics characteristics ,

organization culture , cost of implementation, staff training and top management support , and supply chain performance

5.2.1 Gender Characteristics

A total of 78 questionnaires were received from the respondents representing response rate of 87.6% this was significant enough to establish the answers of the research questions and to form the basis of the study. The study findings indicate that 57 respondents were male representing 65 % of the respondents while 35% of the respondents where female represented by 21 respondents

5.2.2 Organization culture

The findings indicate that organization culture has great impact on the integration of ERP systems and hence influence greatly supply chain performance, it also indicates that successful integration of ERP systems can be achieved if leaders in organization creates an environment which is conducive for growth of positive organization culture.

5.2.3 Cost of implementation

The findings indicates that the cost of acquisition , cost of installation and cost of maintenance of ERP systems determines the rate of integration of ERP and hence affect supply chain performance findings that cost of installation ,cost of acquisition and cost of maintenance of ERP systems and other support systems like hardware and soft wares plays critical role in enabling faster integration of ERP systems in organizations the above findings agrees with (Ouma 2015) who established that cost element of any new project can either positively influence or negatively influence the rate of its completion among infrastructural constructions firms in Kenya

5.2.4 Staff training

The findings shows that most organizations offer professional training to their all of their employees which enables the organization to executes their strategies effectively , the findings also indicates that training programs should be designed according to leadership needs requirements , duration of the training programs should also be adequate to enable learners acquire leadership skills , most organization design training programs which addresses the needs of employees enough time should be provided for training and type of training also should be put into consideration before designing training programs

5.2.5 Top management support

The finding indicates that top management support determines greatly the rate of ERP integration and therefore affects significantly the performance along the supply chain, the findings establishes further that top managers should be highly committed towards achievement of organizational objectives

5.3 Conclusions

In today's competitive business environment strategy implementation is the main focus for most organizations because it determines how the company grows and develop. Integration of ERP is significant in ensuring that efficiency along the supply chain is achieved ERP systems can be used as a strategy to achieve competitive advantage and hence create efficiency and increase chances of business success

5.4 Recommendations

Leaders must strive to ensure positive organization culture is achieved and must work in teams with other staff and allow teamwork and be highly committed to achieving organizational objective support the employees in integration of ERP systems , in order to achieve successful implementation of organizational change ,leaders must motivate employees and also communicate clearly the organizational objectives to all the staff in the organization leaders should also design training programs which meets the professional needs of the staff training duration should be adequate enough to allow staff to.

Acknowledgement

I would like to thank the Almighty God for bringing me this far and provided me with the strength and knowledge that has helped me to finally come up with this research proposal and made it a reality. I acknowledge the support from my supervisor for his guidance even unto the completion of this research proposal. Without his constructive critiques and recommendations, this research project would not have been possible.

References

- [1]. Mabert, V. A., Soni A. and Venkataramanan, M. A. (2013). Enterprize resource planning Managing implementation process *European journal of operational Research* 146 (2) : 304 ,314
- [2]. Liu Z, and Wei P. (2016). ERP Implementation Case of China’s Hauling Company. *Finance &Accounting 7 Asian journal of commerce and business* 123 (4) 13
- [3]. Khaled Al-Fawaz, Zahran Al-Salti, and Eldabi, T. (2011). 'Critical Success Factors in ERP Implementation *European and mediterrenian conferencejournal* 3 (7) 12
- [4]. Kamau W. (2006) Critical success factors of strategy executions case of public sector parastatals *www.ijbc .123(2) : 212-245*
- [5]. Kangogo N ,(2013) Challenges of strategic sourcing of industrial products materials case of Haco industries *www.ijsr 234 (5) : 342-365*
- [6]. Huang, Z., &Palvia, P. (2011). 'ERP implementation issues in advanced and developing Countries *business process management journal* 7 (3): 276-284
- [7]. Deloitte (2011), "ERP's second wave – maximizing the value of ERP-enabled processes *Asian Journal of business and commerce* 45 (6) :457-475
- [8]. Sila M 2010 .ERP systems and their role in modern procurement practices *International journal of business and commerce* 34 (2) :234-245
- [9]. NyagaW (2012), Role of ICT support tools in procurement in manufacturing sector firms, *International journal of science and research* 42 (5) ; 12-24
- [10]. Njuguna D (2011) , Influence of ERP systems on revenue collections at Kenya Revenue Authority *Asian journal of commerce and business* 90 (12) :345-376
- [11]. Otieno J (2015) Role of ERP systems on procuremenet among service sector organizations case of tourism hotels in Kenya *African journal of business* 12 (6): 21-32
- [12]. Omuoso A (2011)The influence of ICT essentials in inventory management in indutr Industrial sector case of East Africa industries *www .ajbs* 45 (5)32-48.
- [13]. Gibson, N., Holland, C.P., Light, B. (2010), "Enterprise resource planning: a business approach to systems development", Proceedings of the 32nd Hawaii International Conference on System Sciences, .
- [14]. Goodhue, D.L., Wybo, M.D., Kirsch, L.J. (1992), "The impact of data integration on the costs and benefits of information systems", *MIS Quarterly*, Vol. 16 No.3, pp.293-308.
- [15]. Hitt, L.M., Wu, D.J., Zhou, X. (2012), "Investment in enterprise resource planning", *Journal of Management Information Systems*, Vol. 19 No.1, pp.71-98.
- [16]. Hsu, L.L. (2005), "SUPPLY CHAIN system effects on performance for interaction between suppliers and buyers", *Journal of Industrial Management & Data Systems*, Vol. 105 No.7, pp.857-75.
- [17]. Hsu, L.L., Chen, M. (2004), "Impacts of ERP system on the integrated-interaction performance of manufacturing and marketing", *Journal of Industrial Management & Data Systems*, Vol. 104 No.1, pp.42-55.
- [18]. Huang, Z., Palvia, P. (2001), "ERP implementation issues in advanced and developing countries", *Business Process Management Journal*, Vol. 7 No.3, pp.276-84.
- [19]. Huang, S.M., Kwan, I.S.Y., Hung, Y.C. (2011), "Planning enterprise resources by use of a reengineering approach to build a global logistics management system", *Journal of Industrial Management and Data Systems*, Vol. 101 No.9, pp.483-91.
- [20]. Katerattanakul, P., Hong, S., Lee, J. (2006), "Enterprise resource planning survey of Korean manufacturing firms", *Management Research News*, Vol. 29 No.12, pp.820-37.
- [21]. Kemp, M.J., Low, G.C. (2008), "ERP innovation implementation model incorporating change management", *Business Process Management Journal*, Vol. 14 No.2, pp.228-42.
- [22]. Kremzar, M.H., Wallace, T.F. (2001), *ERP: Making it Happen: The Implementers' Guide to Success with Enterprise Resource Planning*, John Wiley & Sons Inc, New York, NY, .
- [23]. Lambert, D.M., Cooper, M.C. (2010), "Issues in supply chain management", *Industrial Marketing Management*, Vol. 29 pp.65-83.
- [24]. Li, S., Rao, S.S., Nathan, T.S.R., Nathan, B.R. (2005), "Development and validation of a measurement instrument for studying supply chain management practices", *Journal of Operations Management*, Vol. 23 pp.618-41.
- [25]. Liang, H., Xue, Y., Boulton, W.R., Byrd, T.A. (2004), "Why Western vendors don't dominate China's ERP market", *Communications of the ACM*, Vol. 47 No.7, pp.69-72.
- [26]. Maditinos, D., Chatzoudes, D., Tsairidis, C. (2012), "Factors affecting ERP system implementation effectiveness", *Journal of Enterprise Information Management*, Vol. 25 No.1, pp.60-78.
- [27]. Molla, A., Bhalla, A. (2006), "Business transformation through ERP: a case study of an Asian company", *Journal of Information Technology Case and Application Research*, Vol. 8 No.1, pp.34.
- [28]. Neely, A., Gregory, M., Platts, K. (1995), "Performance measurement system design: a literature review and research agenda", *International Journal of Operations and Production Management*, Vol. 15 No.4, pp.80-116.
- [29]. Olson, D.L., Chae, B., Sheu, C. (2005), "Issues in multinational ERP implementation", *Int. J. Services and Operations Management*, Vol. 1 No.1, pp.7-21.
- [30]. Park, K., Kusiak, A. (2005), "Enterprise resource planning (ERP) operations support system for maintaining process integration", *International Journal of Production Research*, Vol. 43 No.19, pp.3959-82.
- [31]. Parr, A., Shanks, G. (2000), "A taxonomy of ERP implementation approaches", 33rd Hawaii International Conference on System Sciences (HICSS), Maui, .
- [32]. Rashid, M.A., Hossain, L., Patrick, J.D. (2002), *The Evolution of ERP Systems: A Historical Perspective*, Idea Group Publishing, Hershey, PA, .
- [33]. Rom, A., Rohde, C. (2006), "Enterprise resource planning systems, strategic enterprise management systems and management accounting: a Danish study", *Journal of Enterprise Information Management*, Vol. 19 No.1, pp.50-66.
- [34]. Shepherd, C., Gunter, H. (2006), "Measuring supply chain performance: current research and future directions", *International Journal of Productivity and Performance Management*, Vol. 55 No.3/4, pp.242-58.

APPENDICES

APPENDIX I: Letter of Introduction

Dear Respondent,

RE: DATA COLLECTION

I am a student at the Jomo Kenyatta University of Agriculture and Technology pursuing a Master’s program in Procurement and Logistics. I am currently conducting a Research study on **determinants of ERP intergration on supply chain performance in manufacturing sector in Kenya: a case of Toyota Kenya Limited** to fulfill the requirements of **AWARD OF MSc Procurement and Logistics**.

You have been selected to participate in this study and I would highly appreciate if you assist me by responding to all questions as completely, correctly and honestly as possible. Your response will be treated with utmost confidentiality and will be used only for research purposes of this study only.

Thank you in advance for your co-operation.

Yours Faithfully,
Ngenoh Haaron

APPENDIX II: QUESTIONNAIRE

INSTRUCTION: *Please answer all the questions honestly and exhaustively by putting a tick (✓) or numbers in the appropriate box that closely matches your view or alternatively writing in the spaces provided where necessary.*

NB: This information will be used strictly for academic purposes only and will be treated with utmost confidence.

PART A: Background Information

1. Department.....
2. Jog Designation.....
3. Gender [] male [] Female
4. Age [] 18 – 30 [] 31 – 40 [] 41 – 50 [] 50 and above
5. Level of education [] O/A level [] Certificate/Diploma [] Bachelors [] post graduate [] other specifications

PART B:

A) Organization Culture

1 Does organization culture of your organization as a determinant of ERP intergration affect supply chain performance?
Yes [] No []

2 .In your own opinion, how would you rate the following statements on organization culture as a determinant of ERP Integration in regard to supply chain performance? Use a scale of 1-5 (1- Strongly agree; 2-Agree; 3- Neutral; 4- disagree;5- strongly disagree).

Statement	1	4	3	4	5
Flexible work structure enables faster ERP intergration					
The ability of organization to adapt to changing technology enables success along the supply chain					
Working well in teams within the organization enables easier integration of ERP and hence improved supply chain performance					

2 .Cost of implementing ERP systems

1. Do you think ERP implementation cost affect its integration which has thus affect supply chain performance? Yes [] No []

2. In your own opinion, how would you rate the following statements on ERP implementation cost as determinant of ERP intergrationin regard to supply chain performance? Use a scale of 1-5 (1- Strongly agree; 2-Agree; 3-Neutral; 4- disagree;5- strongly disagree).

Statement	1	4	3	4	5
High installation hinders fast intergration of ERP systems hence affecting supply chain performance					
High cost of ERP systems soft and hard wares hinders the easier intergration of ERP systems hence affecting supply chain performance					
High cost of maintaining ERP systems hinders faster intergration hence affecting supply chain performance					

3: Staff Training

1. Do you consider employee training as necessary in implementation of ERP?
Yes [] No []
- 2 In your own opinion, how would you rate the following statements on training of staff as determinant of ERP intergration in regard to supply chain performance? Use a scale of 1-5 (1- Strongly agree; 2-Agree; 3- Neutral; 4- disagree;5- strongly disagree).

Statement	1	4	3	4	5
Continous training of workers On the job and off the job training affects on ERP systems helps easier intergartion of ERP and hence improve supply chain performance					
Continous training through attending workshops on ERP systems enables easier intergartion and hence improve supply chain performance					
Regulars training through seminars , open days enhances easier intergartion of ERP and hence improve supply chain performance					

3 : Top level Management Support

- 1.Does top level management Support contribute to policies on the implementation of ERP in your organization?
Yes [] No []
- 2 In your own opinion, how would you rate the following statements on the commitment of top management? Use a scale of 1-5 (1- Strongly agree; 2-Agree; 3-Neutral; 4- disagree;5- strongly disagree).

Statements on Commitment of top management level	1	2	3	4	5
Top management are committed to staff development and ERP adoption					
Top management make efforts to standardise the Supply chain processes in the organization.					
Top management are willing to take accountability for ERP management and delivery time lines.					
Top management make efforts to establish quality assurance management systems					

5 : Supply chain Performance

- 1 Do you believe that ERP implementation significantly improve supply chain performance of the firm? Yes [] No []
2. What is your opinion on the following statements regarding supply chain performance in relation to ERP intergrationuse a scale of 1-5 where; 1-very low, 2-small extent, 3-moderate, 4-high and 5-very high.

Statement	1	4	3	4	5
Good organization culture affects ERP intergration positively hence similarly improves supply chain performance					
Less cost of implementing ERP contributes greatly to ERP intergration and hence improves supply chain					

performance					
Levels of training to staff affects intergration of ERP systems and hence affects supply chain performance					
Good support from top management contributes greatly to ERP intergration and hence improves supply chain performance					

IOSR Journal of Business and Management (IOSR-JBM) is UGC approved Journal with Sl. No. 4481, Journal no. 46879.

Haaron Ngenoh. " Determinants of Enterprise Resource Planning Intergration on Supply Chain Performance in Motor Vehicle Assembly in Kenya: A Case of Toyota Kenya." IOSR Journal of Business and Management (IOSR-JBM), Vol. 21, No. 4, 2019, pp. -.66-87