INFORMATION COMMUNICATION AND TECHNOLOGICAL INNOVATIONS AND ORGANIZATIONAL SUSTAINABLE DEVELOPMENT: A CASE OF L’ORÉAL EAST AFRICA

BY

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UNITED STATES INTERNATIONAL UNIVERSITY- AFRICA

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A Research Project Report Submitted to Chandaria School of Business in Partial Fulfilment of the Requirement for the Degree of Master of Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY – AFRICA

FALL 2016
STUDENTS DECLARATION

In the undersigned, declare that the research project is my original work and has not been presented to any other institution of higher learning for academic credit other than United States International University Africa.

Sign: ___________________________ Date: ___________________________

Angela Ndindi Munyasya (ID.NO:640843)

This research project has been presented for examination with my approval as the appointed supervisor

Sign: ___________________________ Date: ___________________________

Dr. Juliana M. Namada

Sign: ___________________________ Date: ___________________________

Dean, Chandaria School of Business
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ABSTRACT

The purpose of this was to determine whether ICT innovations influence organization sustainable development. The following questions guided the study: To what extent ERP innovations enhance organizational sustainable development; to what extent BRP innovations influence organizational sustainable development; and finally to what extent does MIS innovations influence organizational sustainable development.

The study had a population of 262 employees of L’Oréal East Africa Ltd. Descriptive survey research design was adopted for this study. The study utilized stratified sampling to select a sample size of 157 respondents. The Statistical Package for Social Sciences (SPSS) version 22 was used to for data analysis. Descriptive statistics were analyzed for frequencies, percentages, mean and standard deviation, while inferential statistics were analyzed for correlations and regressions. Data has been presented using tables and figures.

The findings on the extent to which ERP innovations enhance organizational sustainable development have revealed the existence of relationship between ERP innovations and organizational sustainable development. All components of ERP innovations including Systems Applications and Product in Data Processing (SAP), Oracle ERPs, and PeopleSoft ERPs. The findings of this study have also indicated the existence of a weak relationship between BRP innovations and organizational sustainable development. The relationship was statistically significant. All components of BRPs including Business Process Renovation and Business Process Automation all contributed to the significance of the relationship between BRPs and organizational sustainable development. The study indicates the existence of a relationship between MIS innovations and organizational sustainable development. All components of MIS innovations including management sustainability, information sustainability, and system sustainability contributed to the significance of the relationship between MIS innovations and organization sustainable development.

This study concludes that the relationship between ERP and organizations sustainable development was statistically significant. All components of ERP innovations including Systems Applications and Product in Data Processing (SAP), Oracle ERPs, and PeopleSoft ERPs contributed to the significant relationship. This study concludes that the
relationship BRP innovations and organization sustainable development was statistically significant. All components of BRPs including Business Process Renovation and Business Process Automation all contributed to the significance of the relationship between BRPs and organizational sustainable development. Finally, the study concludes that the relationship between MIS and organizations sustainable development was statistically significant. All components of MIS innovations including management sustainability, information sustainability, and system sustainability contributed to the significance of the relationship.

This study recommends that management at L’Oréal should put mechanisms in place to ensure ERPs’ are cascaded and integrated to all levels of organizational operations. This should include work functions unit’s formation, data collection and processing, and decision making models. Management at L’Oréal should put mechanisms in place to ensure BRPs’ are cascaded and integrated to all levels of organizational operations. Business processes renovations should be monitored constantly to ensure that renovations that are being introduced are in line with enhancing delivery of desired products for market. In as much as MIS systems will capture critical information for management action, how this data is processed, stored for form part of organization knowledge management is important.
ACKNOWLEDGEMENT

I would like to acknowledge Dr. Juliana M. Namada for guidance throughout the entire process of writing this research project.
DEDICATION

My dedication for this project go to my family and friends for wonderful support and encouragement during my Masters’ studies and in undertaking this studies.
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<tr>
<td>AI</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>BPA</td>
<td>Business Process Automation</td>
</tr>
<tr>
<td>BPR</td>
<td>Business Process Renovation</td>
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<td>BPR</td>
<td>Business Process Re-engineering</td>
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<tr>
<td>DSS</td>
<td>Decision Support Systems</td>
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<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
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<tr>
<td>MIS</td>
<td>Management Information System</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Problem

Information Communication and Technology (ICT) innovations are essential components for organizational sustainable development. Globally, dynamic changes in ICT have revolutionized the way organizations conduct their business, and thus enhancing the ability for organization to enhance performance, and sustainability. The most critical challenge facing organizations in the world today is organizational sustainability and development (Enas & Mutaz, 2012). The more economically uncertain and unstable the world becomes, the more organizations must rely on ICT innovations not only to create a desired future, but a sustainable and competitive future. As a result, successful ICT innovations continuously demand creative efforts and ingenuity from organizations to understand, influence, and sustain future conditions (Ajmal, Helo, & Keka 2010).

Organizational sustainable development has been made possible by ICT innovation that has enhanced infusion of technology into business processes (Zheng, Yang, & Mclean, 2010). Technology Acceptable Model has been used by various scholars including Davis (1989); Beyes and Volkmann (2010); Gefen, Karahanna, and Straub (2013) and Mothe, 2011) in trying to explain the convergence between organizational sustainable development and ICT innovations. Beyes and Volkmann (2010) argue that ICT innovations cannot exists on themselves, without quest for organizational sustainable development.

Over several decades now, debate has raged on how to best initiate and promote organizational sustainable development without causing significant negative impact on human capital (Enas & Mutaz, 2012). For instance, ICT innovations that have brought wider adoption of machines and robotics in manufacturing and assembly line productions has led to wider efficiencies in production, but at the same time, has been a threat to thousands of jobs for craftsmen and assembly line workers (Zheng, Yang & Mclean, 2010). To this end, in as much as ICT innovations are highly integrated in organizational sustainable development, there are both pros and cons that need to be examined in a
comprehensive sense, rather than observing the integration from a single lens perspective (Beyes & Volkmann, 2010).

Zheng, Yang and Mclean (2010) argue that ICT innovations should be looked at from the perspective of how science and technology integrates to deliver advantage to organizations, hence growth in performance and development. Access to, and adoption of ICT innovations does promote steady improvements in organizations operational environment (Gera & Gu, 2011). First world countries like USA, Germany, France, Russia, and Organization for Economic Cooperation and Development (OECD) integrated ICT technologies in organizational development in the early to mid-1990s (Zheng, Yang & Mclean, 2010). As result, OECD countries have organizations that are highly integrated with ICT innovations compared to developing countries. OECD countries therefore have the capability to draw more benefits through technological innovation, making production of goods and services, efficient and effective with minimal cost implication (Qu, Oh, & Pinsonnault 2010).

On the contrary, the integration of ICT innovations in developing countries has been expensive for most organizations, since they have not only to import the technology, but technical capacities and support, in addition to initial costly capital outlay to acquire this technology (Ajmal, Helo, & Keka 2010). Nonetheless, Zheng, Yang and Mclean, (2010) argue that the benefits of acquiring, adopting and implementing ICT innovations, and integrating them to enhance Organisational sustainable development far out ways the cost implication in acquisition and technical support costs.

Mental et al., (2011) posits that organizations do face internal and external environmental challenges in a quest to remain sustainable. This includes market competition, changing needs on sustainability; employee willingness to adopt, and the organizations’ mindset of being socially responsible. As a result, Zheng et al., (2010) notes that organizations’ that do strike a balance between internal and external factors on financial performance, environmental performance, and social engagement in the long run do realize organizational sustainable development.

Therefore, ICT innovations have enhanced developing countries ability to pursue social, economic and strategic gains like those achieved developed nations utilizing such innovations (O’Mahony, Rincón-Aznar, and Robinson, 2010). However, borrowing
western ICT innovations is not a sure guarantee of successful importation. Poor planning, and development of these innovations sometimes overlap implementation, negating desired outcomes. Hence, the innovations fail to impose significant sustainable implications over organizations’ operations (Mothe, 2011).

According to Qu, Oh, and Pinsonnault (2010), sustainable development is defined as the ability for an organization to meet present needs so as to remain profitable, and competitive without compromising the ability of future generation to meet their own needs. Further, in organizational sustainable development, it is usually assumed that the inter link between present and future generations could be impossible to achieve without social equity within organizations in terms of economic activities, performance, and operational objectives.

Sustainable development can also be defined as a way of enhancing equitable balance between current organizational endeavors vis a vis future continuous development (Mothe, 2011). In organizational development, sustainable development is about advancing equity, economic, social, and environmental (Sharkey, Scott & Acton, 2010). To this end, organizations seeking to enhance sustainable development economically look at growth, efficiency in operation and stability. Qu, Oh, and Pinsonnault (2010), argues that organizational growth can be measured in terms of increase in production of goods and services, expansion in market base, employees and even organizations ‘operational mandate.

Economic expansion includes organizational performance in terms of revenue earned and profitability (Zheng, Yang & Mclean, 2010). For an organization to remain sustainable in the long term, profitability, and revenue growth is paramount. Efficiency on the other hand is the ability of the organization to utilize minimal input for maximum output or outcomes (Ajmal, Helo, & Keka 2010). The ability of an organization to remain competitive is determined among other things, by organizations efficiency.

O’Mahony et al., (2010) posits that environmental sustainability is also part of organizational sustainable development that deals with healthy environment for employees and humans surrounding the physical. To remain sustainable organizations, have to create environments that enables employees to thrive physically, emotionally, and
mentally, so as to continue being productive members of the organization in the foreseeable future (Zheng, Yang & Mclean, 2010).

The use of natural resources and renewable resources is another aspect of organizational sustainable development (Enas & Mutaz, 2012). Most organizations need natural resources to function. This includes raw materials for production of goods and services, while renewable services refer to the ability for the organization to regenerate and re-use raw materials into its production circle in a manner that enhances availability of the resource, and continuity of production into the foreseeable future. Finally, Gefen, Karahanna, and Straub (2013), and Gera and Gu (2011) argue that social suitability that concerns with education, health, security, full employment, cultural identity and participation of communities in organizational activities and production is essential for sustainability. Organizations do enhance education and capacity building as a way of guaranteeing there will be a continuous supply of skills, knowledge and competencies for organizational operations into the foreseeable future (Enas & Mutaz, 2012).

ICT innovations are defined as the use of technology to introduce better ways of production of goods and services, while at the same time cutting down on organizational operational costs (O’Mahony et al., 2010). Globally, ICT innovations of the 21st century such as Internet, mobile phones, E-mails, robots, Artificial Intelligent (AI) systems, Decision Support Systems (DSS) have enhanced ability for organizations to enhance productivity, while at the same time pursuing competitive advantage over other players in the market (Qu, Oh, & Pinssonnault, 2010).

Equally, ICT innovations have enhanced social, economic and strategic gains by enabling faster and efficient delivery goods and service to the customers (O’Mahony, Rincón-Aznar, and Robinson, 2010). Most of the ICT innovations emanated from Western countries like USA, Germany, France, and Russia in early 1990’s (Mothe, 2011). In as much as ICT innovations have contributed immensely in economic development in developed countries, the same cannot be said of developing countries. Importation of ICT innovations into has not necessarily guaranteed organizational sustainable development due to huge capital outlay, technology acquisition costs, and poor planning. In other cases, development of ICT innovations has sometimes overlapped implementation,
negating desired outcomes. Hence, the innovations fail to impose significant sustainable implications over organizations’ operations (Mothe, 2011).

Africa ICT innovations have been introduced by multinationals desiring to develop and enhance competitive advantage over African market (Qu, Oh, & Pinsonnault, 2010). As a result, African corporations have had to adopt and enhance the utilization of ICT technologies in order gain competitive advantage and remain relevant. According to O’Mahony et al., (2010) organizations with a capacity for ICT innovations do have better positions to compete in global and local markets than organizations without such innovations. To this end, ICT innovations are necessary catalysts for organizational sustainable development. Qu, Oh, and Pinsonnault, (2010) notes that firms that anticipate, create and respond effectively global changes in ICT innovations stand a better chance for enhancing internal and external environments for optimal performance and sustainable development. Conversely, Arvanitis and Loukis (2009) posits that a firm’s underperformance has direct relationship to underutilization of ICT technologies.

According to Holly (2015), successful establishment of ICT innovative technologies require that organizations establish, develop, and enhance human resource strategies for ICT skills. In as much as firms have to invest heavily in capital out lay to develop and implement ICT technologies, Qu, Oh, and Pinsonnault (2010), posits that ICT technologies in themselves are not a panacea for organizational sustainable development. Further, they argue that organizations have to establish not only ICT innovations, but also other mechanisms like visionary leadership, sound organizations structure and culture, in order to compete effectively on the global and local markets. Equally, as Arvanitis and Loukis (2009) contend, successful organizations not only in Europe, America or Asia, but those in Africa do also requires quality controls to accompany ICT innovations. Additionally, Letangule and Letting, (2012) argue that the effectiveness of ICT innovations can be measured through efficiencies such as cycle time, productivity, waste reduction and easier regulatory compliance necessitated by the technologies.

Kenya is one of Africa’s emerging economies with robust growth in ICT technologies for both multinationals and local organizations. Multinationals like Unilever, Coca- cola, Proctor and Gamble, and General Electric. IBM, Microsoft among others, have established their regional base in Kenya due to robust growth in ICT innovations, in
addition to conducive business environment (Letangule & Letting, 2012). Equally, Kenya has developed and enhanced its ICT frameworks to provide a conducive environment where organizations can freely innovate, and establish competitive advantage (Mothe, 2011).

Kenya Information and Communications Act Cap. 411A, regulates the ICT sector for organizations operating in the country. According to Letangule and Letting, (2012), Information and Communications Act 411A established mechanisms through which electronic transactions can be carried out. As such, this has led to rapid expansion in local organizations adoption of ICT innovations as a way of doing business, and as a way of establishing sustainable competitive advantage and development. Enas and Mutaz, (2012), posits that Continuous innovation therefore, lies at the heart of sustained competitive advantage, and thus, most firms in Kenya are involved in product/service development using ICT innovations. One of this companies is L’Oréal East Africa Ltd.

L’Ore’al acquired Interconsumer Kenya Ltd in 2013 to form L’Ore’al East Africa Ltd (L’Oreal, 2013). The acquisition was necessitated by the desire the virgin East African in development and distribution of cosmetic products. L’Oréal EA Ltd currently has over 350 employees in Kenya, with eyes set for expansions in Rwanda, Tanzania, Uganda, Ethiopia, and Burundi (L’Oreal, 2013). The acquisition and subsequent formation of L’Oréal EA Ltd led to drastic changes in the way ICT innovations are utilized both in product innovation, process innovation, and business innovation (Sellnow, 2011). This included the introduction of Entreprise resource planning (ERP), Business Process Re-engineering, and Knowledge Management technologies. This paper seeks to determine whether this innovations have placed L’Oréal EA Ltd on an organizational sustainable development path.

1.2 Statement of the Problem

This study sought to establish how ICT innovations influence organizational sustainable development. Since the acquisition of Interconsumer Kenya in 2013, L’Oreal East Africa has embarked on massive expansion both internal and external with reliance of ICT technologies such as Entreprise resource planning (ERP), Business Process Re-engineering, and Knowledge Management technologies (L’Oreal, 2015). However, since
establishment in 2013, no study has been conducted to determine whether the ICT innovations have contributed, or are contributing to L’Oreal East Africa Ltd sustainable development.

A study done by Otinda (2015) on L’Oreal East Africa Ltd was geared as establishing the effects of change management post acquisition. The study findings indicated the existence of a positive relationship between organizational structure, culture, and human capital, in post merger, however, the study did not establish any linkage to ICT innovations. Various other studies done on the subject; for instance a study by Enas and Mutaz, (2012) on Implementations of ICT Innovations: A Comparative analysis in terms of Challenges between Developed and Developing Countries established the existence competitive advantage, enhanced performance, efficiency and effectiveness of ICT innovations, however, the study did not provide any findings on the organizational sustainability attributable to ICT innovations. Equally, a study by Qu, Oh, and Pinsonnault (2010) on strategic value of ICT innovations indicated strong positive relationship between organization ICT innovations and organization performance, but failed to indicate whether the performance was significant in enhancing organizational sustainable development. The study however reported the need for enhanced human capital with ICT skills, need for top management support and change management dynamics. Equally studies by Singla (2012, on ERP systems in SMEs; Kumar and Van Hillsgersberg (2011) on ERP experience and evolution do not tackle comprehensively the issue of ICT innovation and sustainable development.

Therefore, there is need to expand body of knowledge on effects of ICT innovations and sustainable organizations development. This study seeks to provide this knowledge by examining the extent to which Entreprise Resource Planning (ERP) enhances sustainable organizational development; extent to which Business Process Re-engineering (BPR) enhances organizational sustainable development; and finally the extent to which other technologies influences organizational sustainable development.

1.3 Purpose of the Study

The purpose of this study was to determine whether ICT innovations influence organizations sustainable development.
1.4 Research Questions

This study was guided by the following questions:

1.4.1 To what extent does ERP technologies enhance organizational sustainable development?
1.4.2 To what extend does business process re-engineering technologies influence organizational sustainable development?
1.4.3 To what extent does Management Information System technologies influence organizational sustainable development?

1.5 Significance of the Study

The following stakeholders benefited from this study:

1.5.1 Researchers and Academicians

This research added value to the body of literature that researchers and academicians will find useful in conceptualizing trends, testing hypothesis, confirming findings on consistency with other similar studies in ICT innovations.

1.5.2 Government

This study was of importance to the government of Kenya that has the mandate to develop and regulate ICT policies for innovation and economic development. Government can therefore adopt the findings that will be provided by this study to better influence ICT policy formulation, ICT investments, and ICT infrastructure.

1.5.3 L’Oréal EA Ltd Africa

This study benefited L’Oréal EA Ltd Africa by providing management findings on the extent to which ICT innovations can enhance their organizational sustainable development. Management therefore utilized the findings to enhance decision making on ICT innovations, and how to enhance sustainable development in a global competitive environment

1.6 Scope of the Study

This study mainly focused on senior level managers and middle level management. This was informed by the fact that senior and middle level managers are the ones responsible
for developing strategic decisions that influence and shapes organizational sustainable development. The study took place at L’Oréal EA Ltd offices in Nairobi. The study was conducted over a period of one month so as to enable all targeted respondents adequate time to participate.

1.7 Definition of Terms

1.7.1 Information Communication Technology Innovations
ICT innovations are defined as the use of technology to introduce better ways of production of goods and services, while at the same time cutting down on organizational operational costs (O’Mahony et al., 2010).

1.7.2 Enterprise Resource Planning (ERP) Technology
ERP technology is a comprehensive, packaged software solutions developed for organizations that seek to integrate a wide range of a business's processes, functions, and plans designed to present a holistic view of the business operations from a single point of information and IT architecture (Zheng, Yang, & Mclean, 2010).

1.7.3 Business Process Re-engineering (BPR) Technology
Business Process Reengineering (BRP) involves organizational changes in structures and processes, by technological and human capital to redesign, how business knowledge so as to enhance organizational performance (Nguyen & Mohamed, 2011).

1.7.4 Decision Support Systems (DSS)
Decision Supports Systems (DSS) is defined as a computer-based information system that is designed with capabilities to help senior managers within organizations to select one solution among many alternatives to an organizational problem (Turban & Aronson, 2003).

1.7.5 Management Information Systems
Management Information System (MIS) is defined as an integrated computer-based information system that provides managers with oriented reporting based on business operations (Sidorova, Evangelopoulos, & Ramakrishnan, 2008).
1.7.6 Artificial Intelligence

Artificial intelligence is defined as the theory and development or integrated computer systems that are able to engage and perform organizational tasks that usually require human intelligence like visual perception, decision making, speech recognition, and even language translation (Melville, 2010).

1.8 Chapter Summary

This chapter has presented the background of ICT innovations and sustainable development, the problem statement, the purpose of the study and the scope of the study. The chapter has also presented significance of the study and definition of terms used in the study. Chapter three will present the study methodology adopted for the study, chapter four presents the study findings and results, while chapter five presents discussion, conclusion and recommendations.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

Literature review on empirical studies on ICT innovations and sustainable development is presented in this chapter. The presents the theoretical framework first followed literature on sustainable development; then the study research questions as follows: The extent to which ERP technologies enhances organizational development; followed by the extent to which business process re-engineering technologies influence organizational sustainable development; and finally the role of other technologies in enhancing organizational sustainable development. The chapter will also provide a summary outlining major areas covered in the chapter.

2.2 Enterprise Resource Planning Innovations and Sustainable Development

Enterprise Resource Planning (ERP) technologies are critical to establishing organizational sustainable development. According to Shields (2011), ERP technologies are standardized software package organizations use to integrate information across its functional units (John et al., 2014). To this end, organizations that implementation ERP technological innovations represents organizational intentions for sustainable development. ERP innovations have the capability of not only integrating organizational functional units, but also addressing organizational needs for strategic continuum Zheng et al., (2010).

On the other hand, Mental et al., (2011) posits that ERP innovations are implemented mainly to help organizations improve competitiveness; quality and timeliness of information; reduce operating costs, while at the same time enhance management control over organizational business processes. ERP innovations have numerous advantages for organizations seeking to enhance sustainable development. According to Nguyen and Mohamed (2011), one of the advantages of ERP to an organization is that ERP enables organizations to have reliable clients information since centralized databases are used to store, and disseminate clients product profiles. Equally, John et al., (2014) argues that ERP helps organization to avoid operational data redundancy since data is centrally managed. As a result, organizations that use ERP are able to operate with efficiency in
limited time, thus being effective in delivery of services that are essential in a globalized competitive world.

Similarly, ERP innovations do lead to cost reduction in organizational operations. This is occasioned as a result of time saving on retrieving, analysizing, and interpreting enterprise-wide data (Nguyen & Mohamed, 2011). More so, Zheng et al., (2010) posits that ERP innovations provide managers consistent timely data that enables strategic planning and execution of organizational goals. With ERP, more is accomplished in less time, compared to organizations that are using traditional ways of collecting and analyzing data for management action. Since we are operating in a globally galvanized competitive environment, organizations that are able to make use of timely data in a quick efficient manner do enhance competitive advantage helps the organizations to grow their operational niche in a sustainable way (O’Leary, 2012).

Easy of adaptability is another advantage that ERP innovations bring to an organization (Mental et al., 2011). For organizations to remain relevant, they must cope and adjust quickly to any changes in the internal and external environment. Nguyen and Mohamed (2011) argues that when an organization institutes ERP innovative technologies such as SAP, Oracle Applications, and PeopleSoft, then, any changes in business processes becomes not only easy to detect, but also easy to adapt and restructure. ERP also enables organization foster their capability for global outreach (Mothe, 2011). Organizational global outreach is made possible through CRM and SCM modules of the ERP. CRM enables the management of clients in real time from any place the organization operates, while the SCM enables organizations to do global supply and distribution logistics without the need of having to travel to the respective countries for distribution logistics (Kumar and Van Hillsgersberg, 2011)

In as much as ERP innovation so extremely advantageous for organizations to have so as to enhance sustainable development, ERP innovations has its challenges too. According to John et al., (2014), organizations implementing ERP sometimes face challenges when providing services to different segments of the market with that required different customization of the ERP modules. In other instances, as alluded to by O’Leary (2012) ERP implementation approaches differ when placed on different platforms; for instance, culture and language, organizational corporate policies, leadership and management style,
legal requirements in different country jurisdiction, and internal human capital and capabilities affect the seamless ERP implementation practices across different nations

On the other hand, Sumner, (2010) argues that ERP implementations are usually complex process that require constant support from ERP software companies. Equally, ERP’s are designed on technology that is usually shaped by organizational social context. To this end, local organization implementing global ERP templates usually run into operationalization problems due to different environments in design and implementation (Rashid, Hossain, Patrick, and Jon, 2010). Further Sumner, (2010) argues that without taking specific local environment into account, ERP innovations may become very risky for local organizations and may lead to catastrophic results.

The dynamics of organizational control, cultural issues, politics and power are not usually included in the ERP, and hence may jeopardize organizational equilibriums, networks, and social contexts that makes the organization perform better (O'Brien, & Marakas, 2010). Similarly, as argued by Rashid et al., (2010) some organizations in a quest to develop sustainable development, implement ERP application without even considering their internal capacity for ERP functionalities, and innovations. Of critical importance also, underestimating human capital in ICT, and thus, find it difficult to deploy, and utilize ERP technologies effectively (Abbas, 2011).

According to O’Leary (2012) there are five dominating ERP software innovation currently in the market. This includes SAP (Systems Application Products in Data Processing), PeopleSoft, Oracle, Edwards and Baan. This ERP innovation software’s control than 60% of the global market. Each of these vendor have a specific specialty in particular area. For instance, PeopleSoft specializes in human resources management innovations; Baan specializes in manufacturing; SAP specializes in logistics; while Oracle specializes in providing financials innovation solutions. Beyes and Volkmann (2010) contends that due competition for control of the highly lucrative ERP market, the vendors are continuously introducing innovations based new technological features. Organizations can choose different components of add-on innovations for their ERP based on their needs. For this study, only SAP, PeopleSoft, Oracle innovations will be examined for their contribution to organizational sustainable development (Kumar & Van Hillsgersberg, 2011).
2.2.1 Systems Application Products in Data Processing (SAP)

Systems Applications and Products in Data Processing (SAP) was founded by five former IBM engineers in 1972 (Kumar & Van Hillsgersberg, 2011). The main aim of developing SAP was to help organizations integrated their business application and data processing logistics so as to enhance organizational performance, and sustainable development ((Wan & Yiu, 2009). According to Norris, Dunleavy, Hurley, Ballis, and Hartley, (2012), the first ERP product innovations, R/2, was developed in 1979 using centralized database technologies; second ERP product innovations, R/3, was developed in 1992, while the latest ERP product innovations, R/3 6.0 was released in 2006.

According Norris et al., (2012), ERP functionality has enabled managers to plan their relationship with customers, while at the same time projecting the nature, and trends of their clients. This was made possible by the introduction of the Customer Relationship Management (CRM) component into the ERP software. Equally, the introduction of Supply Chain Management (SCM) component into the ERP has allowed managers to effectively manage and control their distribution businesses, while at the same time gain greater of logistical operations; increase speed in delivery, and enhance overall client satisfaction. According to O’Leary (2012) CRM and SCM components of ERP are very critical in establishing organizational financial performance, environment sustainability and social relations for enhanced organizational sustainable development.

Kumar and Van Hillsgersberg (2011) note that stiff competition for other online data processing software’s led ERP service providers to enhance the scope of ERP integration, but introducing the SAP’s Internet-enabled ERP solutions. This is a web based SAP solutions geared at enhancing ERP interacting functionality. Equally, the online SAP allows clients to conduct their own Research and Development (R&D) for customer profiling that is essential for long term business, critical for sustainable development (Norris et al., 2012).

2.2.2 Oracle Enterprise Resource Planning Innovations

Oracle is an ERP solutions provider for Oracle Applications and Software’s Mental et al., (2011). Oracle was founded in 1977 in the USA as a database software solutions provider that integrates all organizational data, statistics, information, clients, into one single platform. Oracles ERP has more than 50 different modules for six major categories. This
includes: finance, human resources, supply chain, accounts payable, manufacturing, projects and front office (Wan & Yiu, 2009).

What makes Oracle application one of the greatest ICT innovations is that it can also integrate systems administration, data warehousing, work flow, consulting services, and application development tools (APIs) (O’Leary, 2012). Organizations starting up, can use the API’s to design and develop an ERP solution that meets their needs at micro level, while big multinational can also use API’s to design ERP solutions at a macro level (Mental et al., 2011).

According to Gefen, Karahanna, and Straub (2013), oracle innovations have helped organizations achieve sustainable by enhancing organizations ability to databases that enhance knowledge management. Knowledge management is used to enhance organizational competitive niche, and thus, could lead an organization to sustainable development. According to Mothe (2011) Oracle has over the years provided innovation technologies that have not only enhanced the way organizations organize data and work flows, but also how organizations develop industry specific data analytics that can be used to enhance sustainable development.

2.2.3 PeopleSoft Enterprise Resource Planning Innovations

PeopleSoft ERP innovation solutions is one of the latest ERP software developed in 1987 in California USA (Wan & Yiu, 2009). According to Gefen, Karahanna, and Straub (2013), PeopleSoft specializes mainly in providing integrated human resource management services, and also financial services. However, to enhance client’s versatility, PeopleSoft other minor modules such as materials management, manufacturing, distribution, finance, and supply chain planning are essential for enhancing organizational performance and sustainable development (Mothe, 2011).

O’Leary (2012) argues that PeopleSoft is one of the best ERP provider that enables organizations to enhance collaborative interactions with their clients, and as a result, develop personal client relations that are critical for continued business, and sustainable organizational development. Nasierowski (2000) on the other hand notes that the online web presents help organizations solve clients’ problems in real time has been essential for organizations to enhance efficiency in human resources for effective delivery of services.
Organizations that are able to deliver services in an efficient and effective manner, enhances competitive advantage that maps organizational road for sustainable development (Mental et al., 2011). Equally, Wan and Yiu (2009) argue that PeopleSoft softwares do help organization to avoid operational data redundancy by aggregating data in a central repository for effective decision making. As a result, organizations that use PeopleSoft are able to operate with efficiency in limited time, thus being effective in delivery of services that are essential in a globalized competitive world, and for organizations’ sustainable development (John et al., 2014).

2.3 Business Process Re-Engineering Innovations and Sustainable Development

Business Process Re-engineering (BPR) is defined as the fundamental rethinking and radical redesign and recasting of business processes so as to achieve drastic improvement in organizational performance essential for sustainable development (Singla, 2008). According to Rashid et al., (2010), BRP innovations are beneficial to organization sustainable development in that they help organizations reduce cost, improve quality, service and speed up deliver of goods and services. A study conducted by Wan and Yiu (2009) indicated the existance of a positive relationship between BRP technologies and organizational sustainable development, r (0.698); p ≤ 0.000; this mean that the relationship is significant.

Business Process Re-engineering was introduced by Davenport and Short in 1990 and also by Hammer (1990) as a mechanism to increase organizations’ operational efficiency and produce enhanced improvements in performance as a result of streamlined business processes. According to Jackson and Sloane (2013), there are three reasons that led to the establishment of BRP; these includes organizations’ desire for customer diversity and power, the need for competitive advantage, and the need for environmental changes.

According to Dezdar and Sulaiman (2013) some of the key principles that BPR operates on is to organize organizational processes around outcomes, not tasks. This ensure that employees’ in charge of output of the process, are in charge of the process. Equally, Rashid et al., (2010) argue that BRP helps organizations create processes that produces information for strategic planning that aids in enhancing and galvanizing organizations position for competitive and vantage and sustainable development. Further, BRP helps organizations place decision points where actual work is performed and as a result enhances organizational performance.
Hartigh and Segveld (2011), BPR innovations focuses on how work should be organized to meet customers changing demands. Furthermore, the competitive global environment compels organizations to continuously re-engineer business processes so as to enhance quality service delivering. Business Process Re-engineering has a vast array of benefits. According to Dezdar and Sulaiman (2013), one of the importance of having BRP is the dramatic compression of work time. Usually, if a work unit takes five hours to complete, the introduction of BRP cuts the time into half, benefiting the organization in operational efficiency. Secondly, BRP enables organization to compress tasks and thus reduce operational costs cost and capital throughout the operational value chain (Kline, 2011). Compression therefore enables organizations to connect cross-functional teams thereby optimizing the decision making processes, while at the same time and cutting operational cost.

Dezdar and Sulaiman (2013) also contend that BRP innovations increase the speed with senior management makes decisions. Bureaucracy within corporate organizations most often hinders how information flows bottom-up, and bottom down. As a result, simple business decisions end up taking too long hampering the effectiveness and efficiency of organizational operations. Any organization that cannot act with speed over critical information ends up losing competitive advantage over competitors. (Hartigh & Segveld, 2011).

Betroni et al. (2013) argue that in as much as BPR has relevance in organizational sustainable development, BRP do have numerous challenges. For instance, organizations sometimes do invest a lot of money in projects using BRP, but often fail to meet the high expectations of re-engineering benefits. Indeed, studies done by O’Brien and Marakas, (2010), indicated that BPR failures can be very costly in capital outlay to a tune 70% loss of investment. On the other hand, Betroni et al. (2013) posit that BRP do not just fail in themselves, but a lack of sustained leadership and management commitment is one of the major contributors to the failures of BRP. Equally, lack of feasibility and unrealistic scope and expectations do lead to challenges in implementing and utilizing BRP’s.

One of the other major challenges as posited by Kline (2011) is employee’s resistance to change. In any organization, introduction of new operational processes, particularly those that threaten the traditional way of doing things, get resisted by employee. There are cases of sabotage that can lead to BRP failure. To this end, Betroni et al. (2013) argues that
managers should ensure that there is adequate communication of the implementation of BRPs and assuage employees’ fear on the same. Consequently, lack of knowledge on computer based BPR tools by employees does lead to BRP assimilation and adoption challenges.

In a study done by Abdolvand, Albadvi, and Ferdowsi, (2012) lack of adequate financial resources and adequate human resources led to BRP failure in some of manufacturing industries in India. When reference is made to adequate human resource, Abdolvand et al., (2012) mean staff that has ICT capabilities to understand how BRP integrations are effected. There are other numerous challenges that can be referenced in BRP integration. This includes lack of sponsorship, sense of implementation complacency’, unsound financial condition, communication gap between management and operational staff on the requirements and outputs needed from the BRP.

Before the advent of BPR innovations, organizations utilized functional units to conduct small simple tasks. However, with time, small functional units encountered operational problems, with the constant changes in the dynamic nature in the competitive environment. To this end, Dezdar and Sulaiman (2013) posits that BRP enabled organization to be able to re-engineer their business processes not only to keep up with changing business environment, but also to ensure functional units are integrated for optimized organizational performance. Consequently, Sumner, (2010) posits that organizations that did not adopt BRP in the 21st century, have found it difficult to cope, adapt and remain sustainable due internal challenges in meeting external demands. There are various types of BPR activity innovations for organizational sustainable. BPR activity innovations include business processes renovation; business automation and business networking (Dezdar & Sulaiman, 2013).

2.3.1 Business Processes Renovation

According to Sungau, and Msanjila, (2012) Business Process Renovation is part of BPR for redesigning business processes so as to improving organizational business operations. Ultimately, the goal and purpose of most organizations is to enhance performance and sustainable development. To this end, Dezdar and Sulaiman (2013) argues that organizations that are able to streamlining key business processes, have a greater chance of enhancing organization performance, competitive advantage and sustainable development. In BPR, smart organizations do renovate their business processes as to
avoid situations where non-value adding business processes are automated. Similarly, in previous studies, Mental et al., (2011) had argues that in order for organizations to achieve significant sustainable development benefits, it is therefore not sufficient for organizations to computerize old ways, of business processes, but rather, to fundamental redesign core business operational processes.

Kline (2011) argues that fundamental redesign in the core business process are critical to organizational performance, and sustainable development. Further, he argues that business renovation enables organizations to critically look at internal operations to determine what processes are no longer viable for competitive advantage, and to eliminate those processes instead of automating them. Sungau, and Msanjila, (2012) equally note that the purpose of business renovation is to help organizations determine redundant processes that even if innovated, will not add value to the organization. Therefore, renovation, is not about replacing old machines, or introducing machines for processes that are obsolete, but rather, introducing and enhancing business processes that are in line with the industry, and that are capable of enhancing organizations’ sustainable development (Hartigh & Segveld, 2011).

2.3.2 Business Processes Automation

According to Sungau, and Msanjila, (2012), Business Process Automation is the mechanization of business processes; or the process of introduction computerized infrastructure in order to improve organizational efficiency in business operations using ICT. In business process automation, information technology plays a major role in BPR since it provides a platform for processes automation. According to Hartigh and Segveld, (2011) business process automation allows organizations to conduct their business in multiple locations, while at the same time, permits quicker delivery of services to clients. Business process automation equally allows organizations to move away from tedious process of paper transactions.

Automation allows organizations to operate with efficiency and effectiveness in the way and manner work and goals performed (Mental et al., 2011). Sungau, and Msanjila, (2012) argue that business process automation allows organization to develop operational efficiencies that are required for competitive advantage and sustainable development. Business automation also enables organizations to develop adaptive processes and
structures to the dynamic business environment so as to sustain competitive advantage. Hartigh and Segveld, (2011) argue that automation enables organizations to enhance service and product delivery efficiency, that manual processes that take time, and may compromise quality.

In a global competitive world, sustainability can hinge of the level of service quality an organization gives to its clients. Therefore, Kline (2011) argues that it is necessary and essential that organizations utilize business automation services to advance competitive advantage, performance, and sustainable development as a winning niche over their rivals (Mental et al., 2011). A study conducted by Hartigh and Segveld, (2011) in Malaysia revealed the existence of significant relations between business process automation and organizational sustainable development, r (0.852); p ≤ 0.05. The study noted that automation enhances efficiency in delivery of services, which in turn, enhances customer’s loyalty, and thus, an organization’s performance is guaranteed for the future, which contributes to sustainable development.

2.4 Management Information Systems Innovations and Sustainable Development

Management Information System (MIS) is defined as an integrated computer-based information system that provides managers with oriented reporting based on business operations (Sidorova, Evangelopoulos, & Ramakrishnan, 2008). The MIS is abstracted in such a way that it has the capability to provide reports to managers at different levels and thus enabling them to make timely decisions that are essential to organizations performance and profitability. A study conducted by Jackson and Sloane (2013) on adoption of MIS innovation technologies revealed the existence of a relationship between MIS and organizational sustainable development, r (0.744); p ≤ 0.001, making the relationship statistically significant. The study also revealed that managers making decision based on information generated by MIS have 82% chance of making timely, effective and efficient decision compared to those who don’t use MIS.

Management Information System enables managers to automate most critical aspects of organizations decision making processes, particularly in cases where huge volume of data or information need to be analyzed before a decision is made (Indrajit, 2010). Tallon, Kraemer and Gurbaxani (2000) contend that MIS also helps organizations to make decisions concerning market share, how reduce operational costs, and how to increase profitability and performance quality.
A study conducted by Gefen et al., (2013) revealed that there exists a relationship between MIS and organizational sustainable development. $r (0.586); p \leq 0.000$. They further argued that MIS enabled managers to make complex decision faster and in an efficient manner, thus enhancing organizations ability to compete effectively in the market place. The ability of an organization to compete effectively contributes to positive performance and profitability that is essential to the organization sustainable development (Abdolvand et al., 2012).

According to Indrajit, (2010), MIS significantly contributes to organizational sustainable development because it has well organized interactive information system and decision models, procedures, and logarithms that make it possible to determine best solutions among alternatives available to management. This models are well developed and researched by computing experts, and hence, provide organizations with cutting edge technology that enhances efficiency and effectiveness in decision making processes. On the other hand, McLeod (1995) argues that the development of MIS within organizations have to be done in the right manners of the organization wants to enhance sustainable development. For instance, MIS requires that organizations have well demarcated knowledge and understanding of decision making, since MIS does not work in abstraction, but with human input or engagement of the MIS models.

Further, Sidorova, et al., (2008) argues that MIS is essential in operational management since it provides middle level managers with timely on the floor information concerning activities that are taking place, those that are productive, those that are lagging, and as such, enables them to make timely on the floor decision as corrective measures for areas of work unit that are not productive. Gefen et al., (2013) posit that MIS produces reports concerning performance of the organization that can be utilized to measure, or predict future performances, and thus plan effectively for the future. To this, Sungau, and Msanjila, (2012) note that an organization that is able to predict future trends and plan effectively for the future trends, has a better chance at remaining competitive and also, able to enhance sustainable organizational development.

Srinivas (2012), equally notes that MIS is essential to building organizational sustainable development in that it enables senior level managers to gather information from internal organizational operations and compare it with sector performance. Thus, senior managers are well informed when drafting strategic plan or visioning for the organization.
According to Gera and Gu (2011), organization that making strategic planning based on factual data, both internal and external have a better chance of developing relevant and adequate strategies that can be used as the engine to propel the organization to sustainable development.

Nowadays, in the modern business environment requires that organization build sustainable business models that can be used to enhance competitiveness. To do this, Zheng, Yang, and Mclean, (2010) argue that MIS enables managers to build organizational specific competencies that can be used to develop trends for sustainable development. One of the ways in which this can be done is by developing performance trends over periods of time that can be used enhancing competitive advantage over other players in the market. Conversely, John et al., (2014) posit that having MIS is not the end in itself toward developing organizational sustainable development. Organizations have to build internal capabilities on how to utilize MIS data for competitive advantage. Thus, by building an exceptional MIS analytics, organizations can be able to stay ahead of their industry, remain profitable, and sustainable (Jackson & Sloane, 2013).

2.4.1 Management Sustainability

Zheng et al., (2010) defines management sustainability as the processes, procedures and MIS engagements that enable managers to conduct their daily functions of planning, organizing, staffing, coordinating, direction and decision making in a sustainable manner for the foreseeable future. The growth of MIS has enabled managers to carry out their functions with speed, efficiency and effectiveness (Gefen, Karahanna, & Straub, 2013). Managers no longer have to spend numerous hours labouring on how to make sense of data within an organization before they make decisions. MIS enhances manager’s ability to plan, and coordinate activities of an organization since information is easily available through different MIS modules (Kline, 2011).

Equally, John et al., (2014) argue that MIS enables managers to have the accuracy and timeliness in decision making and thus helps organizations reduce cost of production, and also enhancing quality, efficiency, and effectiveness of products. A study by Sharma, and Kumar (2014) in the United States revealed the existence of a relationship between MIS and manager’s efficient decision making, r (0.728); p ≤ 0.01. To this they argued that efficient decision making processes enhanced organizations’ sustainable development,
since most organization under the study exhibited the ability to take advantage of market information, competition, and optimal performance levels to enhance their competitive advantage over their competitors.

Norris et al., (2012) equally argue that MIS provides managers with live decision support systems in critical moments that need accuracy and timely interventions. For instance, when there is a lag in market demand for a given product, integrated MIS provides this information to managers at the click of the button. This enables managers to slow down production to minimal market supply levels. To this Chang and Wang, (2012) and Wellman, (2014) note that the ability of managers knowing when to produce a product, and in what quantities so as to take advantage of the market supply and demand curve enhances the organizations performance, and competitive edge which leads to sustainable development.

2.4.2 Information Sustainability

Gefen et al., (2013) define information sustainability as the ability for an organization to keep gathering critical information that is essential for its future operations. Management Information System (MIS) enables management to customize fields within organizational database to collect critical data that is essential organizational sustainable development (Kline, 2011). The input data into the system is processed by MIS to form part of information the organization used to develop its Performance models, or to determine which functional units need to be changed, and which to be enhanced for optimal organizational performance (Chang & Wang, 2012).

Indrajit, (2010) argues that MIS information makes abstraction of reality upon which elements of decision making are based. For instance, Wellman (2014) contends that MIS superiority towards organizational sustainable development is built within its ability for qualitative reasoning, data mining capabilities, and expert heuristics that are essential in formulating decision alternatives. According to Kline (2011), MIS enables support for information exchange by having federated organizational memory that form the basis from which management can draw inferences. Any organization has such capabilities through MIS to collect critical information has the potential to build sustainable competitive advantage, that is essential for sustainable organizational development (Gefen et al., 2013; Chang & Wang, 2012).
Abdolvand et al., (2012) argue that since MIS does function in a goal oriented environment, information is essential to organizational performance. Managers need critical information not only at critical times, but all the time, and thus, MIS ties managers to their performance evaluation. This is done through the production of data analytics that forms operations history from which information and data mining can be imposed to develop trends for future operations. This capability does not only enhance information sustainability, but also, information for organizational sustainable development (Jackson & Sloane, 2013).

2.4.2 System Sustainability

System sustainability is defined as the ability to enhance the interconnected of computer based information systems for the present and future sustainability or an organizations performance, processes, and functions (Gera & Gu, 2011). The 21st century has seen rapid expansion in new technologies that have been embraced by organizations as a way of enhancing sustainable development. Management Information Systems (MIS) is one of the technologies that has enhanced organizations’ system sustainability (John et al., 2014). Management Information Systems (MIS) has given managers the ability to interlink other operational technologies into single integrated network that makes access to information easier, and decision making efficient (Gefen et al., 2013).

A study conducted by Beyes and Volkmann (2010) in the United Kingdom on technological innovations revealed the existence of a strong relationship between MIS and organizational sustainable development, \( r (0.745); p \leq 0.05 \), meaning the relationship was significant. This equally means that the interconnectedness that MIS brings into an organization does enhance organizations system sustainability. Equally, Sumner (2010) argues that MIS innovations have facilitated robust growth in organizations by enhancing the way organizations operate, organize work, and communicate. For instance, communication technologies like the Internet, mobile phones, and e-mails can be integrated into MIS, such that notifications can be sent to responsible managers concerning specific decisions that need to be made, even when the managers are not in the office, or on the system. The ability of modern MIS to act like an intelligent system is one of the critical successes of MIS in advancing organizational sustainable development (Sungau & Msanjila, 2012).
However, Gefen et al., (2013) posit that in as much as MIS has numerous benefits in enhancing how an organization passes information, and in enabling speedy decision making, MIS just like any other organizational system, has acquisition and maintenance cost. Further, they argue that most organization fail to enhance system sustainability due to the rapid changes on technological innovations the introduce different functionalities into systems like MIS. To this, Mental et al., (2011) note that managers changed with MIS functionalities at time lack behind in acquiring skills and knowledge on new modules introduced into MIS, and thus, fail to take advantage of technological innovation, which in turn diminishes system sustainability. Failures in system sustainability can be detrimental to organizational sustainable development in the long run (Hartigh & Segveld, 2011).

2.5 Chapter Summary

This chapter has presented literature review based on the study research questions. First, review on the extent to which ERP technologies enhance organizational sustainable development has been presented; followed by the extent to which business process re-engineering (BRP) technologies influence organizational sustainable development; and finally extent to Management Information System (MIS) technologies influence organizational sustainable development. Chapter three will present the methodology that will be adopted for the study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methodology that was adopted for this study. The study methodology included research design which described the approach the study took, the study population, sample size, sampling technique, data analysis and the procedures that were adopted for the study, and finally the chapter summary was presented last.

3.2 Research Design

According to Cooper and Schindler (2014), research design is defined as the framework that is used to collect and analyze data in order to answer research question or the objectives of the study. Equally, research design is used to provide justification for choice of data resources, collection and analysis. Descriptive survey research design was adopted for this study. The descriptive survey research design was adopted since it enables for the collection of both qualitative and quantitative data, without changing or influencing the study environment. This study utilized purposive sampling since only middle level managers and top executives were sampled for the study. According to Cox and Hassard (2010) a survey is a study methodology used to carry out research by using questionnaires to a specified sample of the population designed to elicit specific information in line with the study objectives.

3.3 Population and Sampling Design

3.3.1 Population

A population of a study is the total collection of elements, or people in a study where references are made (Saunders, Lewis & Thornhill, 2012). Cooper and Schindler (2014) also defines a population of a study as the total units that form the study subject a researcher wishes to examine. For this study, the population was composed of 262 employees of L’Oréal EA Ltd as indicated in table 3.1.
### Table 3.1: Population Distribution Table

<table>
<thead>
<tr>
<th>Population Areas</th>
<th>Population</th>
<th>% Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directors</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Senior Management</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td>Senior Operations</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Marketing and Sales</td>
<td>20</td>
<td>8%</td>
</tr>
<tr>
<td>ICT</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>Finance</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>General Employees</td>
<td>221</td>
<td>83%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>262</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### 3.3.2 Sampling Design

According to Mugenda et., (2012), sampling design is the framework on how a study sampling will be conducted. Sampling on the other hand is the process a research engages to select elements or units from a population that are a representation of the whole, to carry a study on. Cooper and Schindler (2014) on the other hand defined sampling as the procedure or systematic process that researchers use to select individuals for a study that are a representation of the whole population of the study. The sampling design presented the sampling frame, the sampling technique, and the sample size.

#### 3.3.2.1 Sampling Frame

Saunders et., (2012) define a sampling frame as the final list that represents the population of the study, from which, a researcher makes a sample selection. The list is composed of the total units, both for homogeneous and heterogeneous groups of a study. The sampling frame was obtained from the Human Resources office at L’Oréal EA Ltd Africa.

#### 3.3.2.2 Sampling Technique

According to Cooper and Schindler (2014), a sampling technique is the tactic that a researcher uses to ensure that various groups either in a homogeneous or heterogeneous study are well represented in the final sample size for the study. Stratified and simple random sampling was utilized to ensure that various functional departments were
represented in the selection of the study respondents. Stratified was used to pick managers and employees to take part in the study.

### 3.3.2.3 Sample Size

Cooper and Schindler (2014) define sample size as a smaller unit representing the larger population. In selecting a sample size, a researcher is usually guided by the level of confidence he or she needs to have in the data, the accuracy, the type of analysis to undertake, and finally the total population from which your sample will be drawn. This study utilized Krejcie and Morgan (1970) formula to determine the sample size as follows:

\[
S = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}
\]

Where:

- \( S \) = Sample Size
- \( X \) = Confidence level
- \( N \) = Population
- \( P \) = Population Proportion
- \( d \) = Degree of accuracy; Margin of error

\[
S = (1.96^2*262*0.5) (1-0.5))/ ((0.5^2*(262-1) +(1.96^2) (1-0.5))
\]

**Sample Size = 157**

The sample size distribution is indicated in table 3.2
Table 3.2: Sample Distribution Table

<table>
<thead>
<tr>
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<th>Population</th>
<th>Sample</th>
<th>% Distribution</th>
</tr>
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<td>2%</td>
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<tr>
<td>Senior Management</td>
<td>4</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>Senior Operations</td>
<td>3</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Marketing and Sales</td>
<td>20</td>
<td>20</td>
<td>12%</td>
</tr>
<tr>
<td>ICT</td>
<td>5</td>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td>Finance</td>
<td>5</td>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td>General Employees</td>
<td>221</td>
<td>117</td>
<td>75%</td>
</tr>
<tr>
<td>Total</td>
<td>262</td>
<td>157</td>
<td>100%</td>
</tr>
</tbody>
</table>

3.4 Data Collection Methods

According to Cooper and Schindler (2014), data collection is the process of gathering all data from respondents of the study in an established systematic manner so as to answer research objectives or questions. This study used a structured questionnaire to collect data. The questionnaire utilized the Likert scale of 5 measurements (Strongly Disagree, Disagree, Moderate, Agree, and Strongly Agree). Section ‘I’ consisted of the demographic data; Section ‘II’ had questions for research question 1; Section ‘III’ had questions for research question 2; Section ‘IV’ had questions for research question 3; while Section ‘V’ had questions for sustainable development (dependent variable). According to Glaser and Strauss (2011), questionnaires are critical tools for research for collecting primary data. Therefore, for this study, the use of questionnaires was justified to the extent that the study was to capture only primary data. The questionnaires composed of both closed ended and open ended questions.

3.5 Research Procedures

According to Cooper and Schindler (2014) research procedures are the detailed description consisting of step by step guide on how the research should be conducted to meet the objectives of the study. For this study, after the project proposal had been approved, a letter was drafted to the director of L’Oréal EA Ltd Africa. After the directors approval, a pilot test involving 10 respondents was carried to test validity, clarity and reliability of the contents of the questionnaire. The pilot test was done using supervisors at L’Oréal EA Ltd. Once the pilot had been completed, any weaknesses was corrected and questionnaire amended before being utilized for actual study. The next step was to
have three research assistants go to L’Oréal EA Ltd Africa offices, locate respondents, explain to them the purpose of the study and how to fill in the questionnaire. Research assistants provided 30 minutes for the respondents to fill the questionnaire, then they collected all the questionnaires back. Research assistants counter checked to ensure that all sections in the questionnaire were dully filled. Since the questionnaires were numbered, any questionnaire that had missing sections was returned to the specific responded so as to seek the missing information. After which, all questionnaires were handed back to the researcher.

3.6 Data Analysis Methods

Saunders et al., (2012) define data analysis methods as the process through which a researcher reduces raw data into meaningful information that answers the study objectives. Both inferential and descriptive statistics were utilized in the analysis of this study. Descriptive statistics examined frequencies, percentages, mean and standard deviation, while inferential statistics examined correlation between study variables. The Statistical Package for Social studies (SPSS) was used to analyze the data. The findings were represented using tables and figures.

3.7 Chapter Summary

The study methodology has been highlighted in this chapter. First, the research design was used has been presented. The Research design that was adopted is the descriptive survey research design. This chapter has also presented the population of the study which was composed of 262 employees at L’Oréal East Africa, with a sample size of fourth consisting of senior and middle level managers. The sampling technique that was adopted is also presented followed by the research procedures, and finally the data analysis methods. Chapter four will present the results and findings of the study.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 INTRODUCTION

Results and findings are presented in this chapter. The findings on demographic data are presented first, followed by results and findings on ERP technologies and organizational sustainable development, then BRP technologies and organizational sustainable development, and finally MIS technologies and organizational sustainable development. Chapter summary is presented at the end of the chapter.

4.1.1 Response Rate

This study had a response rate of 54%. Out of 157 questionnaires handed out, 84 questionnaires were returned fully filled. The rate is above 50% hence the survey results were a good representative of the target population, this produced accurate, useful results.

4.1.2 Reliability Analysis

Reliability analysis was conducted to determine the validity of the study instrument. The study instrument had a reliability analysis Alpha value of 0.848 as indicated in table 4.1 below. This study has reliability Cronbach Alpha value of 0.6.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of Items</th>
<th>Alpha Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Sustainable Dev</td>
<td>12</td>
<td>0.882</td>
</tr>
<tr>
<td>ERP Technologies</td>
<td>10</td>
<td>0.824</td>
</tr>
<tr>
<td>BRP Technologies</td>
<td>10</td>
<td>0.792</td>
</tr>
<tr>
<td>MIS Technologies</td>
<td>10</td>
<td>0.894</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42</strong></td>
<td><strong>0.848</strong></td>
</tr>
</tbody>
</table>

4.2 Demographic Analysis

To determine the demographic data for this study, respondents were asked to indicate their age, and gender, years of work, work department, and employee designation. The findings are indicated in the following sections.
4.2.1 Respondents Gender

The findings of the study showed that 56% or respondents were male, while 44% of respondents were female as indicated in figure 4.1. The response rate was in line with the gender distribution at L’Oréal where the company had total population of 52% male and 48% female. For this male respondents were more compared to female due to other factors not considered in this study like women having household chores after office work unlike men.

![Pie chart showing gender distribution](image)

**Figure 4.1: Respondents Gender**

4.2.2 Respondents Age

The findings of the study showed that 33% of respondents were aged between 31 and 40 years, 27% were aged between 41 and 50 years, 16% were aged between 18 and 30 years, 14% were aged between 51 and 60 years, while the remaining 10% were aged 61 years and above as indicated in figure 4.2. The 31 to 40 year group was the highest since most of this employees had stayed with the company since it started transforming from a family based business to a more corporate structure before the acquisition by L’Ore’al.
4.2.3 Respondents Work Department

The finding of the study showed that 35% of respondents were from the marketing department, 25% of respondents were from operations department, 17% from sales, 9% from customer services, while 7% of respondents were from finance and I.T department respectively as highlighted in figure 4.3. Marketing department had the highest representation because at L’Oréal more employees are in the marketing department to help market the organizations cosmetics products compared to other departments.

4.2.4 Number of Years at Work

When respondents were asked to indicate the number of years they had worked at L’Oréal The findings showed that 38% indicated they had worked at L’Oréal between 4 and 6 years, followed by 18% with 1 to 3 years, 17% with 7-9 years, 15% with 10 to 12 years,
while 12% of respondents indicated that they had worked at L’Oréal for more than 13 years as highlighted in figure 4.4.

![Bar chart showing number of years at L'Oréal](image)

**Figure 4.3: Number of Years at L’Oréal**

### 4.2.5 Respondents Designation

Respondents of the study were asked to indicate their work designation. The findings showed that 64% of respondents were general employees, 26% were midlevel managers, while 10% of respondents indicated they were top level managers as highlighted in figure 4.4. The findings were in line with staffing levels at L’Oréal since general employees are more compared to other categories of employees like senior and middle level management.

![Pie chart showing respondents designation](image)

**Figure 4.4: Respondents Designation**
4.3 Enterprise Resource Planning Innovations and Sustainable Development

4.3.1 Type of Enterprise Resource Planning Technologies

This study sought to determine the type of ERP innovations that are in use at L’Oréal East Africa. The findings showed that 70% of ERPs at L’Oreal are Oracle ERPs, 23% are SAP technologies, while the remaining 7% are PeopleSoft technologies as indicated in figure 4.5. Oracle ERPs were used more than the SAP and PeopleSoft because they were integrated from sales, marketing, finance, and management.

![Figure 4.5: Type of Enterprise Resource Planning Technologies](image)

4.3.2 Descriptives of Enterprise Resource Planning

Table 4.2: Enterprise Resource Planning Innovations Descriptive Statistics

<table>
<thead>
<tr>
<th>Questions</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERP innovations enhances productivity</td>
<td>84</td>
<td>3.65</td>
<td>.187</td>
</tr>
<tr>
<td>ERP innovations enhances organizational performance</td>
<td>84</td>
<td>4.00</td>
<td>.202</td>
</tr>
<tr>
<td>ERP enhances work flexibility</td>
<td>84</td>
<td>4.13</td>
<td>.941</td>
</tr>
<tr>
<td>ERP innovations eliminate operational costs</td>
<td>84</td>
<td>3.62</td>
<td>.379</td>
</tr>
<tr>
<td>ERPs are costly implement</td>
<td>84</td>
<td>3.86</td>
<td>.066</td>
</tr>
<tr>
<td>ERP innovations enhances organizational performance</td>
<td>84</td>
<td>3.99</td>
<td>.207</td>
</tr>
<tr>
<td>ERPs have not faced adaptation challenges</td>
<td>84</td>
<td>3.42</td>
<td>.310</td>
</tr>
<tr>
<td>ERPs have not faced integration challenges</td>
<td>84</td>
<td>3.63</td>
<td>.240</td>
</tr>
<tr>
<td>ERPs have not faced customization challenges at</td>
<td>84</td>
<td>3.82</td>
<td>.204</td>
</tr>
<tr>
<td>ERP innovations enhances efficiency in decision</td>
<td>84</td>
<td>3.68</td>
<td>.346</td>
</tr>
<tr>
<td>making</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The findings showed that ERP enhances work flexibility had the highest mean, M (4.13), which was followed by ERP innovations enhances organizational performance with mean, M (4.00). Based on these findings, we can deduce that majority or L’Oréal employees felt that the major contribution of ERP to their daily routine is work flexibility. ERP innovations enhance organizational performance had a mean, M (3.99), while question on whether is costly to implement had a mean, M (3.86); the question whether ERPs have not faced customization challenges had the mean, M (3.82). All the other question a mean above (3.40). The lowest mean recorded was on the question on whether employees had faced adaptation challenges. The reason as to why this question had the lowest mean is that L’Oréal had taken enough time to train employees before ERP roll out began enhancing changes of adaptation

The question on whether ERP had enhanced work flexibility had the highest standard deviation, SD (0.941). The reason for this deviation is that employees felt that adoption of ERP had in actuality transformed their way of life, thus the mean for the question was high, thus creating a higher deviation from aggregate mean. All the other questions had a standard deviation above (0.60). The lowest standard deviation recorded was (0.66) on the question on whether ERPs were costly to implement. This means that most respondents agreed ERPs were costly to implement at L’Oréal in as much as the benefits out way the costs.

### 4.3.3 Correlation Between Enterprise Resource Planning and Organization Sustainable Development

The first objective was to determine whether there existed any relationship between ERP and organizational sustainable development, this was done through a correlation analysis where each question was run against the independent variable. Summary of the findings are presented in table 4.3.
Table 4.3: Correlation Analysis between Enterprise Resource Planning and Sustainable Development

<table>
<thead>
<tr>
<th>Questions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ERP innovations enhances productivity</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ERP innovations enhances organizational performance</td>
<td>.562**</td>
<td>.393**</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3. ERP enhances work flexibility</td>
<td>.373**</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>.000</td>
<td>.080</td>
<td>.065</td>
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<td></td>
</tr>
<tr>
<td>4. ERP innovations eliminate operational costs</td>
<td>.273*</td>
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<td>.342**</td>
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<td>.001</td>
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<td></td>
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<td>5. ERPs are costly implement</td>
<td>.200**</td>
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<td>.000</td>
<td>.067</td>
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<td>.003</td>
<td>.000</td>
<td>.545</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>6. ERP innovations had not enhanced organizational performance</td>
<td>.235*</td>
<td>-.095</td>
<td>.396</td>
<td>.192</td>
<td>.345**</td>
<td>.017</td>
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<td>.000</td>
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<td>.001</td>
<td>.175</td>
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</tr>
<tr>
<td>7. ERPs have not faced adaptation challenges from employees</td>
<td>.416**</td>
<td>.139</td>
<td>.252*</td>
<td>.043</td>
<td>.138</td>
<td>.009</td>
<td>.256*</td>
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<td>.001</td>
<td>.019</td>
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<td></td>
</tr>
<tr>
<td>8. ERPs have not faced integration challenges</td>
<td>.323**</td>
<td>.194</td>
<td>.097</td>
<td>.114**</td>
<td>.147</td>
<td>.051</td>
<td>-.108</td>
<td>.274*</td>
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<td></td>
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<tr>
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<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.646</td>
<td>.330</td>
<td>.012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. ERPs have not faced customization challenges</td>
<td>.379**</td>
<td>.347**</td>
<td>.383**</td>
<td>.054</td>
<td>.271*</td>
<td>.020</td>
<td>.371**</td>
<td>.178</td>
<td>.302**</td>
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<td>.001</td>
<td>.000</td>
<td>.019</td>
<td>.013</td>
<td>.156</td>
<td>.001</td>
<td>.106</td>
<td>.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. ERP innovations enhance efficiency in decision making</td>
<td>.553**</td>
<td>.405**</td>
<td>.290**</td>
<td>.412**</td>
<td>.529**</td>
<td>.211</td>
<td>.292**</td>
<td>.012</td>
<td>.239*</td>
<td>.118**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.007</td>
<td>.412</td>
<td>.000</td>
<td>.050</td>
<td>.007</td>
<td>.914</td>
<td>.029</td>
<td>.007</td>
<td></td>
</tr>
<tr>
<td>11. Organizational Sustainability Development</td>
<td>.331**</td>
<td>.562**</td>
<td>.373**</td>
<td>.273*</td>
<td>.200**</td>
<td>.235*</td>
<td>.416**</td>
<td>.323**</td>
<td>.379**</td>
<td>.553**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>.002</td>
<td>.000</td>
<td>.000</td>
<td>.12</td>
<td>.005</td>
<td>.000</td>
<td>.000</td>
<td>.003</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.1 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The highest significant relationship was on whether ERP innovations enhance organizational performance with organizational sustainable development, r (0.562); p ≤ 0.1. This means that majority of employees felt that ERP had enhanced the way the organization functions, and therefore, enabled the organization to build mechanisms for sustainable development. ERP innovations had enhanced efficiency in decision making, r
(0.553); p ≤ 0.1; while ERPs had not faced adaptation challenges and sustainable development was positive and significant, r (0.461); p ≤ 0.1. All the other questions that revealed significant relationships a correlation value (r) above (0.200); p ≤ 0.1.

The highest positive relationship was between on whether ERP innovations enhanced organizational performance and ERP innovation enhanced work flexibility and organizational sustainable was positive, r (0.562); p ≤ 0.000. This means that in as much as this relationship was not significant, majority of respondents felt that the relationship could not be wished away. Therefore, the organizations should ensure that successive implementation do enhance work flexibility. The other positive relationship was between enterprise resource planning innovation enhance work flexibility and enterprise resource planning innovations eliminate operational costs was positive, r (0.373); p ≤ 0.05. All other positive relationships were above r (0.10); p≤ 0.05.

The highest negative relationship was between ERP innovations enhances organizational performance and ERPs have not faced adaptation challenges from employees, r (-0.256); p ≤ 0.05, the relationship was significant. This means that respondents felt, in as much as ERP had enhanced organizational performance, they had faced adaptation challenges, however, the challenges were very weak, and easily overcome as demonstrated by the weak relationship. ERP had not faced integration challenges had a negative relationship with ERO are costly to implement, r (-0.108); p ≥ 0.05; ERP enhances work flexibility also had a ERP innovations eliminate operational costs was negative, r (-.082); p ≥ 0.05; as indicated in table 4.3.

4.4 Business Process-Re-Engineering Innovations and Sustainable Development

The second research question was to determine the extent to which Business Process Re-engineering (BPR) enhanced organizational sustainable development. This was achieved through correlation analysis. The study findings are presented in the following sections.

4.4.1 Business Process Re-Engineering Innovation Technologies Descriptive Statistics
Table 4.4: Business Process Re-Engineering Descriptive Statistics

<table>
<thead>
<tr>
<th>Questions</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRP innovations enhances productivity</td>
<td>84</td>
<td>3.76</td>
<td>0.126</td>
</tr>
<tr>
<td>BRP innovations enhances performance</td>
<td>84</td>
<td>3.61</td>
<td>0.271</td>
</tr>
<tr>
<td>BRP innovations enhances work flexibility</td>
<td>84</td>
<td>4.37</td>
<td>0.847</td>
</tr>
<tr>
<td>BPR innovations eliminate operational costs</td>
<td>84</td>
<td>4.23</td>
<td>0.797</td>
</tr>
<tr>
<td>BPR innovations enhances Data consistency</td>
<td>84</td>
<td>4.06</td>
<td>0.736</td>
</tr>
<tr>
<td>BPR innovations are costly implement</td>
<td>84</td>
<td>4.07</td>
<td>0.861</td>
</tr>
<tr>
<td>BPR innovations require constant technical support</td>
<td>84</td>
<td>3.81</td>
<td>0.135</td>
</tr>
<tr>
<td>BPRs innovations’ have not faced adaptation challenges from employees</td>
<td>84</td>
<td>4.35</td>
<td>0.814</td>
</tr>
<tr>
<td>BPR innovations’ have not faced integration challenges at L’Oréal EA</td>
<td>84</td>
<td>3.85</td>
<td>0.177</td>
</tr>
<tr>
<td>BRP innovation have not faced customization challenges</td>
<td>84</td>
<td>3.85</td>
<td>0.227</td>
</tr>
</tbody>
</table>

BPR innovations enhances work flexibility had the highest mean, M (4.37) followed by BPRs innovations have not faced adaptation challenges from employees with mean, M (4.35). This mean majority of respondents believed that the greatest contribution of BPR to L’Oréal was work flexibility. The reasons as to why majority also felt that BPR had not faced adaption challenges is due to the fact that L’Oréal might have trained employees on BRPs before implementation was done. BRP innovations enhances performance which had the lowest mean, M (3.61). The reason as to why respondents felt BPR does not enhance performance is that BPR work at a structural business level than employee task level, creating the disparity in employees feeling towards BPR and performance.

BPR enhances work flexibility had the highest standard deviation, SD (0.847) and followed BPR has not faced adaptation challenges with a standard deviation, SD (0.814). This means that majority of respondents felt that L’Oréal had done a good job in ensuring that BPR have well integrated processes that enhance employees work flexibility. Other questions had a standard deviation SD above (0.120) meaning that they were no question with negative deviation from the mean, indicating that BPR is relevant to the organization and to enhancing organizational sustainable development.
4.4.3 Correlation between Business Process Re-Engineering and Organizational Sustainable Development

The last research question focused on to determine whether any relationship existed between BPRs and Organizational sustainable development, this was achieved through a correlation analysis as presented in table 4.5.

Table 4.5: Correlation between Business Process Re-Engineering and Organizational Sustainable Development

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BRP innovations enhance productivity</td>
<td>.453**</td>
<td>.000</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. BRP innovations enhance performance</td>
<td>.346**</td>
<td>.306**</td>
<td>.001</td>
<td>.001</td>
<td>1</td>
<td></td>
<td></td>
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<td>3. BRP innovations enhance work flexibility</td>
<td>.375**</td>
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<td>.284**</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>4. BPR innovations eliminate operational costs</td>
<td>.574**</td>
<td>.452</td>
<td>.094</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. BPR innovations enhance Data consistency</td>
<td>.529**</td>
<td>.444**</td>
<td>.415</td>
<td>.345</td>
<td>.312**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. BPR innovations are costly to implement</td>
<td>.243**</td>
<td>.281**</td>
<td>.540**</td>
<td>.354**</td>
<td>.212*</td>
<td>.214**</td>
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</tr>
<tr>
<td>7. BPR innovations require constant technical support</td>
<td>.470**</td>
<td>.362**</td>
<td>.428</td>
<td>.382**</td>
<td>.476*</td>
<td>.110*</td>
<td>.171*</td>
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</tr>
<tr>
<td>8. BPRs innovations’ have not faced adaptation challenges from employees</td>
<td>.383**</td>
<td>.505**</td>
<td>.312</td>
<td>.233*</td>
<td>.291</td>
<td>.087</td>
<td>.085</td>
<td>.268*</td>
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<td></td>
</tr>
<tr>
<td>9. BPR innovations’ have not faced integration challenges</td>
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<td>.473</td>
<td>.244*</td>
<td>.155</td>
<td>.167</td>
<td>.070</td>
<td>.086</td>
<td>.359**</td>
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<tr>
<td>10. BPR innovation have not faced customization challenges</td>
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<td>.320</td>
<td>.287**</td>
<td>.270*</td>
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<td>.151</td>
<td>.334**</td>
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<td>11. Organizational Sustainable Development</td>
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<td>.346**</td>
<td>.375**</td>
<td>.574**</td>
<td>.529**</td>
<td>.243*</td>
<td>.470**</td>
<td>.383**</td>
<td>.243*</td>
<td>.461**</td>
<td>1</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Significant relationship from the analysis include: BPR innovations enhances data consistency and organizational sustainable development had the highest relationship, \( r (0.574); p \leq 0.01 \). This means that majority of respondents felt that BPR had enhanced L’Oréal’s overall sustainable development, and therefore, beneficial to the organization. This was followed by BPR innovations are costly implement, \( r (0.529); p \leq 0.01 \). Thus, in as much as BPR enhances L’Oréal sustainable development, there was an acknowledgement that BPR are expensive to implement. BRP innovations enhances performance, \( r (0.453); p \leq 0.01 \); BPR innovations’ have not faced integration challenges, \( r (0.383); p \leq 0.01 \). This means that data efficiency, performance, cost and integration of BPRs cannot be ignored if the process has to be effective.

The findings also established positive relationships that were not significant. The relationship between business process re-engineering innovations eliminate operational costs and business process re-engineering innovations enhances data consistency was the highest, \( r (0.574); p \leq 0.01 \). followed by business process re-engineering innovations enhances data consistency and business process re-engineering innovations are costly implement was positive, \( r (0.529); p \leq 0.000 \). This means that in as much as this relationship are not significant they are strong enough not to be ignored by L’Oréal. Other positive relationships were above \( 0.080 \), with relationship between business process re-engineering innovation have not faced customization challenges and BPR are costly to implement being the lowest, \( r (0.085); p \leq 0.05 \).

The findings of the study established the existence of negative relationship between different question on BPR. The relationship between business process re-engineering innovations have not faced adaptation challenges from employees and business process re-engineering innovations require constant technical support was negative, \( r (-0.087); p \geq 0.060 \). The relationship between business process re-engineering innovation have not faced customization challenges and business process re-engineering innovation have not faced integration challenges was negative, \( r (-0.092); p \geq 0.005 \). The relationship between business process re-engineering innovation have not faced customization challenges and business process re-engineering innovation have not faced integration challenges was negative, \( r (-0.334); p \geq 0.002 \). This means that the relationships can be ignored by L’Oréal and they wont have a significant impact on sustainable development since the relationship are weak.
4.5 Management Information System Innovations and Organizational Sustainable Development

This study used mean and standard deviation to analyze respondents’ views on MIS innovation technologies. The summary of descriptive statistics on MIS and organizational sustainable development is presented in table 4.6.

Table 4.6: Descriptive Statistics on Management Information Systems Innovations

<table>
<thead>
<tr>
<th>Questions</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Information Systems enhances decision making processes</td>
<td>84</td>
<td>3.76</td>
<td>.126</td>
</tr>
<tr>
<td>Management information systems are easy to use</td>
<td>84</td>
<td>3.54</td>
<td>.217</td>
</tr>
<tr>
<td>Management information systems enhance organizational managers’ productivity</td>
<td>84</td>
<td>4.19</td>
<td>.435</td>
</tr>
<tr>
<td>Management information systems enhance organizational Performance</td>
<td>84</td>
<td>3.67</td>
<td>.165</td>
</tr>
<tr>
<td>Management information systems are essential to sustainable development</td>
<td>84</td>
<td>3.45</td>
<td>.357</td>
</tr>
<tr>
<td>Management Information System has not faced integration challenges</td>
<td>84</td>
<td>3.81</td>
<td>.124</td>
</tr>
<tr>
<td>Management Information System has not faced adaptation challenges</td>
<td>84</td>
<td>3.99</td>
<td>.047</td>
</tr>
<tr>
<td>Management Information System has enhanced management sustainability</td>
<td>84</td>
<td>3.33</td>
<td>.347</td>
</tr>
<tr>
<td>Management Information System has enhanced information sustainability</td>
<td>84</td>
<td>3.54</td>
<td>.392</td>
</tr>
<tr>
<td>Management Information System has enhanced system sustainability</td>
<td>84</td>
<td>4.07</td>
<td>.401</td>
</tr>
</tbody>
</table>

Management information systems enhance organizational managers’ productivity had the highest mean, M (4.19). This means that majority of respondents felt that MIS is most useful in enhancing managers’ productivity at L’Oréal. This was followed by management information system had enhanced system sustainability with a mean, M (4.07). By this, majority also felt that since managers are involved in tactical organizational decision making, MIS provides them with information that enables efficient decision making, leading to enhanced organizational system sustainability.
Management information system had enhanced management sustainability had the lowest mean, M (3.333). This could be the case that MIS is not for managers as individuals, and does not guarantee managers job at L’Oréal but rather helps managers to do their jobs effectively.

Management information system enhances managers’ productivity had the highest standard deviation, SD (0.435), followed by MIS enhances system sustainability with standard deviation SD, (0.401). This is the case because managers’ productivity had the highest mean that deviated from the aggregate mean on MIS component. Other standard deviations were above (0.040), while the lowest SD was on whether MIS had not faced adaptation challenges (0.047). The standard deviations were not negative thus MIS had not negatively contributed to sustainable development, but rather, the contribution was positive as indicated in table 4.6.

4.5.12 Management Information System and Organizational Sustainable Development Correlation

The last question was to determine whether a relationship existed between MIS and organizational sustainable development, this was done through a correlation analysis as summarized in table 4.7.
<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MIS enhances decision making processes</td>
<td>.399**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. MIS are easy to use</td>
<td>.328**</td>
<td>-.152</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3. MIS systems enhance organizational managers’ productivity</td>
<td>.651**</td>
<td>.308**</td>
<td>.004</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. MIS enhance organizational Performance</td>
<td>.405</td>
<td>.233*</td>
<td>-.357</td>
<td>.173</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. MIS are essential to sustainable development</td>
<td>.452**</td>
<td>.237*</td>
<td>-.068</td>
<td>.247*</td>
<td>.097</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. MIS has not faced integration challenges</td>
<td>.420</td>
<td>.450</td>
<td>.346</td>
<td>-.206</td>
<td>-.077</td>
<td>.081</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. MIS has not faced adaptation challenges</td>
<td>.548</td>
<td>.561</td>
<td>.584</td>
<td>.458</td>
<td>.437**</td>
<td>.456</td>
<td>-.002</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. MIS has enhanced management sustainability</td>
<td>.310**</td>
<td>.220*</td>
<td>-.118</td>
<td>.161</td>
<td>-.020</td>
<td>.879**</td>
<td>.162</td>
<td>-.159</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. MIS has enhanced information sustainability</td>
<td>.405**</td>
<td>-.125</td>
<td>.134</td>
<td>.037</td>
<td>-.015</td>
<td>.406**</td>
<td>.589**</td>
<td>-.020</td>
<td>.302**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>10. Organizational Sustainable Development</td>
<td>.399**</td>
<td>.328**</td>
<td>.651**</td>
<td>.405</td>
<td>.452**</td>
<td>.420</td>
<td>.548</td>
<td>.310**</td>
<td>.405**</td>
<td>.420</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).  
*. Correlation is significant at the 0.05 level (2-tailed).

Significant relationship between MIS and sustainable organizational development include the following: Management information systems enhance organizational managers’ productivity was the highest, r (651); p ≤ 0.01; followed by management Information System.
System has not faced adaptation challenges, \( r (0.548); p \leq 0.01 \). This means that majority of respondents felt that the MIS system was significant in enhancing managers productivity, which contributes to organizations sustainable development. Other significant relationships were above (0.300), while the weakest significant relationship MIS had enhanced information sustainability and system sustainability, \( r (0.302) \). In as much the relationship is weak, it is significant and cannot be wished away by L’Ore’al.

The findings also established positive relationships between MIS questions. The relationship between Management Information Systems had not faced adaptation challenges and and management information system is easy to use had the highest positive relationship \( r (0.584); p \geq 0.000 \). In as much as this relationship is not significant, majority of respondents felt that it was strong enough to contribute to L’Ore’al sustainable development. Management information systems enhances decision making process and management information system had not faced adaptation challenges also had a high positive relationship \( r (0.561); p \leq 0.000 \). Other positive relationships were above (0.004).

The findings of the study established the existence of negative relationship between different question on MIS. The relationship between management information systems had not faced integration challenges and MIS had enhanced managers’ productivity had the highest negative relationship, \( r (-0.206); p \geq 0.005 \). This was followed by management information system has enhanced information sustainability and management information system has enhanced management sustainability was negative, \( r (-0.125); n \geq 0.005 \). The other negative relationships were above (-0.10), which means they were too weak to have any significant impact on L’Ore’al sustainable development as indicated in table 4.7

### 4.6 Chapter Summary

This chapter has presented the study results and findings. The study had a response rate of 54%. For the main findings of the study, the question on whether ERP innovations enhance organizational performance had the highest relationship with organizational sustainable development, \( r (0.562); p \leq 0.01 \). The findings showed that the relationship between the question on whether BPR innovations enhances data consistency and organizational sustainable development was the highest, \( r (0.574); p \leq 0.01 \). The next chapter presents the study discussion, conclusion, and recommendation.
CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

The study discussion, conclusion, and recommendations are presented in this chapter. Discussion on ERPs and organizational sustainable development is presented first, followed by discussion on BPRs and organizational sustainable development and finally discussion on MIS and organizational sustainable development are also presented. The study conclusion and recommendations are also presented in the same order.

5.2 Summary

The purpose of this was to determine whether ICT innovations influence organization sustainable development. The study was guided by the following research questions: To what extent ERP innovations enhance organizational sustainable development; to what extent BRP innovations influence organizational sustainable development; and finally to what extent does MIS innovations influence organizational sustainable development. The study had a population of 262 employees of L’Oréal East Africa Ltd. The study adopted a descriptive survey research design. Stratified sampling was used to select a sample size of 157 respondents. This study used the Statistical Package for Social Sciences (SPSS) for data analysis. Frequencies and percentages were analyzed for descriptive statistics, and correlations for inferential statistics. Data has been presented using tables and figures.

The findings on the extent to which ERP innovations enhance organizational sustainable development have revealed the existence of relationship between ERP innovations and organizational sustainable development. All components of ERP innovations including Systems Applications and Product in Data Processing (SAP), Oracle ERPs, and PeopleSoft ERPs.

The findings of this study have also indicated the existence of a weak relationship between BRP innovations and organizational sustainable development. The relationship was statistically significant. All components of BRPs including Business Process Renovation and Business Process Automation all contributed to the significance of the relationship between BRPs and organizational sustainable development.
The findings of the study indicate the existence of a relationship between MIS innovations and organizational sustainable development. The relationship was statistically significant. All components of MIS innovations including management sustainability, information sustainability, and system sustainability contributed to the significance of the relationship between MIS innovations and organization sustainable development.

5.3 Discussion

5.3.1 Enterprise Resource Planning Innovations and Sustainable Development

The findings of this study have revealed the existence of a strong positive relationship between ERP innovations and organizations sustainable development. This findings are in line the study done by Zheng et al., (2010) who argued that organizations that implement ERP innovations do have higher chances of sustainable development compared to those organizations that do not have ERPs. Further, they argued that ERP innovations have the capability to integrating organizational functional units, but also addressing organizational needs for strategic continuum

The findings of this study have indicated that ERP that ERP enhances work flexibility and organizational enhances organizational performance. This is in line with the argument advanced by Mental et al., (2011) that ERP innovations are implemented mainly to help organizations improve competitiveness; quality and timeliness of information; reduce operating costs, while at the same time enhance management control over organizational business processes. Majority (76%) of respondents of this study believed that ERP innovations enhance organization performance and thus enhance organizations’ potential and capability for sustainable development. According to Nguyen and Mohamed (2011), one of the advantages of ERP to an organization is that ERP enables organizations to have reliable clients information since centralized databases are used to store, and disseminate clients product profiles. This argument is heralded by the findings of this study, in that 84% of respondents felt that ERP innovations enhance work flexibility. When an organization is able to enhance operational efficiency through work flexibility, then productivity increasing, which in turn reduces the costs of operation, granting an organization a better chance of profitability, and hence sustainable development.

The findings of this study have revealed that ERP innovations enhances decision making efficiency since critical information is available to managers in time. John et al., (2014)
had argued that ERP helps organization to avoid operational data redundancy since data is centrally managed. This is established by the findings of this study that show that show that majority (75%) of respondents believed that ERP innovations did enhance efficiency in decision making. Efficiency in decision making on such things as what to produce at what given times, what information to transmit, what data to store, and what information to share. An organization that have efficient decision making systems not only reduces redundancy, but also enhances productivity and sustainable development. As a result, organizations that use ERP are able to operate with efficiency in limited time, thus being effective in delivery of services that are essential in a globalized competitive world.

The findings of this study show that ERP did not have adaptation challenges at L’Oréal. Mental et al., (2011) had argued that ERPs easy of adaptability makes it easy to use within an organization. Further, they had argued that organizations ERPs enable organizations to remain relevant, by enhancing their ability to adjust quickly to any changes in the internal and external environment. Similarly, Nguyen and Mohamed (2011) had argued that ERP also enables organization foster their capability for global outreach by also enhancing customer relationship management module that is essential for organization sustainable development.

5.3.2 Business Process Re-Engineering Innovations and Sustainable Development

The findings of this study have revealed the existence of a significant relationship between BRP innovations and organizations sustainable development. These findings are in line with findings of a study conducted by Wan and Yiu (2009) indicated the existence of a positive relationship between BRP technologies and organizational sustainable development. It is therefore feasible to argue that BRP innovations are beneficial to organization sustainable development in that they help organizations reduce cost, improve quality, service and speed up deliver of goods and services (Nguyen and Mohamed, 2011).

This study has revealed that BPR enhances organizational productivity. This is in line with Jackson and Sloane (2013) findings that revealed BPR productivity enables organizations to guild customer diversity power, competitive advantage, and environmental changes, which are factors that enhance organizational sustainable development. This also collaborated by Rashid et al., (2010) who argued that BRP do
help organizations to create processes that produces information for strategic planning that aids in enhancing and galvanizing organizations position for competitive and vantage and sustainable development. Further, BRP helps organizations place decision points where actual work is performed and as a result enhances organizational performance, which is a key component for organizational sustainable development as established by the findings of this study.

The findings of this study have revealed the BPR enhances organizational data consistency, thereby making it easier for managers to make effective decisions, and also eliminates operational costs. Dezdar and Sulaiman (2013) had argued that BRP innovations increase the speed with senior management makes decisions. This has been demonstrated by the fact that managers can use BPR data to simulate performance trajectory within the organization. For instance, the findings of this study have indicated majority (92%) of respondents were of the opinion that BRP innovations reduce operational cost, and information bureaucracy that often hinder how information flows bottom-up, and bottom down. As a result, simple business decisions that could end up taking too long, is made easier and faster through BRPs integration (Hartigh & Segveld, 2011).

The findings also show that BPR enhances overall organizational performance. This finding is in agreement with Sungau, and Msanjila (2012) who had argued that Business Process Renovation’s goal was to enhance organizations performance and sustainable development. Dezdar and Sulaiman (2013) had argued that organizations that were able to streamlining key business processes, have a greater chance of enhancing organization performance, competitive advantage and sustainable development. In BPR, smart organizations do renovate their business processes as to avoid situations where non-value adding business processes are automated, and as such, relying on BRP technologies makes it easier to adapt and integrate into existing business modules that enhance performance. A study conducted by Hartigh and Segveld, (2011) in Malaysia revealed the existence of significant relations between business process automation and organizational sustainable development. The study noted that automation enhances efficiency in delivery of services, which in turn, enhances customer’s loyalty, and thus, an organization’s performance is guaranteed for the future, which contributes to sustainable development, and has equally been ascertained by the findings of this study.
5.3.3 Management Information System Innovations and Sustainable Development

The findings of this study have revealed the existence of a strong positive relationship between MIS innovations and organizational sustainable development. The findings of this study confirms findings of a study by Gefen et al., (2013) that equally revealed the existence of a relationship between MIS and organizational sustainable development. One of the reasons as to why MIS has consistent significant relationship with organizational sustainable development is that MIS innovations enable managers to make complex decision faster and in an efficient manner, thus enhancing organizations ability to compete effectively in the market place. Similarly, another study that had was conducted by Beyes and Volkmann (2010) in the United Kingdom on technological innovations revealed the existence of a strong relationship between MIS and organizational sustainable development. Deductively, one could therefore argue that MIS innovations efficiencies are responsible for enhancing organizations performance and sustainability. Abdolvand et al., (2012) had argued that an organizations ability to develop an MIS system enhances the organizations positive performance and profitability that is essential to the organization sustainable development. Further, they argued that since MIS does function in a goal oriented environment, information was essential to organizational performance. Managers need critical information not only at critical times, but all the time, and thus, MIS ties managers to their performance evaluation.

The findings of this study show that MIS is not only easy to use, but also enhances managers’ productivity as indicated by majority (85%) of respondents. Similar, majority (58%) of respondents for this study confirmed that MIS innovations were essential for organizational sustainable development. Gefen et al., (2013) had argued that MIS had given managers the ability to interlink other operational technologies into single integrated network that makes access to information easier, and decision making efficient. This is collaborated by majority (56%) of respondents of this study who confirmed that MIS enhances management sustainability. This means, the ability for managers to make effective factual decisions. Wellman (2014) had argued that MIS superiority towards organizational sustainable development was built within its ability for qualitative reasoning, data mining capabilities, and expert heuristics that are essential in formulating decision alternatives.
The findings of this study show that MIS enhances managers’ decision making capabilities. Managers using MIS are able to rely on the system to generate, aggregate and abstract data for effective decision making. Kline (2011) had extrapolated this argument further by noting that MIS had enabled support for information exchange by through its federated organizational memory that give managers accurate current information from which they can draw inferences. This is done through the production of data analytics that forms operations history from which information and data mining can be imposed to develop trends for future operations. This capability does not only enhance information sustainability, but also, information for organizational sustainable development (Jackson & Sloane, 2013). As such, it is possible to argue that effective decision making as a result of accurate data from MIS enhances organizations competitiveness, customer profiling and management, which in turn, enhances performance that is necessary for an organization to build sustainable development mechanisms.

5.4 Conclusion

5.4.1 Enterprise Resource Planning Innovations and Sustainable Development

The findings of these study have established the existence of relationship between ERP innovations and organizational sustainable development. ERP innovation do enhance organizational productivity, organizational performance, work flexibility, and efficiency in decision making capabilities, and thus, ERP is significant in enhancing organizational sustainable development. However, the study also concludes that in as much as ERPs have not faced adaptation, integration and customization challenges, that are costly to implement.

5.4.2 Business Process Re-Engineering Innovations and Sustainable Development

The findings of this study have established the existance of a relationship between BRP innovations and organizational sustainable development. BPR enhances organizational productivity, overall performance, work flexibility, data consistecy, and thus, BPR is significant in enhancing organizational sustainable development. The study also concludes that in as much as BPR innovations have not faced adaptabtion, integration and customization challenges, BPR innovationa are costly to implement.
5.4.3 Management Information System Innovations and Sustainable Development

The findings of the study have established the existence of a relationship between MIS innovations and organizational sustainable development. The study concludes that MIS enhances organizational decision making processes, MIS is easy to use, enhances managers’ productivity, and organizational performance. MIS also enhanced system and information sustainability that is significant for organizational sustainable development. The study also concludes that MIS has not faced adaptation, integration, customization, challenges that could inhibit organizational sustainable development.

5.5 Recommendations

This section provides recommendation for improvement and for future studies. Recommendations for improvement are based the purpose of the study, and the study research questions.

5.5.1 Recommendation on practice

5.5.1.1 Enterprise Resource Planning Innovations and Sustainable Development

Since the relationship between ERP innovations and organization sustainable development was statistically significant, this study recommends that management at L’Oréal should put mechanisms in place to ensure ERPs’ are cascaded and integrated to all levels of organizational operations. This should include work functions unit’s formation, data collection and processing, and decision making models. Management should also ensure that ERP components that feed into customer relationship management (CRM) have the potential to collect current relevant information that could enhance effectiveness of decision making. This can be done by ensuring customer profiling on behaviors, trends and patterns are analyzed for targeted marketing that will enhance organization sustainable development.

5.5.1.2 Business Process Re-Engineering Innovations and Sustainable Development

Since the relationship between BPR innovations and organization sustainable development was statistically significant, this study recommends that management at L’Oréal should put mechanisms in place to ensure BPRs’ are cascaded and integrated to all levels of organizational operations. Business processes renovations should be monitored constantly to ensure that renovations that are being introduced are in line with
enhancing delivery of desired products for market. On business process automation, there is need to balance assembly line automation from front customer care automation. It is recommended that less front customer care interactions should be automated compared to assembly line operations. In as much as technology has advanced and pushed most organizations into automation, personal touch with customers is still essential for organizational sustainable development.

5.5.1.3 Management Information Systems Innovations and Sustainable Development

Since the relationship between MIS innovations and organizations sustainable development was statistically significant, this study recommends that management at L’Oréal should put mechanisms in place to ensure MIS innovations are cascaded and integrated to all levels of management operations and functions. MIS innovations should only be the reserve of senior management, but should be integrated to middle and lower level managers so that floor managers can get access to real time information for effective and speedy action. Similarly, mechanisms for processing and adopting management sustainability, system sustainability and information sustainability should be developed. In as much as MIS systems will capture critical information for management action, how this data is processed, stored for form part of organization knowledge management is important. Equally, MIS information should be abstracted into learning organizations’ models for future references.

5.5.2 Recommendations for Future Research

This study focused on ICT innovations for organizations sustainable development. The study variables included ERP innovations, BRP innovations, and MIS innovations. However, these variables are not exhaustive in covering ICT innovations for sustainable development. Future studies by scholars and researchers should focus on areas not covered by this study.
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Medakovic, D.J. (2010). The importance of Balanced Scorecard model for monitoring the Success of the small and medium enterprises. Graduate master thesis. Faculty of Technical Sciences Novi Sad.


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APPENDICES

Angela Munyasya
P.O Box 35765-00100
Nairobi

Dear Respondent,

APPENDIX I: COVER LETTER

RE: REQUEST FOR YOUR PARTICIPATION IN MY RESEARCH PROPOSAL

My name is Angela N. Munyasya, currently pursuing a course towards completion of Master of Business Administration (MBA) from United States International University – Africa. In partial fulfilment of the requirements of the award of the degree, I am required to write a research project in the area of my study. My project topic is: “ICT Innovations and Organizational Sustainable Development” at L’Oréal EA Ltd Africa. You have been selected to participate in this study. Participation is voluntary. Kindly spare a few minutes of your time to fill in the questionnaire to the best of your knowledge.

Please note that all the information gathered through this questionnaire will be treated with utmost confidentiality.

Your participation in this study will be highly appreciated.

Yours Sincerely,

Angela Munyasya
APPENDIX II: RESEARCH QUESTIONNAIRE

SECTION I: Demographic Information

Kindly respond to the questions below by ticking in the boxes. Where space is provided you can write your answer

1. Name (optional) ________________________________

2. What is your gender.

   Male  
   Female  

3. What is your age

   18- 30 yrs.  
   31- 40 yrs.  
   41- 50 yrs.  
   51- 60 yrs.  
   Over 61 yrs.  

4. What department do you work in?

   Finance  
   Customer Service  
   Marketing  
   Sales  
   Operations  
   I T Department  
   Other (specify) ________________________________

5. What are your years of work at L’Oréal E A?

   1-3 years  
   4-6 years  
   7-9 years  
   10-12 years  
   13-15 years  

6. Kindly indicate your designation at the L’Oréal E A

   Mid-level Manager  
   Top Level Manager  
   General Employee  


SECTION II: Enterprise Resource Planning Innovations Technologies

Kindly tick (✓) the appropriate answer. (Strongly disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5)

7. Kindly indicate the type of ERP innovations at L’Oréal EA

- SAP
- Oracle ERP
- PeopleSoft

<table>
<thead>
<tr>
<th>ERP Innovations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
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<td>7. ERP innovations enhances productivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. ERP innovations enhances organizational performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. ERP enhances work flexibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. ERP innovations eliminate operational costs</td>
<td></td>
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</tr>
<tr>
<td>11. ERPs are costly implement</td>
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<td></td>
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<tr>
<td>12. ERP innovations require constant technical support</td>
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<td></td>
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</tr>
<tr>
<td>13. ERPs have not faced adaptation challenges from employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. ERPs have not faced integration challenges</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>15. ERPs have not faced customization challenges at</td>
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<tr>
<td>16. ERP innovations enhances efficiency in decision making</td>
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</table>

SECTION III: Business Reengineering Process Innovations Technologies

Kindly tick (√) the appropriate answer.

7. Kindly indicate the type of BPR innovations at L’Oréal EA

- Business Process Innovation
- Business Process Automation
<table>
<thead>
<tr>
<th>BRP Innovations</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>17. BRP innovations enhances productivity</td>
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<td>18. BRP innovations enhances performance</td>
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<td>19. BRP innovations enhances work flexibility</td>
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<td>20. BPR innovations eliminate operational costs</td>
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<td>21. BPR innovations enhances Data consistency</td>
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<td>22. BPR innovations are costly implement</td>
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<td>23. BRP innovations require constant technical support</td>
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<td>24. BPR innovations’ have not faced adaptation challenges from employees</td>
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<tr>
<td>25. BPR innovations’ have not faced integration challenges</td>
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<td>26. BPR innovation have not faced customization challenges</td>
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</table>

**SECTION IV: Management Information System Technologies**

Kindly tick (√) the appropriate answer.

<table>
<thead>
<tr>
<th>Management Information Systems</th>
<th>1</th>
<th>2</th>
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</thead>
<tbody>
<tr>
<td>27. Management Information Systems enhances decision making processes</td>
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<td>28. Management information systems are easy to use</td>
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<td>29. Management information systems enhances organizational managers’ productivity</td>
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<td>30. Management information systems enhances organizational Performance</td>
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<td>31. Management information systems are essential to sustainable development</td>
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<tr>
<td>32. Management Information System has not faced integration challenges</td>
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</tbody>
</table>
33. Management Information System has not faced adaptation challenges

34. Management Information System has enhanced management sustainability

35. Management Information System has enhanced information sustainability

36. Management Information System has enhanced system sustainability

SECTION V: Organizational Sustainable Development

Kindly answer the following questions using the following Likert Scale (5 = strongly agree… 1 = strongly Disagree)

<table>
<thead>
<tr>
<th>A) Sustainable Development</th>
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<th>2</th>
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<th>5</th>
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</thead>
<tbody>
<tr>
<td>37. You use ERPs to enhance competitive advantage</td>
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<td>38. You use ERPs to enhance performance</td>
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<tr>
<td>39. You use ERPs to enhance employee productivity</td>
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<tr>
<td>40. You use ERPs to enhance decision making processes</td>
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<td>41. You use BRPs to enhance competitive advantage</td>
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<tr>
<td>42. You use BRPs to enhance performance</td>
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<tr>
<td>43. You use BRPs to enhance employee productivity</td>
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<td>44. You use BRPs to enhance decision making processes</td>
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<td>45. You use MIS to enhance organizations’ competitive advantage</td>
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<td>46. You use MIS to enhance management sustainability</td>
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<tr>
<td>47. You use MIS to enhance information sustainability</td>
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<tr>
<td>48. You use MIS to enhance system sustainability</td>
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The End

Thanks you for your participation.