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Enterprise Information Systems As Enablers Of Business Transformation In Agribusiness Enterprises In Kakamega County, Kenya

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Abstract
The urge to achieve operational efficiency, economies of scale, competitive edge, and profit maximization by business enterprises has become a key factor. Adoption of appropriate enterprise information systems enhances transformations in business enterprises in-terms of products, process, and operations leading to firm efficiency. This study assesses the value gained from adopting enterprise information systems as enablers of agribusiness enterprise transformation in Kakamega County, Kenya. The objectives of the study were; to establish the effect of enterprise information systems on agribusiness enterprise transformation in Kenya; to examine the organizational factors that influence adoption of enterprise information systems as enablers of agribusiness enterprises in Kenya and to analyse the enterprise information system opportunities in agribusiness enterprises in Kenya. The Diffusion of Innovation and Technology Acceptance Model were the theories guiding the study. The study adopted a descriptive research design. The targeted population was 1621 staff and players of selected agribusiness enterprises operating in western Kenya. The sample size was 411 respondents. Since the target population was heterogeneous, stratified sampling was used. Data was collected using structured questionnaires, which were dropped and filed by the respondents. Content validity was done through expert opinion and reliability of the instrument through a pilot study and using the Cronbach's Alpha of Coefficient manipulation. Qualitative data collected was analysed using the conceptual content analysis. Inferential data analysis was done using the regression analysis. The analysed data was presented in form of graphs and tables. The findings are expected to benefit both private and public enterprises in business processes transformation in addition to contributing to the existing literature on enterprise information systems and transformation thus aiding scholars to undertake further research. The following conclusions were drawn from the study. First, the level of use of the Enterprise Information Systems among agribusiness enterprises in Kakamega County was found to be above average (64%). Which implies that most of the agribusiness enterprises in Kakamega County are using the EIS in their operations. Second, organizational factors affecting adoption of EIS include; employee competency, organization characteristics and resources availability, unfavourable environment for the implementation of the use of EIS greatly impede the business transformation in Kenya. Third, the emergent opportunities for adopting EIS in agribusiness enterprises in Kenya include; great likelihood of accessing business capital, ease of sharing information/Knowledge on Agribusiness, enhances marketing, ease of accessing technical assistance and extension services, enhances procurement of agricultural equipment, and lastly, likelihood to get competent staffing for the enterprise. The researcher recommends for total enterprise operational transition towards automation through systems adoption; management to train current staff on technology use and only hire competent new staff to cut on training expenses, improve on performance & hasten adoption rate. Lastly more research to be undertaken on different firms in different industries in respect to Enterprise Information Systems adoption and transformation. The findings drawn from this study will help agribusiness industry in Western Kenya and the rest of the world to emphasize on implementing Systems in all operations to realize effectiveness and efficiency of operations to enhance productivity and profitability.

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I. INTRODUCTION

Background to the Study

Technology has changed firm structures and reinterpreted the customer-citizen meaning (Berman, *et al.,* 2016). The information technology growth has shifted Kenyan companies' strategic plans from managing tangible resources, to the knowledge economy that concentrates on creation of value from transformational strategies in place through the utilization of intangible knowledge (Kenyan Economic Statistics: GDP Forecast, 2017). These technological shifts are increasing complexity in the environment within which agribusiness enterprises are operating. In his study, Schwab (2016) observed that today's business world is at the start of a fourth industrial revolution that is fundamentally changing the way we live, operate, and work. In this regard therefore, entrepreneurs need to be creative and innovative in their day-to-day operations. To achieve this, there

is need to adopt business models that are reliable for their operations and which would make them operate efficiently in the highly competitive business environment.

There is however a belief that, transformation of enterprises is majorly due to technology adoption, a claim that is vehemently disputed. The advanced technologies have many benefits and are major enhancers of transformation but without skilled staffs and favorable organizational factors, they will be ineffective and a waste of investment (Kavadia, *et al.,* 2016). This argument was supported by Westerman (2017), who noted that the value of technology is felt through the making of informed decisions, choices and making work easier on the employees and management's part. Thus, a need arises where the process of transforming business enterprises should be wholly understood and prioritized and all the influencing factors analyzed. Enterprise transformation enabled by digital platforms have to be based upon a theoretical model that involves the entire business environment through which positions and development can be harmonized, conceptualized and clearly interpreted to provide a better understanding of factors involved especially in the agribusiness sector.

The information technology adoption in businesses has led many individual researchers and research firms to want to take part in assessing the influence of EIS adoption & use in enterprise transforming. The dynamism in the business environment and the great strides made in technological advancements are some of the major factors influencing the rush for research work to fill the gap in knowledge. Thus, for the MSMEs to survive and thrive in the dynamic environmental conditions, they have to work towards rebranding, innovating and fully implementing technology use. It is believed that MSMEs in Kenya including those in Kakamega County share the same experience and their level of adoption is dictated by the environment. The area of information communication technology and its compatibility with the business enterprises has undergone tremendous advancements whereby its influence is seen in how enterprises structures, rebrands, invents and develops its products, processes and operations (Laura and Eom, 2014).

According to Bak, (2016), business transformation is the upgrading of the systems, processes, and employees in a firm to realize improvements and increase profitability leading to stakeholder's satisfaction. Transformation in enterprises is achieved by more of work realignment, re-structuring of processes, and technology use. Transformation leads to competencies enhancement, development, professionalism, and making smart use of current competencies. According to the Agriculture Organization (FAO), agriculture is the major economic activity in Africa that is providing employment, income, and exports. It accounts for between 30% and 50% of the countries' Gross Domestic Product (GDP). The agribusiness industry contributes to a tune of 51% of Kenya's GDP (directly 26% and indirectly 25%). Furthermore, it provides for over 60% of employment and 65% of exports (World Bank, 2018). Thus, Enterprise transformation is a management strategy that strives to streamline enterprise operations, employees' commitment and technological objectives with its goals, strategies and vision. These transformations should result in improved product, customer and corporate operations that increases profit margins, return on assets, growth and better positioning for competitive edge.

Previous studies on EIS and enterprise transformation focused on value addition through use of systems. For instance, Anaya, *et.al*, (2015), investigated the role of enterprise systems in enabling business innovation; Borut, and Popovic, (2014), focused on an exploration of business intelligence systems adoption determinants in small & medium businesses; Olexova, (2014), did a case study research on Business intelligence adoption on retail chain; Kavadias *et al.,* (2016), surveyed the transformative business models; Small & Sep, (2016) focused on the ICT adoption in SME's: Evidence from an Italian Survey; Cucciniello *et.al*.,(2016), focused on adoption and implementation of EIS in Hospitals …. Despite all these, little attention has been given to the milestones that an agribusinesses stands to gain by incorporating information systems in their operations.

Through a survey, Rouhani & Mehri, (2018) investigated ERP benefits and came up with thirty one benefits that empower enterprise systems. The study was majorly a desk review of relevant literature which brought to the fore four strategic and significant benefits, including: communicative, informative, growth and learning. Tasevska *et al.,* (2014), carried out a survey on 30 SMEs in the Republic of Macedonia. The results indicated that the SMEs had great project plans, but it however ignored some important ERP implementation phases. A comparative case study on two hospitals examined the adoption and implementation of medical record systems (Cucciniello *et al.,* 2016). From the findings it was clear that facilities that successfully implement integrated medical systems enjoy immense value in regards to data sharing, information quality, and cost efficiency.

However, Akande & Yinus, (2013), noted that MSMEs performance in Nigeria is low because the potential of technology has not been fully explored since record keeping and data analysis is still performed manually. A report by Agwu and Murray (2015), indicated that some enterprises and even government departments are yet to fully transit from manual way of transacting to digital platforms evidenced by the large file cabinets and archive rooms which pose a challenge in achieving time management and costs reduction benefits. In South Sudan, the divergent environment in which SMEs operate, technological infrastructure, financial resources, and political instability are sited as some of the information technology adoption challenge in SMEs, (Lam, 2016). In Kenya, youths have a negative attitude towards agriculture and agribusiness as they

perceive it unattractive, full of manual work with less returns due to underutilization of technology (Njenga, Mugo & Opiyo, 2014).

The theory of technology acceptance, as advanced by Davis (1989), and cited by Korpelainen, (2011), is used to explain the adoption and use of EIS in agribusiness transformation in Kenya. This theory explains the ICT acceptance and usage behavior and trends. It explains the reasons to why people accept or reject the use of technology in their daily operations. The perceived usefulness and perceived ease of use of technology are constructs drown from the theory. The theory determines how systems are used, and help predict user attitude toward the systems. Employees trust that using a technological system enhances job performance and at the same time effortless, timely and error free. The DOI theory advanced by Rogers (2003), discusses the modalities of how, why and at what rate technological enhanced inventions and innovations are embraced by individuals and enterprises in there different dynamic environments. The result of this improved use of technology is that employees adopts and adapts new ideas, characters or/and products. These theories puts into consideration the leadership and management ability of managers in convincing employees to accept, adopt and use the systems in their daily operations.

In this current study, the researcher is focused on testing these theories of technology acceptance to prove their usefulness and to address the challenge of under-utilization of EIS in agribusiness enterprise transformation processes. The complex and unpredictable nature of the business environment in Kenya coupled with the Covid-19 pandemic may unearth other different factors on the value of adopting enterprise information systems as a strategy for enhancing agribusiness enterprises transformation.

Statement of the Problem

The slow rate of adoption and use technology in operations is a major problem that is currently facing the agribusiness industry in Kenya. The absence of a harmonized process and mutual collaboration among stakeholders in the industry has further hampered the adaptation of improved information communication technologies available on the market. Even though software providers have initiated technological infrastructure setup and service provision to users who are expected to tap into the associated opportunities of technology adaption and use, there is still a very low uptake among the intended users.

Many enterprises in Kenya encounter managerial related problems that stem up due to poor information communication technology adoption and use. Business enterprises, including agribusinesses are set up daily around the world and majority of which are faced with different managerial challenges which pose a threat to their growth, profitability, operational efficiency and competitiveness. The purpose of developing and managing a successful and profitable agribusiness firm is the main responsibility of the farmer who doubles up as the entrepreneur. He/she is ever in a battle between government rules, environmental constraints, making profit, wise financial investment (investment constrains), technological knowledge, choice of farming methods, processing industry chains and food quality demands of the customer. Software firms have found this niche very alluring and have thus developed enterprise information systems to aid agri-entreprenuers cope in the dynamic business environment. Agribusiness enterprises play a major role in rural development, youth empowerment, employment generation, food security, spread, and development of adaptable technology, growth in national income and regional balanced growth channels. Adopting information systems is important in accessing and disseminating lots of business information that enables its transformation but without proper ICT infrastructure in place, this is just but a pipe dream.

Locally, there's a positive improved growth in agribusiness sector especially the food processing. The challenges however makes the sector realize low return on investment, poor yields, increased debts, poor inventory management, resistance to change, lack of innovativeness, poor decision-making, staff incompetency, government regulations, its un-attractiveness to young learned population, market awareness and stiff competition (Oballah, *et al.,* 2015). The EIS will enable the enterprises bridge the need in quality and timely information & communication, goods and services for all the key players in the business chain. However, the full potential of EIS adoption and use in enabling agribusiness transformation is yet to be fully explored due to the limited empirical literature and majority of that concentrated on large-scale enterprises in different industries with limited attention on the milestones that an agribusiness stands to gain by incorporating EIS in their daily operations. Thus, this study bridges the knowledge gap that exists concerning the strategic potential value of enterprise information systems as an enabler of agribusiness enterprises transformation.

Purpose of the Study

The researcher seeks to assess the potential value of enterprise information systems as enablers of business transformation in agribusiness enterprises.

Specific Objectives

The specific objectives of this study include the following;

i). To establish the effect of enterprise information systems on agribusiness enterprise transformation in Kenya
ii). To examine the organizational factors that influence adoption of enterprise information systems as enablers of agribusiness enterprises in Kenya
iii). To analyse the Enterprise Information System opportunities in agribusiness enterprises in Kenya

Research Questions of the Study

i). What is the effect of enterprise information systems on agribusiness enterprise transformation in Kenya?
ii). What are the organizational factors that influence adoption of enterprise information systems as enablers of agribusiness enterprises in Kenya?
iii). What are the emergent opportunities upon incorporating enterprise information systems in agribusiness enterprises in Kenya?

Scope of the Study

The study is guided by the research objectives highlighted herein and is further bound within the topic of the study. The study narrows to small-medium-micro sized agribusiness enterprises in Kakamega County, Kenya. The research was carried out in the period between December 2020 and December 2021.

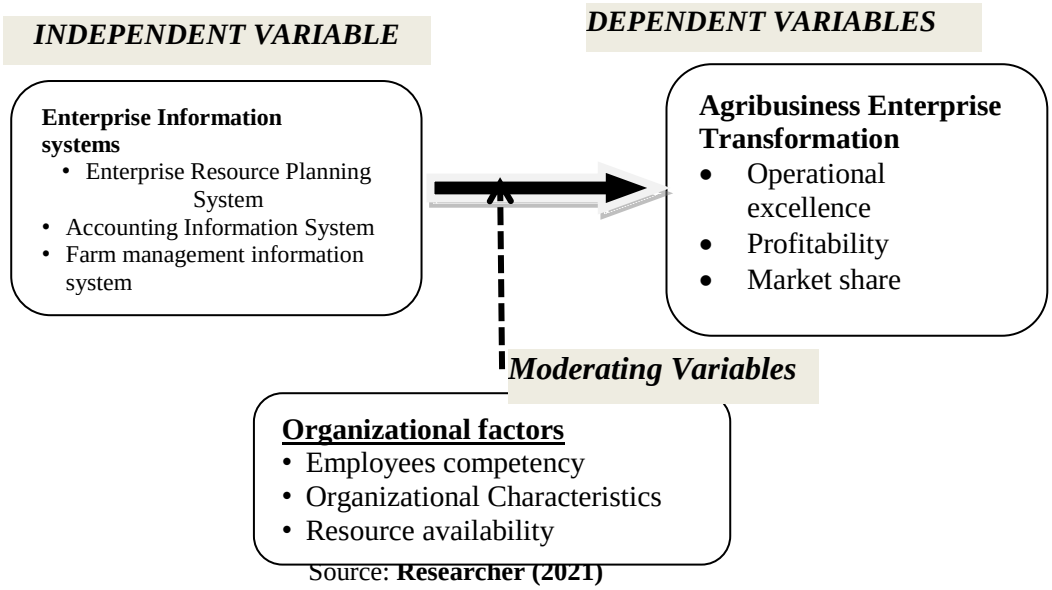
Significance of the Study

The research is of significance to strategic decision makers as well as business entities at large in the following ways. To begin with, the study will provide insightful knowledge to managers of business entities including agribusiness enterprises on the value that they stand to gain upon incorporating enterprise information systems in there processes and management.

Notably, most of the operating agribusiness firms in western Kenya have not fully implemented the aspect of technology in management of their operations hence bringing about managerial challenges. The study is important in addressing such issues to help agribusiness firms in solving such factors that imped their overall operational transformation. The study also focuses on equipping scholars with the necessary skills and knowledge on enterprise information systems and how they influence transformation of enterprises across the globe. The research findings also form a foundation for further research work in the field of value addition of technological systems and business transformation. This will aid other researchers in filling future knowledge gaps.

Conceptual Framework

This study is guided by the independent variable (Enterprise Information Systems) with dependent variable (Agribusiness Enterprise Transformation). Figure 1.1 shows the conceptual framework, which bears independent and dependent variables. The dependent variable is Transformation of agribusiness enterprises that has the following indicators: operational excellence (increased competitive capability, cost reduction etc) improved market share and improved profit margins. The arrows indicate the interrelationships between the key variables.



Source: **Researcher (2021)**

Figure 1.1: **Conceptual Framework**

II. LITERATURE REVIEW

Introduction

This chapter will focus on pertinent concepts including; enterprise information systems, business transformations, agribusiness enterprises, policies, and, initiatives on the uptake of ICT in enterprises. The importance of reviewing previous studies is that, it highlights the shortcomings of the earlier studies and therefore helps fill the gaps in the current study.

Technological Models

The Rogers' (2003) theory of Diffusion of Innovation and the Davis' (1989) Model on Technology Acceptance, will guide the study. These theories are expounded as below;

Diffusion of Innovation Theory (DOI)

According to Rogers (2003), diffusion is a way by which technological innovations are passed from one media and channels to another over a period of time in a social set-up. Oliveira & Martins (2011) however, stated that; the theory was invented to examine the *how*, the *why* and at *what* rate advanced technological inventions are embraced at enterprise level. The outcome of diffusion is when people embrace new ideologies, behaviors, or processes. The implementation of technology will enable employees and other users perform tasks differently, better and at less effort.

The proponents of DOI argue that subsequent adoption in a social system is not uniformly achieved. In practice, it is a process whereby some people adopt the innovation at a faster rate as compared to the rest of the social strata. According to researchers, individuals that adopt a new idea have varying characteristics as compared to those who do it later on. Understanding the demographic orientation of the population helps a lot in promoting an innovation. This theory identifies the following categories of adopters; which enable diffusion of the technology in the social setup. The adopters can either be innovators, early adopters, early-late majority or laggards. Majority of the population fall under the early-late thus the characters of the targeted sample must be well considered and understood. Rogers (2003) advanced four major influencers of the spread of advanced ideologies namely; the innovation, the communication media & channels, the human resource and time spent.

Innovators are venturesome and risk takers thus they always lead the way in developing new things, trying out new ideas and methods. The, early adopters are respected opinion leaders who provide leadership, and take the lead role in adoption of new ideologies. The early majority categories are rarely in leadership positions, but are quicker in adopting new ideas than the average person. They have a wait-and-see mentality where they want to see the innovation working before giving it an attempt. In order to appease this group of people, certain strategies that include success stories where the innovation was effective have to be used. Nevertheless, Late Majority category is generally sceptical to change. They adopt an innovation only after mass trials of the idea. Appealing to this category would need massive data detailing successes of the innovation elsewhere. The Laggards are conservatives and traditionalists who have strong believe in some things, hence not ready to compromise their stands. They are not open to change and are generally hardliners. They require statistical data, appeal to emotions, and peer pressure from other groups that might have already adopted the idea (Rogers, 2003).

Professional fields like agriculture, communication, public health, criminal justice, social work, and marketing have embraced the DOI theory in their strategic plans and are reaping their benefits. For instance, Diffusion of Innovation Theory comes in handy in accelerating the way people adopt significant public health programs in the public health sector. Normally, such initiatives are meant to change the behaviours of the population. These may include messages to address a public health problem where the people in a social system are used to drive the agenda. Majority of developments in products, re-invention of brands and processes is achieved by the spread of technology-enabled innovations that lead to operational efficiency (Les Robinson, 2009).

As seen above, DOI is applicable in the agriculture sector, hence making it relevant to the current research which is touching on agribusiness management. Ideas proposed by this theory help in developing and understanding the inter-link among variables of this study. The adoption of innovation happens in phases and when successfully accomplished, the adopters enjoy the benefits that lead to improved performance. The initial stage is when the adopter becomes aware of a need that must be innovated, the decision to either adopt or reject the innovation, initial testing of the innovation and finally the continued innovation use. The relative advantage, compatibility issues, complexity of use, and the trainability issues are some of influencing factors an innovation adoption. The DOI theory is inhibited by several limitations including its inability to include participatory approaches in influencing technology adoption. Another shortcoming of the diffusion of innovation theory is that, it fails to consider a firm's resources and social endowment or lack of the same (Rogers, 2003).

Technology Acceptance Model (TAM)

The theory was developed by Davis, (1989). The theory explains the behavioral trends in technology usage. The perceived ease of use and the value added by the technology accepted are some of the noted behaviors. The information systems field greatly uses TAM because of its contribution in the way technology is understood and accepted. TAM elucidates the factors that determine technology acceptance, capabilities of user behaviors towards technologies, while also being theoretically justified.

The TAM framework dictates how information technology-use is guided by people's attitude and behavior (Venkatesh & Bala, 2008). The duo continue to aver that experience and staff competency moderates the relation between perceived usefulness and ease of use of adopted technology. The user intentions and behavioral change towards technology adoption and use is supported by the TAM model which enables users to forecast and predict environmental changes. In fact, the model divulges that, readiness to accept and apply budding technologies is reliant on the user's feelings towards the system in relation to its hypothesized benefits. Lauren and Lin (2005) employed TAM in their study and had the view that; technology plays an important role in organizational innovations that translate to transformations. For that case therefore, the current study holds that agribusiness enterprise transformation would be effective if they adopt technology and incorporate it in their processes.

The Concept of Agribusiness Enterprises Transformation

Agribusiness remains crucial in a considerable number of African countries when it comes to labour absorption and export earnings. For this case, support from respective governments remains very crucial in promoting the industry (African Consumer Insights, 2016). Liberalizing the market together with economic globalization has opened up immense market opportunities for agricultural produce which in turn have exposed countries to competitive products. This environment has made it easier to transform and align processes to suit market conditions. However, a more open market, like those in Kenya face stiff competition from trade partners that have higher demands in terms of quality standards in which without the help of technological systems it'll be difficult for agribusinesses to cope. A report by Cyton, (2016) indicated that despite the potential in the industry, regional retail outlets are un-able to yield over 12% returns. This indicates that agribusiness enterprises have the challenge of managing the huge volumes of data that is required at the production, sales, and distribution as well as management of people. Furthermore, the agribusiness enterprises have to explore possibilities for cutting costs, increasing market share, improving operational efficiency, timely decision making, innovativeness and improving competitiveness which are the major challenges facing the small, medium and micro agribusiness enterprises. The industry needs to devise transformational policies, strategies and models that are conducive to agribusiness development but due to insufficient technological awareness among the stakeholders and luck of a collaborated technological system in the market, the transformation process among the enterprises is poor.

The agribusiness sector majorly deals with production, processing, and distribution of agricultural products and by-products with the help of the financial institutions. Agribusiness covers agricultural production, along with farming and contract farming, supplies inputs such as; seeds, agrichemicals, farm equipment, wholesaling and distribution, processing, marketing and retailing (National Agribusiness Strategy - Kenya, 2012). NAS reiterates that agriculture is a noble activity that is not entirely a small farmer affair. There exists a need for speedy and informed studies on the market dynamism, market niches, and cost reduction measures. According to Olszak & Ziemba, (2012), agribusiness transformation involves agricultural commercialization, value addition measures, post-production enhancement and linkages & network development. Small & medium-scale agribusinesses are faced with the challenge of achieving production and cost efficiencies majorly due to inadequate technology adoption. The poor technology implementation trait in their operations makes them to lag behind in matters innovation rendering them uncompetitive and unattractive local processing industries who continue importing raw supplies. The Kenyan government needs to enhance its investment in agribusiness in order to able the sector to; create employment, attract young learned group and investors, and make those who engage in farming to have reasonable returns and wages (Afande, *et al.,* 2015). This would encourage the young people to pursue careers in agriculture and food production and thereby enhancing food security and a livelihood.

Business transformation process is likely to involve several change management projects, each focusing specific process, system, team, or unit (Cruise & David, 2017). The stiff competition in the dynamic market for products and services, changing income streams, out-dated products and processes and strict government regulations are some of the external threats facing enterprise transformation. Business Process Reengineering is also incorporated in such transformations in order to increase the market share or revenues, improvement of customer satisfaction and cutting operating costs (McKinsey Survey, 2010).

In order to achieve enterprise transformation, there is need to; realign the staff's way of working, the organizational structure, and even go further into looking at the core product line of the enterprise upon the

incorporation of technology. In the light of transforming, the entities ought to be aware of why they need change, while at the same time seek buy-ins among the stakeholders to approve on the form the change that to be adopted. Also important, is the reason for the intended change as well as the envisioned "better future" with the change. This then call for an informed understanding of what the organization is changing including the exact aspects that will change, reorganising working modalities and how the same are anchored to the management structure.

Bak, (2016) emphasised the need to run tests in turbulent business environments before the implementation of changes. The author furthers that domesticating change should be gradual, say for a number of years so to prevent the entity from rolling back to where it was before the change adaption period and that when done well, the transformation process has the potential to bring about newer competencies from the existing ones.

The Food and Agriculture Organization (FAO) points that agriculture is the dominating economic activity in African countries as it provides export opportunities, employment and income generating opportunities to individuals and entities in in the region. It accounts for between 30% and 50% of the countries' GDP. Kenya's GDP gets about 51% from the agriculture sector where 26% directly and 25% indirectly. The sector also accounts for more than 60% of local employment and 65% of exports (World Bank, 2018,). Smallholder farming that is done on lands measuring 0.2 and 3 hectares dominates it, resulting to 78% of total agricultural production while 70% of production is on commercial basis (World Bank, 2018). Despite the fact that productivity and innovation levels in horticulture and cash crops sector is low, it plays a big part in driving up the agricultural GDP and poverty reduction among the entrepreneurs. The Global Forum for Agricultural Research (GFAR) observes that having new forms of agricultural enterprises and incorporating technology in agriculture can motivate the young people to engage in agriculture and thereby increasing agricultural production.

External factors tend to trigger work processes in the targeted markets, market channels, and value addition strategy that enhances enterprise transformation. Rouse, (2005) observed that business competitors and firm micro factors effect managerial changes that affects restructuring activities, sub-contracting, process standardization and reengineering all which influence transformation. This change management strategy aims at aligning staff, customers, technology, and all shareholders with the enterprise vision, goals, and mission. All the transformational activities should ensure better and improved firm operations that increases return on assets, competitive edge and future firm positioning for sustainability.

The Kenyan manufacturing sector is seen as the most attractive and profitable due to the high supply networks, product design, data management, and knowledge sharing features. Management information systems have taken over the agribusiness industry with consumers leveraging on the ease and convenience of *clicking* for product view, prize comparison, and order placement & tracking. Currently many brick and mortar firms are digitalizing there operation by tapping into the technological advancements in-order to remain relevant on the market. The creation of highly personalised, consistent, and integrated enterprises enabled by the technological innovations has levelled the global market competition giving all potential players equal opportunities on the platform (Boston Consulting Group, 2015).

Analyses by BCG showed that digitalizing the brick-and-mortar enterprises improves customer experience; employee decision-making, product reviews, price comparisons, and work performance making them have a competitive edge in the market. It is evident that transformation is an essentially strategic endeavour that all enterprises must adequately plan for its long-term existence. Literature review shows that technological systems improve firm operations achieving efficiency, which is the ability to deliver to customers in a cost-effective manner without compromising on quality.

To this end, this research draws the conclusion that, the major business value from enterprise systems is seen in the efficiency of operations of the organizations. Agribusiness firms that are adopting EIS stand to benefit from optimization integration, and availability of informative platform that catapult their operations. This platform eases business operations for operational efficiency and in a competitive market (Davenport, 2004). EIS platforms brings about operational efficiency by reducing transactional time, ensuring data reliability, minimising stock-in-hand levels, improving stock turnover, improving delivery rate and minimising overheads (Boston Consulting Group, 2015).

The Concept of Enterprise Information Systems

Strategic efforts by companies in Kenya are experiencing exponential shift due to the growth in information technologies. Many business enterprises are currently enjoying the benefits from technology adoption through the knowledge management platforms, which concentrates on business value addition strategies (Kenyan Economic Statistics: GDP Forecast, 2017). As if not to stop there, the Kenyan manufacturing industry is viewed as one of the most profitable sector with competent staffs who are comfortable working with

the systems in place to maximise profits, minimise expenditures, ensure food security, and improve operational efficiency.

Because of their large-scale nature, EIS are real time unified with the ability to support business processes, seamless communication within and without the enterprises as in addition to being able to conduct analyses of the business. Of late, technology is greatly viewed as a truck player in transformation process where it has been found to include aspects of digital transformation that leads product and process revolution. To this effect, the need for incorporating information technology-based solutions comes in handy to meet the needs of various business organizations. In the recent past, adoption of ERP/III are geared towards achieving a borderless enterprises where business is conducted on an online platform that is accessible globally by all potential customers, shareholders and investors (Hurbean & Doina, 2014).

Over the last years, vendors have continued to commandeer the enterprise systems market place. Corporate mergers as a strategic move to handle competition have nevertheless seen brands such as SAP, Oracle, and Microsoft withstand the test of time and remain vibrant (Nyblom *et al.*, 2012). Previous studies have recognized the role played by organizational plans in pursuit of business transformation (Yablonksky, 2018). In retrospect, there are those that have extensively written on the importance of adopting IT to businesses. Globally, it is expected that application of software in the running of business will experience un upward trajectory to the tune of 7.5%, translating to about USD150 billion in 2015, increasing to more than USD200 billion in 2019 (Gartner, 2015). This shows that more and more enterprises will adopt enterprise information systems (EIS) as competitive innovative information capabilities and strategic tools like the ERP, IFMIS, CRM and SCM. Besides enabling organizations to digitalise their operations, EIS reshapes, expands and re-invents processes and products enabling enterprises to have competitive edge in the market and earn customer loyalty (Anaya *et al.*, 2015).

Majority of multinational firms globally have put in place ERPs and other technological advancements as a business strategy towards profit performance. For example, the parcel delivery giant UPS, implemented enterprise systems to support its strategic plans of acquiring more firms and integrating their technologies in-order to provide assorted range of products and services to its customers. Another corporation that adopted EIS is The Wipro consulting corporation adopted ERP with the aim of facilitating human resource-customer self-service. Through the implementation of the systems, the strategic resources are able to successfully achieve the set strategic objective of the enterprises. Wipro enjoyed increased information access, reduced administration costs and alignment strategies (Laudon & Laudon, 2012).

Many manufacturing firms adopt ERP systems to assist in faster integration after successful merger and acquisitions of other firms. Yetton, *et al.*, (2013) documented a study where a global food ingredients firm known as Danisco, thrived by using acquisition strategy to expand its operations worldwide with the help of technological systems. This study therefore opines that Enterprise Systems support organization by backing up post-acquisition integration initiatives. Figure 2.1 gives a summary how adoption of enterprise information systems helps to transform by enhancing operational efficiency in organizations.

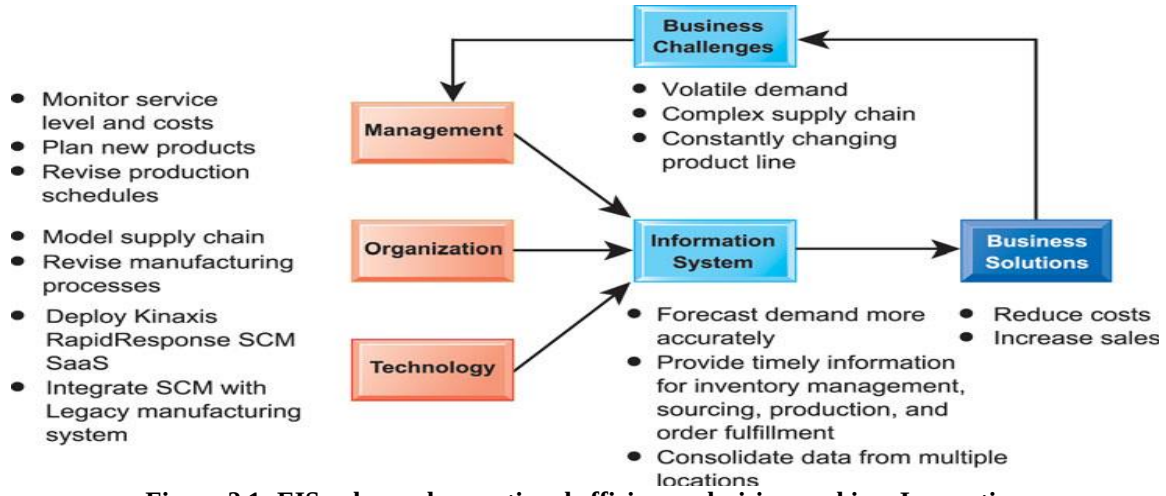


Figure 2.1: EIS enhanced operational efficiency, decision-making, Innovation
Source: Laudon & Laudon, (2012)

Empirical Literature Reviews

The Influence of Enterprise Information Systems on Agribusiness Enterprise Transformation

It is widely argued that a business's worth largely depends on the type of systems and procedures being used; and more importantly, a careful implementation of such in order to realize business efficiency and

effectiveness in their operations (Nyblom, *et al.,* 2012). Much of the available literature on EIS is considerably mature as evidenced by the several disciplines that are using them. At organizational level, the technological transformations are of more value due to its massive benefits and the ability to top the competitive curve for relevancy and sustainability. The successful implementation of systems enables enterprise to transform their processes to achieve flexibility, efficiency of operations, business process management and lean management (Buřita *et al.,* 2018)

The complexity of systems causes assimilation challenges of designing and executing business processes forcing enterprises to incur more in data synchronization. However, the successful adoption of EIS provides the solution to overcome the synchronization efforts by integrating assorted information systems. Laudon & Laudon, (2012) describes EIS as a database management software built on a distributed computing platform that serves as an infrastructure unto which individual enterprise processes are implemented. ERP systems operate on a three-tier client/server architecture comprising of a database server tier, user interface tier and an application server tier.

The original vision of systems advancement was to seamlessly integrate data, people, technology, and processes in enterprises. The continued legacy systems usage, implementation phases, prohibitive cost of change in the configuration, and complex applications links from different vendors have affected the realization of a truly seamless and integrated setup (Nazir & Pinsonneault, 2012). The ERP/III is now a reality, due to a set of rapidly evolving technologies of the 'borderless enterprise'. The presence of the traditional on-premise-solutions, the cloud ERP application and the hybrid ERP offering on premise solutions are some of the ERP phases (Hurbean, & Doina, 2014). To organizations, ERP systems enhance operational efficiency and costs reduction by enforcing smart practice in management.

Implementation of EIS in agribusiness enterprises adds value through business improvement strategies that come with the systems. The advancement and development of the internet and mobile technologies have facilitated data sharing and management among business organizations and partners. However, Nazir & Pinsonneault, (2012) observed that the adoption of an integrated approach by enterprises requires a trade-off between control and autonomy of each supply partner. EIS provides among other features a unified database, a software application, service quality, cost reduction and a single organization interface (Shaul & Tauber 2013).

According to Elbashir *et al.,* (2008), business intelligence is a specialized data analysis, query and reporting tool that supports decision-making, enhances the performance and manages information in an enterprise. Boonsiritomachai *et al.,* (2014) explains that BI has the capability of integrating human resources, applications, processes, and technologies to collect, analyze and disseminate information that can support its users in decision making. The advancement in technology has brought about a second generation of BI solutions that have achieved faster data analysing and processing capabilities. Despite all these advancements in technology, data volumes continue to grow, new analytic technologies are emerging that can transform how businesses are managed (Hurbean, & Doina, 2014).

Organizations rely on EIS in making sound decision, and future strategic plans. The agribusiness enterprises sector operate in a highly dynamic and complex environment full of cut throat competition, prize changes, product innovations and changing customer tastes and preferences which requires technological implementation to help them cope up with challenges in the market for survival and profitability. The technological advancement facilitates information processing from the business processes and activities data captured in daily operations. Seddon *et al,* (*2010)* explains the existence of many different technological tools for example business process management (BPM), querying and reporting tools, business monitoring tools, data mining, and processing tools among others that help enterprises improve their operational excellence. According to Hurbean, & Doina, (2014), business managers who are the decision makers of their respective enterprises are able to develop and direct sales activities, communication and corporate social responsibilities geared towards positively influencing the society and at the same time have a clear picture of corporate performance.

Inbuilt business intelligence in EIS extracts, analyses, processes historical information from the business activities, and displays it on dashboards for managements use. The process of monitoring business activities aims at providing real-time information on business processes and the strategic steps to be taken to achieve set objectives, inventory levels, market trends, credit tracking, financial position, inventory levels, time scales and new market entrants are elements the system provides the management with at the tip of a touch. Data warehouses provide a basis for information querying, processing and reporting that provide insight of enterprise progress and challenges to the management (Laudon, & Laudon, 2012). The business intelligence technologies have tools that translate the business strategy into key.

Effect of Organizational Factors on Agribusiness Enterprise Transformation

Employees' Competency

Ignorance is one's lack of knowledge and skills are his/her own surrounding. The unavailability of ICT skilled employees, technology resistant administrators and uninformed pool of agri-entrepreneurs pose a great

challenge to EIS adoption. According to Change, *et al*., (2015), majority of agribusiness enterprises management do not understand the value adding capability of information technology thus view training, seminars and workshops programs for employees as a waste of capital and time. Shemi (2012) also echoed this view and challenged enterprise management to improve and embrace technology in their operations and raise the employee ICT skills in order to digitize the enterprise operations and processes. The higher the level of technology appreciation from the part of employees and management will result in faster implementation of the same in their daily operations. If the agribusiness enterprises continue to hire less competent staff with poor knowledge of technology matters, will make the enterprises less competitive, un-attractive and stagnate in growth leading to poor performance and eventual closure. The way forward is for the agribusiness enterprises to model and align their future strategic plans to those of technological advancement. Management flexibility should be wisely and professionally exercised for survival and improvement in overall performance.

Characteristics of the Organization

Successful EIS adoption by agribusiness enterprises to aid in transformation process is greatly enabled by the enterprise' internal organizational characteristics. The characteristics involve among others; individual enterprise strategies, industry type, enterprise design & culture, enterprise size, financial position, information intensity, technological infrastructure that influence EIS adoption in SMEs (Oliveira & Martins, 2011 & Uwizeyemungu, 2011). All these characteristics are EIS adoption determinants either as barriers or inducements in agribusiness enterprises. According to Shemi (2012), the enterprise size, culture, finances and future plans positively or negatively influence the information technology adoption decision and that the bigger and richer the firm higher the adoption success.

Availability of Resources

The scarcity and limitation of key resources in local agribusiness enterprises greatly affects their sustainability and long-term strategies giving large corporations market competing edge (Rogério dos Santos, *et al.,* 2014). The strategic managers are responsible for making investment decisions on behalf of the enterprise to realize the value adding benefits of the technology. The available IT infrastructure retailed in the country aims at facilitating enterprise growth and sustainability to be able to compete in the market big time, open the agri-products to the global market, and generally eases the work processes by necessitating flawless data dissemination and management (Ejiaku, 2014). The technological infrastructure incorporates IT design experts, maintenance technicians, and competent personnel to work with the system for efficiency.

Technology consultants play a critical role in the EIS adoption in agribusiness enterprises. There professional services involve systems audit of business needs, software-hardware recommendation, and systems installation. System vendors sometimes render external expertise for the MSMEs at a price relatively lower than consultants do. Therefore, inadequate infrastructure is a hindrance towards EIS implementation as an enhancer of agribusiness transformation in the sector

Majority of MSMEs have minimum financial resources that bar them from owning many assets thus becoming a major challenge towards EIS implementation. A study by Irefin and Abdul-Azeez, *et al* (2012) found that the financial constraints in organizations are a big barrier in Nigerian SMEs in adopting technology. Majority of MSMEs and in particular those in less developed countries are characterized by financial instability that is vital in technology resource purchase. These factors contribute towards the poor technology adoption in agribusinesses leading to poor performance (Change, *et al.,* 2015). Financial resources are very important to MSMEs survival and growth compared to their competitor's (Rogério dos Santos, *et al,* 2014).

Resultant Opportunities in Adopting enterprise information systems in Agribusiness Enterprises in Kenya

Most of the developing countries globally have structures that support technology implementation in all sectors of the economy to greater effect (Olusola & Oluwaseun, 2013). The agricultural sector in Africa is yet to fully integrate technology (Njeru, *et al.,* 2014). Databases of establishments that can offer information, skills, and opportunities to the entrepreneurs should be integrated and shared widely. This will make it easy for the entrepreneurs to be able to seek markets, and supply of inputs and capital. Markets for the farmers' need to be developed and the information regarding the markets shared with the farmers. Furthermore, there should be partnerships between associations and financial institutions to ensure that farmers are able to access affordable credit facilities and products when they need them. Financial institutions on their part should design loan products and financing packages that are tailor-made for the youth who are considered as high-risk clients due to their inadequate or complete lack of collateral (Afande, *et al.,* 2015).

The spread and adoption of ICTs in Africa is commendable but its integration into agriculture is poor. Mobile phone penetration rate in Africa is commendable where Ghana and Seychelles have the leading penetration rates. Aleke, *et al* (2011) critically evaluated the impact of socio-augmented parameters, that is,

lifestyles, age and gender, on the effective adoption of ICT by small-scale agribusiness operations in South East Nigeria. The major issues were low poor productivity, which was caused by factors like low ICT adoption, inefficiencies in supply chain, and social factors among others. Therefore, stakeholders in agriculture can benefit from ICTs. (Adegbidi, *et al.* (2012) provided the example of Benin where 41% of rice farmers used cell phones in their agricultural activities. In Kenya, Noorani (2015) observed that use of mobile phone application dubbed, *I-cow* led to increase in milk production by 56%. Use of mobile phone applications have been reported in Nigeria, Malawi and various other African countries with encouraging results (Leavy & Hossain, 2014).

Africa has recorded a rise in the new mobile phone applications that are emerging. A study in Uganda by Mugisha and Nkwasibwe (2014) indicated an application referred to as Ensibuuko (Uganda) while in Kenya, there are various mobile phone applications including FarmDrive and mFarm (Afande, *et al.*, 2015). However, the models applied and the adoption of such applications is low. Muambe and Okello (2010) compared the application of ICT in agriculture and rural development of South Africa and Kenya. They concluded that vast accomplishment in application and adoption of ICT in agriculture can be achieved by addressing obstructions to adoption and diffusion. Such hindrances in the use of ICTs included lack of ICT awareness, ICT infrastructure deficiencies, illiteracy, cultural and language barriers. Lwoga, *et al* (2011) investigated the application of ICT in the improvement of farming activities in rural areas of Tanzania. The researcher's relevant issues were information and knowledge needs, their access and use. They found out that, the major sources of agricultural information were the local people mostly farmers followed by public extension services. Although at a lower rate advanced technologies and print media were also used. International trade barriers, high interest rates, limited credit access, fluctuating exchange rate, high trade policies, bureaucratic policies, high costs of transportation, poor quality supplies, and excessive imports and exports of agri-products are among the common challenges agri-business enterprises face.

EIS adoption enhances productivity as the systems automate work processes easing the strain of manual chores. According to Rana, (2013), EIS has shortened processing cycle, lead times and reduced scrap rates which all lead to improved productivity and performance. The successful implementation of EIS will tremendously improve operational efficiency leading to increased productivity, better resource allocation and technical improvements (Olusola & Oluwaseun, 2013). For managers to be successful in the ever-evolving environment, they wisely have to make informed investment decisions especially in technological side in-order to achieve cost efficiency, reduced lead-times, and business restructuring (Chinomona, 2013). The investment in Information technology by enterprises has led to development of on-line platforms like e-commerce that has leved the accesse to opportunities readily available in the market (Agwu & Murray, 2015).

Summary and Research Gap

Author	Year	Title	Methodology	Remark
Boston consulting group (BCG)	2015	How companies with advanced digital strategies are performing relative to their peers.	Mixed design	Positive
Luay Anaya, *et at.*,	2015	An investigation into the role of EIS in enabling business innovation process	Exploratory case study	Positive
Nagery	2012	Adoption of ICT and Supply chain integration strategy at BAT Kenya Ltd	Descriptive design	Positive
Magutu	2012	Challenges associated with EIS systems adoption among logistics service providers in Kenya	Descriptive design	Positive
Afande, Maina, & Mathenge,	2015	Challenges & prospects of Kenyan youth engagement in agriculture	Descriptive design	Positive
Hurbean, & Doina,	2014	The new generation promise. (ERP/III)	Multi method approach	Positive
Borut, & Popovic	2014	Unpacking business intelligence systems adoption determinants in smse's	Multi method approach	Positive
Kavadias *et al.*, ,	2016	The transformative business model.	Multi method approach	Positive
Small, & Sep	2016	The Adoption of ICT among SMEs in Italy	Descriptive Survey	Positive

Source: Author (2020)

From the literature reviews as summarized in the Table 2.1, there exists a positive significance relationship between adoption of enterprise information systems and enterprise transformations. Most of the research done has been on other business entities and large firms but little was done that relate to transformation of agribusinesses. This study opens up avenues for more research on transformation in enterprises in order to understand the 'how' agribusiness enterprises can create value using. Other areas of that could be investigated could revolve around Enterprise Information Systems and how they would enable business transformations from alternative perspectives that have not been explored by this study.

III. RESEARCH METHODOLOGY

Research Design

The descriptive design was adopted for this study because the design helps in quantifying and describing the existing practices, as well as measuring the influence of the potential enterprise information system as enablers of business transformation. This research design was appropriate, as it aided the generalization of the final findings to wider population and find relationships between the test variables.

The research design was handy in assessing the influence of enterprise information system on agribusiness transformation in western region counties particularly Kakamega, Bungoma, Vihiga and Trans-Nzoia. It is also very helpful in analysing the existing inter-relationships between the variables of the study (Ngechu, 2014).

Target Population

Okiro and Ndungu, (2013), describe target population as the total collection of elements from which general inferences will be drawn. The researcher focused on Kakamega County. In particular, the population of the study consisted both youths and older persons in the region. The 2019 Population and Housing Census indicated that majority of the population in western region counties are mostly farmers. Thus, 1,621 players in the agribusiness industry in Western region formed the study population.

Table 3.1: Target Population

County	**Micro-agribusiness**	**Small-agribusiness**	**Medium-agribusiness**	**Total**	**% Population**
Kakamega	184	145	82	411	25%
Bungoma	162	139	92	393	24%
Vihiga	176	142	69	387	24%
Trans-nzoia	193	165	72	430	27%
Total	**715**	**591**	**315**	**1621**	**100%**

Source: One-acre fund yearly report, 2019

Sampling procedures and Size

Sampling frame

Zikmund *et al.,* (2010), explains a sampling frame as a total list of elements of a population from which the study sample is drawn. In this study, it was identified through the list of employees of the select agribusiness enterprises that have adopted the EIS in the western Kenya counties. Since the population is divided into clusters based on the counties, then the number of clusters forms the sampling frame.

Sampling Technique and size

This study employed stratified sampling to sample participants. This sampling process involves identifying group of participants that become part of the study population and their involvement in the sample. The following procedure was used to sample the strata that was used to select study sample:

i. The study population was divided into four strata based on the county of residence (Vihiga, Kakamega, Bungoma and Trans-Nzoia).
ii. Each strata was marked with a unique number for identification.
iii. Probability sampling was then be applied to choose a sample

The stratified sampling as chosen since it is cost and time efficient for the wide geographical area (western Kenya). Secondly, large sample size can be sampled due the increased level of accessibility of prospective sample members. The following (Table 3.2) shows the sample size, drawn from Kakamega County which was selected to represent the entire study population.

Table 3.2: Sample Cluster

County	Micro-agribusiness	Small-agribusiness	Medium-agribusiness	Total	% Population
Kakamega	184	145	82	411	25%

Data Collection Methods and Tools

Structured questionnaires were used as the main data collection tools. The questionnaires provide a better method of collecting large data samples at a shorter time and at minimum costs. Similarly, questionnaires facilitate easier coding and analysis of collected data (Kinyanjui, 2014). The questionnaires were split into different sections according to the research questions. The questions covered issues associated to adoption of enterprise information systems as enablers of business transformation in agribusiness enterprises. The targeted

respondents are requested to rate the statements on a scale. Secondary data will be collected using data collection sheet.

Validity and Reliability of the Instruments

Validity of the instruments

Validity is explained as the goodness, relevance, accuracy, and richness of data. It is the extent to which the instrument is able measure that which it is designed to. The instrument is structured in a way that it asks the right question to make the questionnaire valid. Content validity through expert opinion was adopted to validate the data. Face validity exists where the researcher avails the type of information expected (Kruger, 2012). The internal coherence of the results forms the internal validity. It involves response consistency, clarity and flow of responses (Robson, 2012).

Reliability

The level of consistency of words, phrases, and data statements of different researchers to same pattern forms the basis for reliability (Hussey and Collis, 2009). Reliability also means the extent to which the data instrument can consistently provide same results on different administration (Creswell, 2014).

The data instruments were subjected to a pilot study based on a test-retest method with the help of Cronbach's Alpha Coefficient. The technique is appropriate for the five point Likert scale items with $\alpha \geq 0.7$ being the cut-off point (Malhotra, 2015). However, in case it is lower, then the instrument has to be modified accordingly prior to the study in line with the recommendations of Frankel, & Wallen, (2000).

Using the SPSS software, all the items on questionnaire were subjected to Cronbach's Alpha of reliability. The obtained coefficients were compared to the reliability threshold of $\alpha \geq 0.7$ that is the recommended research instrument coefficient (Sabana, 2014). Thus, the internal consistency and reliability of the measures used was seen as sufficiently enough to have adequately measured the research variables. This allows for further testing and analysis of the linear regression models.

Data Collection Procedures

The proposal was first presented at departmental level, and later on forwarded to the graduate school for the processing of data collection approval letter. A research permit from NACOSTI was sought, which was an authorization to the researcher to conduct filed work. Thereafter the researcher booked appointments with targeted respondents' organization at least three days before visiting for questionnaire administration. By doing this, a rapport was developed, the purpose of the study and clarity of items explained (Sekaran and Bougie, 2010). The drop-and-pick method of instrument administration was adopted to minimize the non-return rate level. The respondents were allowed to expound on their explanations and opinions using open ended questions.

Data Analysis

Data was mainly analysed with the help of SPSS V22.0 software. The descriptive statistics was performed on the quantitative variables to produce information measured in percentages, frequencies, mean, and standard deviation and presented in graphs and tables. Qualitative data from the open-ended questions was subjected to content analysis and findings presented in a prose format. Regression analysis was conducted for analyse inferential data. The regression analysis enables the establishment of relations that exists between the variables and their levels of significance.

Table 3.3: Indicating how the objectives were analysed

Objective	Data Type/measure	Analysis Tool
One	Inferential	Regression/correlation
Two	Inferential	Regression/correlation
Three	Inferential	Regression/correlation

Source: Author (2020)

Ethical Considerations

In this study ethical concerns were upheld by observing protocol and confidentiality at every stage of the research process. The identities of the respondents were concealed by coding the questionnaires during administration of the questionnaires. This meant that, only the researcher was able to know the details of the participants. The respondents were provided with adequate information concerning the study. This enhanced the confidence level of the respondents.

Clearance from SGS and NACOSTI allowed the researcher to carry out the research and collect data. The researcher was continuously available to provide clarity on any issues about the research and related

procedures. The respondents were allowed to pose questions before, during and at the end of the administration of data collection tools.

IV. RESULTS & DISCUSSIONS

Introduction

The study aims at assessing the value from Enterprise Information Systems as enablers of business transformation in agribusiness enterprises in Kenya. The chapter concentrates on findings, both pilot and main study findings. The pilot study results involved both validity test and reliability test results that help ascertain the consistency of the tool. The pilot test findings were as shown in section 4.3 below. The main study involved demographic characteristics covered in section 4.4, descriptive statistics is covered in section 4.5, and inferential analysis (which involved correlation analysis, regression analysis for testing study hypothesis) covered in section 4.7. The study also assessed the assumptions of regression analysis before applying regression model to the study data and the findings were as shown in section 4.6. The moderation analysis purpose was to assess the moderating effects of organizational factors on the relationships between EIS on the transformation of agribusinesses in Kenya; the findings are as shown in subsection 4.8. The study also assessed the opportunities that come with adoption and use of EIS in transforming agribusiness in Kenya.

Response Rate

The 411 target study participants were given the questionnaires to fill. Out of this, 365 participants successfully filled and returned the questionnaires to the researcher representing a return rate of 89% as shown in table 4.1. The 89% rating superseded the recommended minimum threshold of 50% return rate as suggested by Zikmund (2010). From the findings, the researcher concluded that the study population was well represented.

Table 4.1: Response rate

Business Category	Distributed Questionnaires	Collected questionnaires	Return rates
Micro-agribusiness	184	171	93%
Small-agribusiness	145	134	92%
Medium-agribusiness	82	60	73%
Total	**411**	**365**	**89%**

The study also sampled departments of; Livestock & fisheries, Co-operatives, Agriculture, and industrialization at Kakamega County government to take part in the study as key informants by filling the interview schedule. The researcher received utmost cooperation and participation by staff from the sampled departments and farmers who effectively filled the research tools.

Validity and Reliability Test

The questionnaire and the interview schedule were subjected to a pilot test in order to ascertain their validity before data collection process. To achieve this, the researcher assessed the relevance of the content of the tools contextually, and to also ascertain the adequacy of research items and if they were measuring the same thing (construct validity). Section 4.3.1 shows the validity of the test results. A 5-Point Likert scale was used to test the reliability of the findings as shown in section 4.3.2 below.

Validity Tests

The study questionnaire and interview schedules were subjected to expert judgement for content validity. The expert judges involved the two research supervisors assigned to the researcher and panellists from the university graduate school. They ascertained that the contents of the study questionnaire and interview schedule were relevant to the context of the study.

The study assessed the ability of the research tool to measure the same thing. Oluwatayo, (2012), explains it as the ability of the study tool (questionnaire) to measure consistently the actual hypothesis of the study. In simpler way, construct validity is meant to assess if the items measuring the study variables (construct) are actually coming from the same population with equal variance, adequate and measuring the same thing. To achieve the above, the study used factor analysis, in specific, Principal Component Analysis to analyse the validity of the constructs and Kaiser Meyer Olkin (KMO) that measured the adequacy of research items. The KMO coefficients had ranged between 0 & 1 where a KMO value approaching 1 implies a perfect adequacy while a value approaching 0 indicates perfectly inadequate number of items measuring the study variable (construct). KMO coefficient of 0.6 was established as the minimum threshold of acceptable degree of sampling adequacy (Mooi, 2014). To ascertain if items measuring each study variable (construct) were coming from a population with equal variance, the study applied a Bartlett's test. The significant Chi-square results indicated

that the study items measuring a given construct actually come from a population with equal variance (Mooi, 2014).

Table 4.2: Bartlett's Test and Kaiser-Meyer-Olkin (KMO) Results

Variable	Number of items	KMO Measure of sampling adequacy	Bartlett's Test of Sphericity		
			Approx. Chi-square	Degrees of freedom	p-value
Agribusiness Transformation		0.743	551.145	36	0.000
Enterprise Information Systems		0.869	599.388	36	0.000
Organizational Factors		0.706	635.952	36	0.000

The study findings of Table 4.2 shows that the coefficients of KMO for the three variables surpassed the minimum recommended threshold of 0.6 (Oluwatayo, 2012): Agribusiness Transformation had KMO value of 0.743 > 0.6; Enterprise Information Systems had KMO value of 0.869 > 0.06; and Organizational Factors had KMO value of 0.706 > 0.6. The study therefore concluded that the sampled items for each of the study variables were adequate to measure the respective variables. The study also shows the results of the Bartlett's Sphericity test (see table 4.2) for which all Chi-square tests were significant: for Agribusiness Transformation, χ^2 (36) = 551.145, p = 0.000<0.05; for Enterprise Information Systems, χ^2 (36) = 599.388, p = 0.000<0.05; and for Organizational Factors, χ^2 (36) = 635.952, p = 0.000 < 0.05. The findings indicates that the 9 items of each variables were respectively coming from an equal variance population.

The research used Scree Plots to assess how many constructs (components) could be generated by the number of items for each of the study variables (Agribusiness Transformation, Enterprise Information Systems, and Organizational Factors); that is, if the 9 items for each of study variables were respectively measuring the same thing. The logic was to keep only factors that explain mostly equal variance as a single variable. The number of components or constructs developed from the analysis were indicated on the slope of curve where the items levels off (Oluwatayo, 2012). For Agribusiness transformation, the number of items used were 9 in total. The scree plot (see figure 4.1) shows that only one factor was above the "elbow", an indication that the 9 items were measuring one and the same thing which is the Agribusiness transformation variable.

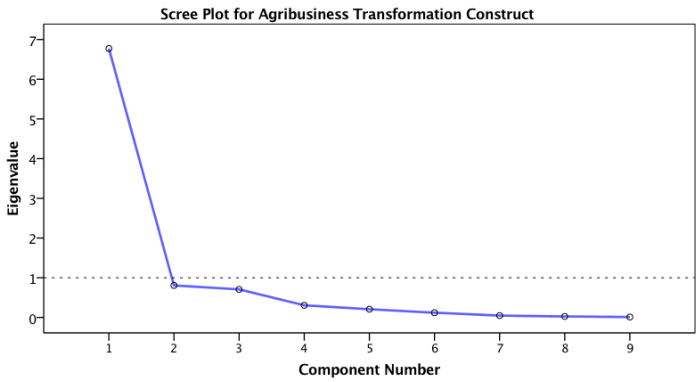


Figure 4.1: Scree Plot for Agribusiness Transformation Variable

For Enterprise Information Systems, the number of items used were 9 in total. The scree plot shown in figure 4.2 shows that only one factor was above the "elbow", an indication that the 9 items were measuring one and the same thing which is the Enterprise Information Systems variable.

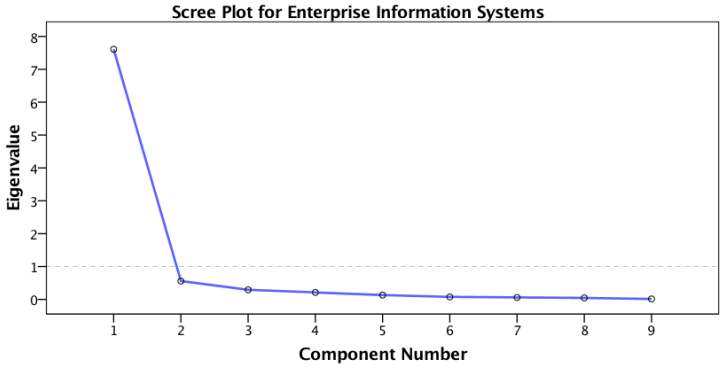


Figure 4.2: Scree Plot for Enterprise Information Systems Variable

For Organizational Factors, the number of items used were 9 in total. The scree plot (see figure 4.3) shows that only one factor was above the "elbow", an indication that the 9 items were measuring one and the same thing which is Organizational Factors variable.

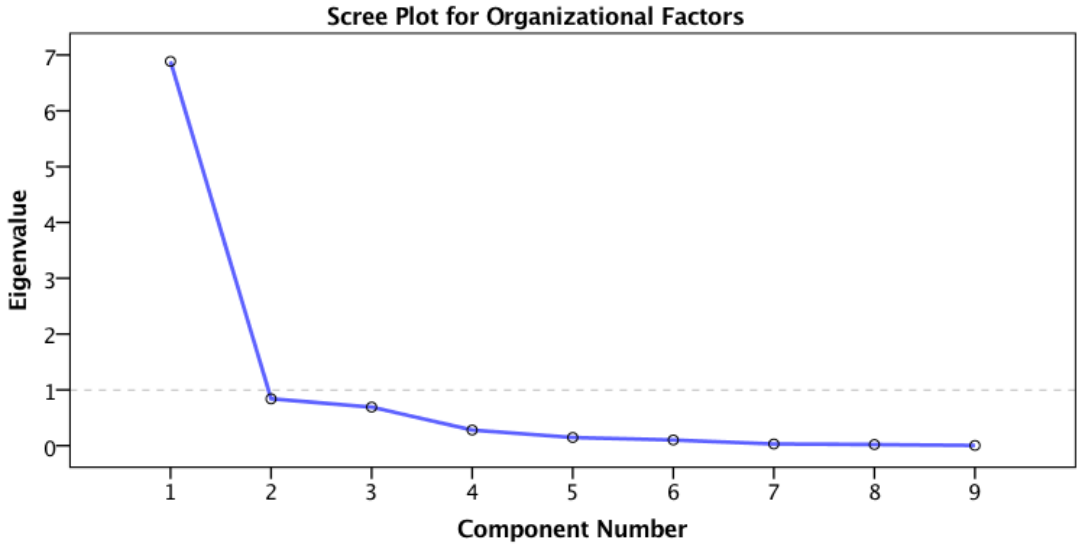


Figure 4.3: Scree Plot for Organizational Factors Variable

The study therefore concluded that the questionnaire tool was valid and would collect valid data for subsequent analysis during main study.

Reliability Test

The reliability analysis was conducted to ascertain if the 5-point Likert-scale used was reliable for further analysis. The Cronbach's alpha assessed and recommended minimum threshold of 0.7 as acceptable for the reliability test (Gill et al., 2010). The reliability test results are in table 4.3 below.

Table 4.3: Reliability Test Results

Variables (Constructs)	**Number of items**	**Cronbach Alpha**
Agribusiness Enterprise Transformation	9	0.954
Enterprise Information Systems	9	0.976
Organizational Factors	9	0.956
Opportunities of EIS use	8	0.958
Overall	**35**	**0.952**

The reliability test results in Table 4.3 indicates that all Cronbach's coefficient variables were above the recommended minimum threshold of the 0.7 (Gill *et al.*, 2010). Agribusiness Enterprise Transformation had an Alpha Coefficient of 0.954, Enterprise Information Systems had 0.976, Organizational Factors had 0.956,

and Opportunities from EIS use had 0.958. The overall Alpha Coefficient was 0.952. The study accepted the 5-point Likert scale reliability constructs and recommended them for further analysis.

Demographic Characteristics

The study assessed the demographic nature of the selected study participants, which included; the respondent's gender, levels of education, type of agri-business venture involved in, and the duration they have been in the agribusiness.

Gender of the Study Participants

The respondents were required to indicate their genders. The table 4.4.below shows the findings.

Table 4.4: Gender of respondents

Years of Operations	Count response	Percentage response
Male	237	65%
Female	128	35%
Total	365	100%

These findings indicate that, 65% of respondents as male and 35% as female, proving that gender inclusivity was considered.

Level of Education

The respondents were requested to state the highest level of education achieved. Table 4.5 indicates the results.

Table 4.5: Education levels

Education Level	Count response	Percentage response
Certificate	112	31%
Diploma	97	27%
Undergraduate	96	26%
Postgraduate	60	16%
Total	**365**	**100%**

The above findings show that 31% of respondents had certificate level as their highest education level; 27% were diploma holders, 26% held bachelor degrees while post-graduate stood at 16%. The findings shows educated respondents who could be relied upon to provide credible responses.

Type of Agri-Business

The researcher asked the respondents to state their respective types of agribusinesses they are running.

Table 4.6: Type of Agribusiness

Type of Agribusiness	Count response	Percentage response
Farming	55	15%
Producing agricultural inputs	81	22%
Offering services	134	37%
Selling agricultural products	38	10%
Processing/ Manufacturing	57	16%
Total	**365**	**100%**

The results above shows 37% of respondents offered services in their respective agribusinesses, 22% were producing agricultural products, 16% were in the processing/manufacturing sector, 15% were farmers doing farming as their agribusiness, and 10% were selling agricultural inputs. These results show that the selected respondents were in better positions to provide reliable responses in the context of the study.

Period of Experience with the Agri-Business Sector

The research asked the respondents to indicate their duration in the agribusiness. The results are as shown below in table 4.7.

Table 4.7: Period of experience working in the agribusiness

Period (in years)	Count response	Percentage response
Less than 3	92	25%
3 - 6	203	56%
7 – 10	42	11%
Over 10	28	8%
Total	**365**	**100%**

These findings shows 56% of responds as the majority have been in the agribusiness between 3 - 6 years, 25% for less than 3 years, 11% for 7 - 10 years, and over 10 years were shown by 8%. These indicates that the respondents had adequate agribusiness experience in their respective business thus in position to give reliable information.

Descriptive Statistics

The patterns and distribution of sampled responses are assessed using frequency counts, percentage frequencies, and mean. The measures of dispersion used included standard deviation and standard error. Sub-section 4.5.1 focused on descriptive statistics of the transformation of agribusiness as the depended variable, Sub-section 4.5.2 focused on the EIS as the explanatory variable, and organizational factors descriptive statistics as the moderator in 4.5.3. Sub-section 4.5.4 focused on the descriptive statistics of the opportunities that comes with the adoption and implementation of the EIS in the agribusinesses in Kenya.

Effect of Enterprise Information Systems on Agribusiness Enterprise Transformation in Kenya

The researcher sought to assess the descriptive statistics of EIS adoption and use in agribusiness transformation in Kenya. The respondents were asked to state if they use ICT services in their daily agribusinesses operations. Figure 4.4 below shows the findings.

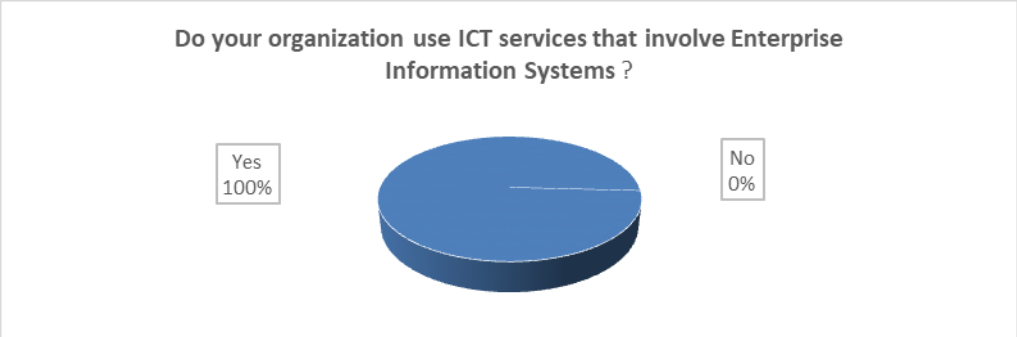


Figure 4.4: Use of ICT Services in Agribusinesses

Figure 4.4 show that all the sampled participants, (100%) had integrated ICT services in their businesses. This was an indication that majority of the agribusiness enterprises in the region have integrated use of ICT services that involve EIS in the daily operations of their businesses. The researcher therefore sought to understand what are the types of EIS used by respondents among the agribusinesses enterprises, and to what extend they use the EISs as shown in table 4.8 below.

Table 4.8: Descriptive Statistics indicating extend of use of EISs in Kakamega

Statement	VSE	SE	AE	LE	VLE	Mean	Std. dev
Decision enabling systems	154	19	38	54	100	2.80	1.72
	42%	5%	10%	15%	27%	56%	
Executive support systems	135	40	48	91	51	2.68	1.52
	37%	11%	13%	25%	14%	54%	
Management Information Systems: Inventory control system, Sales management,	20	43	168	84	50	3.28	1.02
	5%	12%	46%	23%	14%	66%	
Assets / Inventory Management Systems	18	27	61	180	79	3.75	1.03
	5%	7%	17%	49%	22%	75%	
Basic Internet services (email and web) g-mail / yahoo/Hotmail	22	22	55	196	70	3.74	1.03
	6%	6%	15%	54%	19%	75%	
Project management (billing/ time/expense management)	128	48	50	90	49	2.68	1.49
	35%	13%	14%	25%	13%	54%	
Web site with advanced e-commerce functions such as CRM/SFA / ERP/sales & marketing systems	131	40	50	93	51	2.71	1.51
	36%	11%	14%	25%	14%	54%	
Business Intelligence Systems e.g. SAP	20	42	166	87	50	3.29	1.02
	5%	12%	45%	24%	14%	66%	
Transaction processing systems: Payroll, schedule,	18	30	61	177	79	3.74	1.04

Order Tracking,	5%	8%	17%	48%	22%	75%	
Average level of Use of EISs in Agribusinesses	**Mean(%Mean)**	**Std. Dev.**	**Std. mean error**	**Minimum**	**Maximum**		
	3.1848 (64%)	.85015	.04450	1.33	5.00		

Very Small Extend/Negligible (VSE) = 1, Small Extent (SE) = 2, Average Extent (AE) = 3, Large Extent (LE) = 4, Very Large Extend (VLE) = 5.

The findings in Table 4.8 shows the average level of use of *Decision support systems* by the agribusiness enterprises in Kakamega county as 56% (mean = 2.8, Std. Dev. = 1.72). This shows that most of the businesses have not fully transited to use of Decision-Support Systems in their daily operations in agribusiness. Majority of the respondents supported these, 42% who said that their respective agribusinesses were using the Decision-Support Systems to a very small extend. Similarly, the agribusinesses seems not to have fully transited to use of executive support systems like Manpower planning; Project management (billing/ time/expense management); and Website with advanced e-commerce functions such as CRM/SFA / ERP/sales & marketing systems as indicated by average level of 54% (mean of 2.68 & Std Dev. Of 1.52), 54% (mean of 2.68 & Std Dev of 1.52), and 54% (mean of 2.71 & Std. Dev. of 1.51) respectively. MISs for example the inventory control and Sales management, are used to an average large extend as indicated by 66% average level (mean of 3.28 & Std. Dev. of 1.02) and supported by majority of respondents, 46%. The study also shows that; Assets/ Inventory Management Systems, Basic Internet services (email and web) g-mail/ yahoo/Hotmail, and transaction processing systems like Payroll system and Order Tracking are used to a large extend by the agribusinesses in the region (see table 4.8).

The overall average level of use of the Enterprise Information Systems among agribusiness enterprises in Kakamega county was found to be 64%) rated moderate (see table 4.8); these results indicate that most of the agribusiness enterprises in Kakamega county are using the Enterprise Information Systems in their operations, however, most of them have not transited fully thus need for improvement. These findings were supported by the key informants (see figure 4.5 below) who agreed that most of the agribusiness enterprises in the region are adopting and using Enterprise Information Systems in their operations, however, the implementation part of it is the problem as quoted below:

...most of the agribusiness enterprises in the region are massively transiting to adopting technological systems in their daily operations. However, the use of systems in the firms' operations has not been much effective, it has been a challenge to many of the agribusiness enterprises in the region of which most of the firms are struggling with the implementation. ...

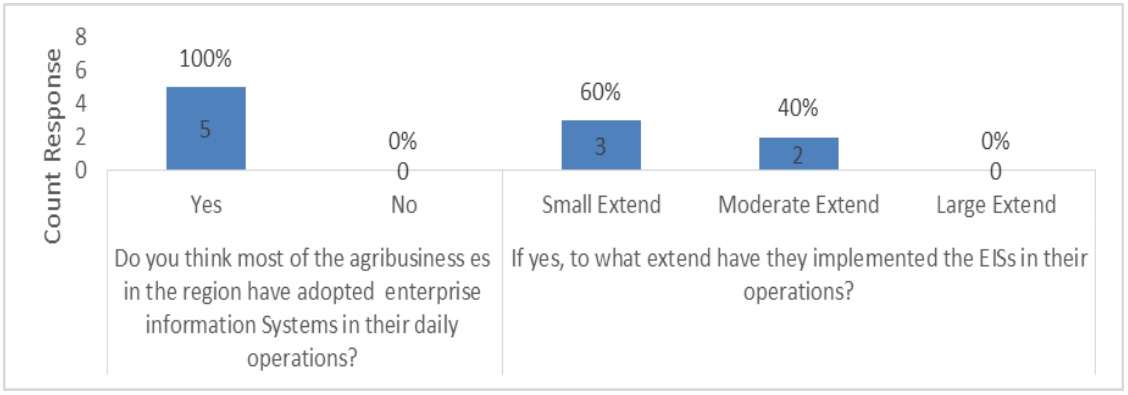


Figure 4.5: Adoption of Enterprise Information Systems in Agribusiness Enterprise

The results of 64% (mean = 3.1848, Std. Dev. = 0.85015) on the overall level of use of the EIS on average positively concurs with the views of other scholars like Nyblom, *et al.,* (2012), Shaul & Tauber (2013), Hurbean, & Doina, (2014), Buřita *et al.,* (2018). The authors agreed that the adoption of EIS in business operations provides quality services, productivity, cost reduction, and operational efficiency. Thus, the agribusinesses in Kakamega County must strive to fully transit to integrating ICT in all their operations for them to realize operational excellence, profitability and market share growth.

EIS on Agribusiness Enterprise Transformation in Kenya

The researcher also sought to describe the transformations among the selected agribusiness enterprises in Kakamega County that have come along with the use of Enterprise Information Systems. The study assessed and compared the performance of the selected agribusiness enterprises before, after adoption and

implementation of use of Enterprise Information Systems in their operations. Results are in table 4.9 and 4.10 below.

Table 4.9: Descriptive statistics of selected agribusinesses performance Before adoption and use of EIS

Statement	VB	B	G	VG	E	Mean	Std. dev
Firm's transformation strategies	51	201	22	77	14	2.46	1.09
	14%	55%	6%	21%	4%	49%	
Operational performance	78	55	144	82	6	2.68	1.09
	21%	15%	39%	22%	2%	54%	
Operational consistency ensuring quality and reliability	54	190	30	71	20	2.49	1.13
	15%	52%	8%	19%	5%	50%	
Timely delivery of goods and services (cycle times) and adherence to schedule	172	114	18	44	17	1.96	1.19
	47%	31%	5%	12%	5%	39%	
Cost savings in the operations by continuous monitoring the organizational performance	164	97	13	74	17	2.13	1.30
	45%	27%	4%	20%	5%	43%	
Product and process innovations	173	62	19	101	10	2.21	1.36
	47%	17%	5%	28%	3%	44%	
Timely and reliable information sharing	78	68	131	82	6	2.64	1.10
	21%	19%	36%	22%	2%	53%	
Promotion of Business linkages and value	58	178	38	71	20	2.50	1.14
	16%	49%	10%	19%	5%	50%	
Forecasting for enhanced business planning	164	122	18	44	17	1.98	1.18
	45%	33%	5%	12%	5%	40%	

Average level of Performance of agribusinesses Before adoption and use of EIS	Mean(%Mean)	Std. Dev.	Std. mean Error	Minimum	Maximum
	2.3391(47%)	.71900	.03763	1.00	4.56

Excellent (E) = 5, Very Good (VG) = 4, Good (G) = 3, Badly (B) = 2 and Ver Badly (VB) = 1

The findings in Table 4.9 implies that, before the adoption and use of EIS among the selected agribusiness enterprises, the average level of firms' transformation strategies was rated moderate at 49% (mean 2.46, Std. Dev. 1.09). The results implies that majority of the firms were doing badly in terms of strategizing for transformation as also by supported by majority of the respondents, 55% (see table 4.9). Similarly, before implementation of EIS, majority of the selected agribusiness enterprises were facing challenges in delivery of goods and services (cycle times). This is in addition to adherence to schedules, cost savings in the operations by continuous monitoring the organizational performance, product and process innovations, and forecasting for enhanced business planning as indicated by very low average levels of performance of 39%, 43%, 44%, and 40% respectively. In terms of operational performance, the firms were generally doing averagely moderate as indicated by an average performance of 54% (mean = 2.68, Std. Dev. = 1.09). Similarly, the selected firms were doing relatively average in terms of operational consistency ensuring quality and reliability, timely and reliable information sharing, and promotion of business linkages and value as indicated by moderate level of performance of 50%, 53%, and 50% respectively.

The overall average level of performance before the adoption and use of Enterprise Information Systems among the selected agribusiness enterprises was 47% (mean = 2.3391, Std. Dev. = 0.719) rated low (see table 4.9); these results indicated that most of the selected firms were performing poorly before the implementation of Enterprise Information Systems in operations. The researcher also assessed the descriptive statistics of selected firms' performance after the adoption of Enterprise Information Systems.

Table 4.10: Descriptive Statistics of Performance of Selected agribusinesses After adoption and use of EIS

Statement	VB	B	G	VG	E	Mean	Std. dev
Firm's transformation strategies	14	22	51	201	77	3.84	.96
	4%	6%	14%	55%	21%	77%	
Operational performance	6	144	78	55	82	3.17	1.22
	2%	39%	21%	15%	22%	63%	
Operational consistency ensuring quality and reliability	20	30	54	190	71	3.72	1.04
	5%	8%	15%	52%	19%	74%	
Timely delivery of goods and services (cycle times) and adherence to schedule	17	18	172	114	44	3.41	.93
	5%	5%	47%	31%	12%	68%	
Cost savings in the operations by continuous monitoring the organizational performance	17	13	164	97	74	3.54	1.00
	5%	4%	45%	27%	20%	71%	
Product and process innovations	10	19	173	62	101	3.62	1.03

	3%	5%	47%	17%	28%	72%	
Timely and reliable information sharing	6	131	78	68	82	3.24	1.21
	2%	36%	21%	19%	22%	65%	
Promotion of Business linkages and value	20	38	58	178	71	3.66	1.07
	5%	10%	16%	49%	19%	73%	
Forecasting for enhanced business planning	17	18	164	122	44	3.43	.93
	5%	5%	45%	33%	12%	68%	

Average agribusinesses performance level After adoption and use of EIS	**Mean (%)**	**Std. Dev.**	**Std. mean error**	**Minimum**	**Maximum**
	3.4600 (69%)	.70388	.03684	1.33	5.00

Excellent (E) = 5, Very Good (VG) = 4, Good (G) = 3, Badly (B) = 2 and Ver Badly (VB) = 1

Table 4.10 findings indicates that, after the adoption and use of EIS among the selected agribusiness enterprises, the average level of firms' transformation strategies were highly rated at 77% (mean of 3.84 & Std. Dev. of 0.96). These findings indicates that majority of the firms were doing well in terms of strategizing for transformation as also by supported by majority of the respondents, 55% who rated very good (see table 4.10). From the findings, majority of the agribusiness enterprises have been doing relatively well in terms of timely delivery of goods and services. Other areas include; adherence to schedule, cost savings in the operations by continuous monitoring the organizational performance, product and process innovations, and forecasting for enhanced business planning as indicated by very low average levels of performance, 68%, 71%, 72%, and 68% respectively. The study also found that in terms of operational performance, the firms were generally doing well as indicated by an average performance of 63%. Similarly, the selected firms were doing well in terms of operational consistency ensuring quality and reliability, timely and reliable information sharing, and promotion of business linkages and value as indicated by moderate level of performance, 74%, 65% and 73% respectively.

The overall average level of performance after the adoption and use of Enterprise Information Systems among the selected agribusiness enterprises was rated moderate at 69%. These findings show that many of the selected firms performance was relatively well after the adoption and use of EIS. However, there is still need for improvement. The study therefore investigated the existence of a significant positive performance improvement in selected agribusiness enterprises at 5% level of significance using paired sample t-test and the findings were as 4.11 below.

Table 4.11: Significance in the Transformation among agribusinesses after adoption and use of EIS

Statement	**Before Adoption of EISs (B)**		**After Adoption of EISs (A)**			**Paired t-test of mean difference (A-B)**	
	Mean	**Std. dev**	**Mean**	**Std. dev**	**Mean (A-B)**	**t-value**	**p-value**
Firm's transformation strategies	2.46	1.09	3.84	.96	1.378	19.889	.000
	49%		77%		28%		
Operational performance	2.68	1.09	3.17	1.22	.493	6.498	.000
	54%		64%		10%		
Operational consistency ensuring quality and reliability	2.49	1.13	3.72	1.04	1.230	15.428	.000
	50%		74%		24%		
Timely delivery of goods and services (cycle times) and adherence to schedule	1.96	1.19	3.41	.93	1.4521	19.886	.000
	39%		68%		29%		
Cost savings in the operations by continuous monitoring the organizational performance	2.13	1.30	3.54	1.00	1.411	19.775	.000
	43%		71%		28%		
Product and process innovations	2.21	1.36	3.62	1.03	1.403	22.825	.000
	44%		72%		28%		
Timely and reliable information sharing	2.64	1.10	3.24	1.21	.600	7.925	.000
	53%		65%		12%		
Promotion of Business linkages and value	2.50	1.14	3.66	1.07	1.164	14.322	.000
	50%		73%		23%		
Forecasting for enhanced business planning	1.98	1.18	3.43	.93	1.452	19.886	.000
	40%		68%		29%		
Average level of agribusinesses Performance adoption/ use of EIS	**2.339**	**.719**	**3.4600**	**.703**	1.1208	**25.922**	**.000**
	47%		**69%**		**22%**		

Excellent (E) = 5, Very Good (VG) = 4, Good (G) = 3, Badly (B) = 2 and Very Badly (VB) = 1

The above findings of Table 4.11 implies that after the adoption and use of the EISs among the selected agribusiness enterprises, there was a significant improvement on the overall firm's performance by 22% (mean difference = 1.1208, t-value = 25.922, p-value = 0.000 < 0.05). transformation of the firms' strategies significantly improved by 28%, operational performance significantly improved by 10%, operational consistency ensuring quality and reliability significantly improved by 24%, and timely delivery of goods and services (cycle times) and adherence to schedule significantly improved by 29% as shown in Table 4.11 above. Similarly, product and process innovations among the selected agribusiness enterprises significantly improved by 28%, timely and reliable information sharing enterprises significantly improved by 12%, promotion of business linkages and value significantly improved by 23%, and forecasting for enhanced business planning significantly improved by 29% (see table 4.11).

These findings are supported by the key informants who claimed that adoption and use of the Enterprise Information Systems has enhanced business operations especially for those who have fully transited to implementation of the adopted Enterprise Information Systems (see figure 4.6 below) and as also indicated in the quote below by one of the key informants:

...sure the agribusiness enterprise in the region is transforming for the better, especially for the agribusiness firms that have adopted and are using the Enterprise Information Systems in their daily operations. ...

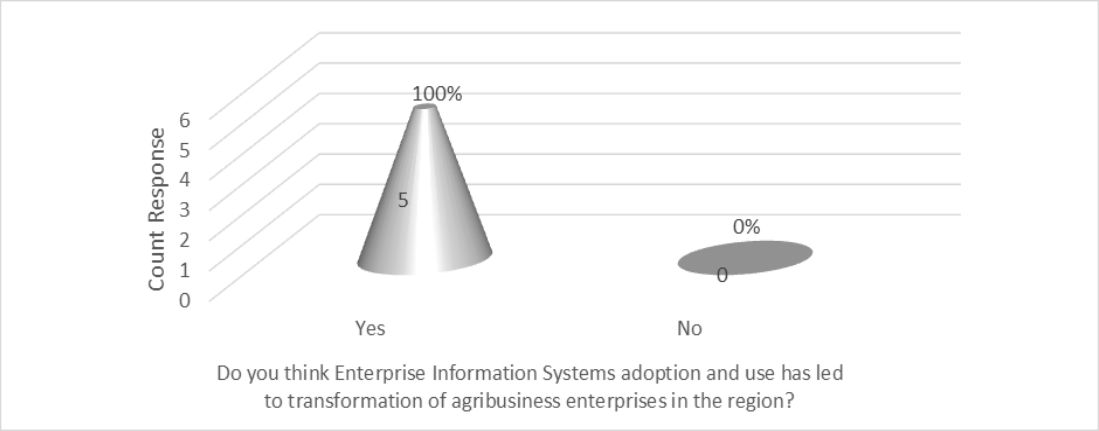


Figure 4.6: Adoption of Enterprise Information Systems in Agribusiness Enterprise

Bak (2016), stated that technology-based enterprise influences new inventions, innovation and improved competencies. As seen from this study findings, adoption of EIS in agribusiness enterprise has led to increase in their transformation. The benefits are mostly seen in terms of cutting costs, increasing market share, improving operational efficiency, timely decision making, innovativeness and improving competitiveness which are the major challenges facing the small, medium and micro agribusiness enterprises.

Organizational Factors that Influence Adoption of Enterprise Information Systems as Enablers of Agribusiness Enterprises in Kenya

Organizational factors influencing the implementation of EISs in the selected agribusiness enterprises operations were explored. The results are as indicated in table 4.12 below.

Table 4.12: Descriptive organizational factors statistics of the selected agribusinesses

Statement	SD	D	SHA	A	SA	Mean	Std. dev
The Management has positive attitude towards EIS adoption and use	18	132	150	51	14	2.76	.89
	5%	36%	41%	14%	4%	55%	
Employees have adequate knowledge, motivation and training in use of EIS at work	124	25	161	7	48	2.53	1.33
	34%	7%	44%	2%	13%	51%	
Processing of problems is effective thus enhanced EIS adoption in the organization	67	165	64	63	6	2.39	1.03
	18%	45%	18%	17%	2%	48%	
The firm regularly organizes workshops and seminars to boost competency of employees	61	178	39	65	21	2.47	1.14
	17%	49%	11%	18%	6%	49%	
The enterprise size and culture has promoted EIS adoption	66	146	45	69	39	2.64	1.27
	18%	40%	12%	19%	11%	53%	
Network coverage is adequate to enhance and promote EIS	68	148	53	52	44	2.61	1.27

adoption		19%	41%	15%	14%	12%	52%	
The enterprise has adequate financial strength to adopt and implement EIS		7	125	158	27	48	2.96	1.01
		2%	34%	43%	7%	13%	59%	
There is adequate IT infrastructure to promote EIS adoption in the firm		67	164	65	63	6	2.39	1.03
		18%	45%	18%	17%	2%	48%	
The stringent rules and regulations of the firm have enhanced effective EIS adoption and implementation		61	174	43	65	21	2.48	1.14
		17%	48%	12%	18%	6%	49%	
Average level of Organizational Factors	**Mean(%Mean)**	**Std. Dev.**		**Std. mean error**		**Minimum**		**Maximum**
	2.5798 (52%)	.54925		.02875		1.22		4.33

5= Strongly Agree (SA), 4= Agree (A), 3= Somehow Agree (SHA), 2=Disagree (D), 1=Strongly Disagree (SD)

The above results show that managements of most of the selected agribusiness enterprises have not fully supported the adoption and use of Enterprise Information Systems. This is indicated by moderate level of agreement of 55% rating. Similarly, employees of the selected agribusiness enterprises seem not to have adequate knowledge, motivation, and training in use of EIS at work as indicated by average level of agreement of 51% rating. In addition, processing of problems seems not much effective thus need for enhanced EIS adoption in the organization as indicated by average level of agreement of 48% rated moderate. Most of the firms seem not to have been regularly organizing workshops and seminars to boost competency of employees but not regularly, the enterprises' size and culture have promoted EIS adoption, and network coverage seem to be moderately adequate to enhance and promote EIS adoption as indicated by average levels of agreement of 49%, 53%, and 52% respectively. The findings further shows that most of the companies do not have adequate financial strength to fully adopt and implement Enterprise Information Systems as indicated by average levels of agreement of 59% (mean = 2.96, Std. Dev. = 1.01). There seem not to be adequate information technology infrastructure to promote EIS adoption in the selected firms as indicated by average levels of agreement of 48%.

Overall, average favourability level of organizational factors' to the selected agribusiness enterprises was at 52% (mean 2.5798, Std. Dev. 0.54925). These results indicate that the good will of the agribusiness enterprise towards the adoption and use of Enterprise Information Systems is not adequate thus creating unfavourable environment for the implementation of the use of EIS in the daily operations of the agribusiness enterprise.

Lack of adequate knowledge, motivation, training and implementation of technology by the agribusiness enterprise entrepreneurs is the major factor influencing EIS adoption as seen by the above study results. Change *et al.*, (2015), argued that most of enterprise executives do not emphasize and stress the need for embracing ICT training to survive and thrive in the dynamic business world. The same sentiments were echoed by Shemi (2012) who stated that enterprise characteristics such as industry type, enterprise size, enterprise strategies, organizational design and culture, and resources availability such as finances, consultants and ICT infrastructure are influencers of EIS adoption in agribusinesses and some are barriers while others inducers. Thus the organizational factors of employee competency, organization characteristics and resources availability favorability among the different types of agribusiness firms determines the EIS adoption and use success.

Correlation Analysis

The strengths and direction of the relationships between adoption of EIS and agribusiness enterprises transformation, and the organizational factors were assessed. Gravetter *et al*,(2000), writes that correlation coefficient r lies between +1 & -1 where $|r| \geq 0.5$ implies a strong relationships, $0.3 \leq |r| < 0.5$ moderate relationships, $0.1 \leq |r| < 0.3$ weaker relationships and $|r| < 0.1$ indicates a negligible relationship. Table 4.13 below shows the results.

Table 4.13: Correlation matrix

		Agribusiness transformation	EIS adoption and use	Organizational Factors
Transformation of Agribusiness	R	**1**		
	p -value			
	N	**365**		
Adoption and use of EIS	R	**.518****	1	
	p -value	**.000**		
	N	**365**	365	
Organizational Factors	R	**- .172****	.146**	1
	p -value	**.001**	.005	
	N	**365**	365	365

The study findings of correlation analysis in Table 4.13 shows that transformation of agribusiness enterprises had a statistically significant strong positive correlation with adoption and use of Enterprise Information Systems (r=0.518, p –value=0.000 < 0.05). Similarly, the study showed that transformation of agribusiness enterprises had a statistically significant but weak negative correlation with performance of organisations (r=0.172, p –value=0.001< 0.05). It was also revealed in the study findings that adoption and use of Enterprise Information Systems had a significant weak positive correlation with enterprise performance (r=0.146, p –value=0.005<0.05). Therefore, a significantly positive relationship exists between the three research variables.

Test for assumptions of linear regression analysis

The causal-effect on the relationships between transformation of agribusiness enterprises and the adoption and use of EIS was determined using the linear regression analysis technique. Before apply ing the technique on the model, the study assessed the linear regression assumptions that included linearity, normality, homoscedasticity and absence of outliers as indicated in sub-sections 4.7.1, 4.7.2, & 4.7.3.

Test for Linearity

To test for linearity of the relationship between transformation of agribusiness enterprises and the use of EIS, the study used the normal probability plot and the findings were as shown in fig. 4.7 below.

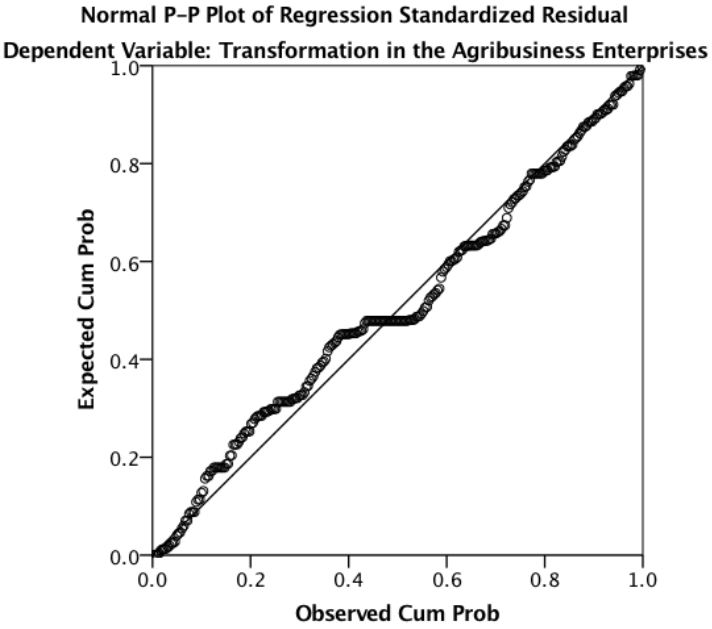


Figure 4.7: Normal P-P Plot of regression standardized residual for transformation of agribusiness enterprises and the adoption and use of enterprise information systems

In figure 4.7 above, the residuals are lying relatively along straight diagonal line. The findings indicate the linear relationships between transformation of agribusiness enterprises and the adoption and use of Enterprise Information Systems.

Test for Normality

To determine if the scores of the study variables (Transformations of agribusiness enterprises, Adoption, and use of EIS, and Organizational Factors) are distributed normally; the study variables are subjected to the Shapiro-Wilk test. Using this technique, the null hypothesis tested to ensure the normal distribution of the scores (Gravetter *et al*, 2000). The results were as indicated below in table 4.14.

Table 4.14: Test for normality

Variable	Shapiro-Wilk test		
	Statistic (W)	df.	p-value
Transformations of agribusiness enterprises	0.552	365	0.412
Adoption and use of EIS	0.721	365	0.379

Organizational Factors	0.713	365	0.102

The findings indicate the Shapiro-Wilk statistic (W) in all the variables was significant at 5% level. The agribusiness enterprises transformations had (W=0.552, p –value=0.412>0.05) and adoption and use of EIS had (W=0.721, p-value=0.379>0.05), and organizational factors (W=0.713, p –value=0.102>0.05). The null hypothesis was not rejected and the study concluded that the variable scores were significant and distributed normally.

Test for Homoscedasticity and Outliers

Homoscedasticity in research is a circumstance where the dependent variable (in our case, the transformations of agribusiness enterprises) experiences similar proportions of changes in a range of values of independent variable (Gill et al., 2010). Outliers exist when the residual scores in a residual scatterplot exceed beyond -3 and +3 standard deviations (Gravetter *et al*, 2000). The researcher used the residual scatterplot to assess homoscedasticity and presence of outliers in the variable scores.

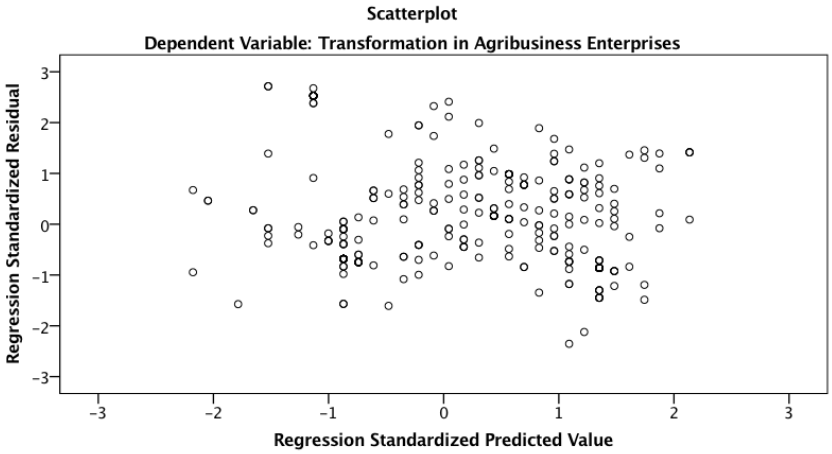


Figure 4.8: Scatter plot of standardized residuals

The findings of figure 4.8 shows that the residual points in the residual scatterplot are distributed roughly with a relative rectangular shape and concentration of most points are at the centre; this indicates homoscedasticity. In addition, the residual point's falls within -3 and +3 standard deviations (see figure 4.8); this indicates that there were no outliers in the scores of the study variable. The study therefore concludes that all the four linear regression assumptions holds thus the study adopted linear regression technique to model the cause-effect relationships between adoption of EIS and agribusiness enterprises transformation.

Linear Regression Analysis

Objective one was about establishing the influence of enterprise information systems on agribusiness enterprise transformation in Kenya. Linear regression technique helped to model the cause-effect relationships between adoption of enterprise information systems and transformation of agribusiness enterprises in Kenya. The first study hypothesis ($\mathbf{H_{01}}$) was:

H_{01}: *Adoption and use of Enterprise Information Systems has no significant effect on transformation of agribusiness enterprises.*

Table 4.15: ANOVA Linear regression of adoption and use of EIS on the transformation of agribusiness enterprises in Kenya

Model		Sum of squares	df.	Mean Square	F	p -value
1	Regression	48.411	1	48.411	133.198	.000[b]
	Residual	131.933	363	.363		
	Total	180.344	364			

The study findings in table 4.15 outlines the Analysis of Variance (ANOVA) for which F-statistic was significant at F (1, 363) = 133.198, p-value = 0.000< 0.05. The findings indicates the linear regression approach was a good fit in modelling cause-effect relationships between adoption and use of EIS and agribusiness enterprises transformation in Kenya.

Table 4.16: Model summary of linear regression of adoption of EIS on the transformation of agribusiness enterprises in Kenya

Model	R	r-square	Adjusted r-square	Std. estimate error
1	.518[a]	.268	.266	.60287
Predictors: (Constant), Adoption and use of EIS *Dependent Variable: Transformation of agribusiness enterprises*				

The linear regression model summary shows that the model (adoption and use of enterprise information systems) explains 26.6% of the transformation variation in agribusiness enterprises in Kenya, shown by adjusted r- square 0.266 (table 4.16). Pearson moment correlation, r=0.518 indicates a strong significant relationship between adoption of EIS and transformation of agribusiness enterprises in Kenya.

Table 4.17: Coefficient results for linear regression of adoption and use of EIS on the transformation of agribusiness enterprises in Kenya

Model	Unstandardized Coefficient		Standardized Coefficient	T	p-value
	β	Std. Error	Beta		
(Constant)	2.094	.123		17.091	.000
Adoption and use of EIS	.429	.037	.518	11.541	.000

The regression coefficients findings of table 4.17 shows that the unstandardized Beta coefficient for the "adoption and use of EISs" variable was significant at 5% level of significance, β= 0.429, p –value of 0.000 < 0.05. The research therefore, rejected the null hypothesis (**H_{01}**) and concluded that adoption and use of EIS possess a positive effect on the transformation of agribusiness enterprises. A unit improvement in the continued use of the systems in the daily operations is likely to lead to improvement in the transformations of agribusiness enterprises in Kenya by 51.8% as indicated by the standardized coefficient, Beta = 0.518. The study also found out that the constant in the model had a 5% significant level, at β= 2.094, p -value =0.000 < 0.05. These results indicates that besides the adoption and use of enterprise information systems, there exists other factors not covered here but significantly influence the transformations of agribusiness enterprises in Kenya at 5% level of significance thus need for further research. The respective predictive linear regression model is given as;

TAE = 2.094 + 0.429 EISs

Where;

TAE = Transformation of Agribusiness Enterprise in Kenya

EISs = Enterprise Information Systems

The study findings are in line with the contribution by the key informants who agreed that adoption, effective implementation of EIS in the daily chores enhances the operations, and performance of Agribusiness Enterprise in Kenya as indicated in the quote below:

...adoption and use of EIS in the daily operations of agribusinesses enhances their transformation in terms of products, performance, process.... For example, adoption of the dynamic systems that are automatically, such as decision support systems enhances analysis of costs and regional sales of their products and services thus enhancing timely and informed decision making by the management. Agribusiness firms should therefore be encourage to fully transit to adopting and using enterprise information systems in daily operations to enhance service delivery and timely decision making. ...

The spread and adoption of ICTs in Africa is commendable but its integration into agriculture is poor. Therefore, stakeholders in agriculture can benefit from ICTs, especially EIS Adegbidi *et al.,* (2012) provided they integrate it fully in their agricultural activities and operations. Thus, the rejection of the 1st hypothesis is in line with the suggestions and findings of many other scholars like Noorani (2015), Leavy & Hossain, (2014), Afande *et al.,* (2015). In their findings, these authors concluded that full integration of ICT increases productivity by large percentage of profits realized, market share due to growth of the enterprises, market share percentage, customer loyalty and reduction in expenditure costs due to waste reduction, lean operations, shorter lead/cycles times etc.

Moderation Analysis

Objective two examined the moderation effects of organizational factors on the relationships between enterprise information systems and agribusiness enterprise transformation in Kenya. The researcher tested the following null hypothesis (H_{02});

H_{02}*: Organisational factors do not have significant moderation effect on the relationships between enterprise information systems and agribusiness enterprise transformation in Kenya*.

The study used hierarchical linear regression in PROCESS macro version 3.5 of SPSS to run the moderation analysis. Table 4.18 below highlights the results.

Table 4.18: Organisational factors moderation effects on the relationship between enterprise information systems and agribusiness enterprise transformation in Kenya

Model summary	**Statistics**
R	0.611
r-square	0.374
r-square Change	0.043
ANOVA	
Degrees of freedom (*a*,*b*)	(3, 361)
F - statistic, F(*a*,*b*)	71.842
p - value for F- statistic	0.0000
F - Change statistic	24.671
p - value for F- change	0.000
Regression Coefficients	
Intercept (β, t, P-value)	5.260, 10.183, 0.000
Adoption and use of EISs (β, t, P-value)	-0.295, -1.892, 0.059
Organizational Factors (β, t, P-value)	-1.297, -6.384, 0.000
Interaction Effect	
I_{EIS}((β, t, P-value)	0.300, 4.967, 0.000

I_{EIS} *= Interaction between "adoption and use of EISs" and "organizational factors", r = correlation coefficient.*

The table 4.18 findings on moderation analysis shows that the F-statistic had a significant level of 5%; F(3, 361) =71.842, p -value = 0.000 < 0.05, proof of a good fit of the model in moderating the effects of organizational factors and relationships between enterprise information systems and agribusiness enterprise transformation in Kenya. The interaction term (I_{EIS}) explained 4.3% of variation in the agribusiness enterprise transformation as indicated by r-square change = 0.043 (see table 4.18). The findings also indicates a 5% significant level change in the F-statistics; *F-change* = 24.671, *p - value = 0.000 < 0.05.* Also, interactions between "adoption & use of EISs" and "organizational factors" (I_{EIS}) significant at ß = 0.300, t = 4.967, p - value = 0.000 < 0.05. Therefore, the study rejected the null hypothesis two (**H_{02}**) and concluded that organisational factors have positive significant moderating effect on the relationships between enterprise information systems and agribusiness enterprise transformation in Kenya. Interaction plots were developed to show how the organisational factors moderate the relationships between adoption & use of EIS and agribusiness enterprise transformation in Kenya. The plots are shown in figure 4.9 below.

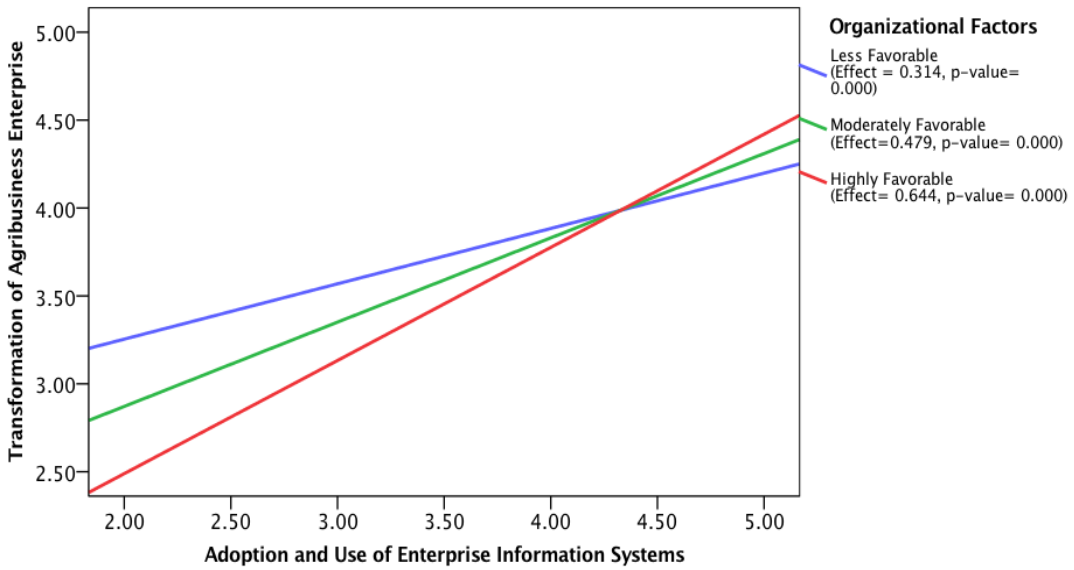


Figure 4.9: Interaction plots

Figure 4.9 shows the existent of significant positive relationships between adoption & use of enterprise information systems and agribusiness enterprise transformation in Kenya at all the three levels of organizational factors had significance of 5%. When the organizational factors become highly favourable towards the

agribusiness operations, then the slope (effect = 0.644, p-value= 0.000) is significant and higher compared when the organizational factors are moderately favourable (effect= 0.479, & 0.000 p-value) and less favourable (effect= 0.314, & 0.000 p-value =). Similarly, organizational factors are moderately favourable towards the agribusiness operations, then the slope is significant and higher compared when the organizational factors are less favourable; these findings indicates that the effect of adoption & use of EIS on transformation of agribusiness enterprises in Kenya, increases as the organizational factors becomes more favourable. The respective moderated predictive linear regression model is given as;

TAE = 5.260 – 0.295 EISs – 1.297 OF + 0.300 I_{EIs}

Where;

TAE = Transformation of Agribusiness Enterprise in Kenya
EISs = Enterprise Information Systems
OF = Organisational Factors
I_{EIS} = Interaction between adoption and use of EISs and organizational factors

The moderation analysis findings are supported by the contribution from the key informants who agreed that the good will of the firms in adopting and effectively implementing enterprise information systems in their daily operation is what will enhance effective transformations in the agribusiness enterprise in the region as indicated by the quote from one of the key informants below:

...it takes the good will of the enterprise management to realize the impact of adopting and using the enterprise information systems in the performance of agribusiness enterprise. Most of the employees in the firms do not have adequate knowledge on how to use the systems thus even if they're adopted without training staff on how to use them, it will be a waste of resources because no transformation will be realized. Therefore, when organizational factors are not favourable, the effect of adopting and using the enterprise information systems on the transformation of agribusiness enterprise will be minimal. ...

Organizational characteristics play major roles in the EIS adoption in agribusiness enterprises. Enterprise size, culture, design, strategies, infrastructure, financial capacity, staff competency and even nature of business play a bigger role and dictate the technology to be adopted and level of integration into business operations that is whether partial or full implementation and use. These finding are also similar to Kiprotich & Wanyoike (2015) who established that staff competence have significant influence on the overall enterprise efficiency and hence transformation. Similarly, Senait, Asefa & Ali (2016) revealed that staff competence has positive effect on enterprise performance. Wanyonyi and Muturi (2015) replicated the same results and concluded that staff competency have positive effects on performance of procurement functions in technical training institutions.

In-adequate technological infrastructure vendors and consultants are some of the barriers to ICT implementation in agribusiness enterprises. This barrier hinders the possibility of EIS implementation and use in the agribusiness sector in Kakamega, Kenya. Most of the less developed countries enterprises' are characterized by poor technology expansion resources and sourcing of competent personnel. These challenges results into MSMEs lagging behind in their attempt to embrace technological advancements (Change *et al.,* 2015). Therefore, the study findings back the existing information by other scholars whereby the moderating variable (organizational factors) significantly affects the relationship between EIS use in enabling transformation in agribusiness enterprises.

Emergent Opportunities upon Incorporating Enterprise Information Systems in Agribusiness Enterprises in Kenya

Objective three sought to determine the opportunities that come along with the adoption & use of EIS in transformation of agribusiness enterprise in Kenya. The results were as shown in sub-sections 4.10.1 to 4.10.8 below.

Access to Business Capital

The researcher asked the study participants if access to business capital is one of the opportunities that comes with adoption and use of enterprise information systems in transformation of agribusiness enterprise in Kenya. The results were as shown in fig. 4.10 below.

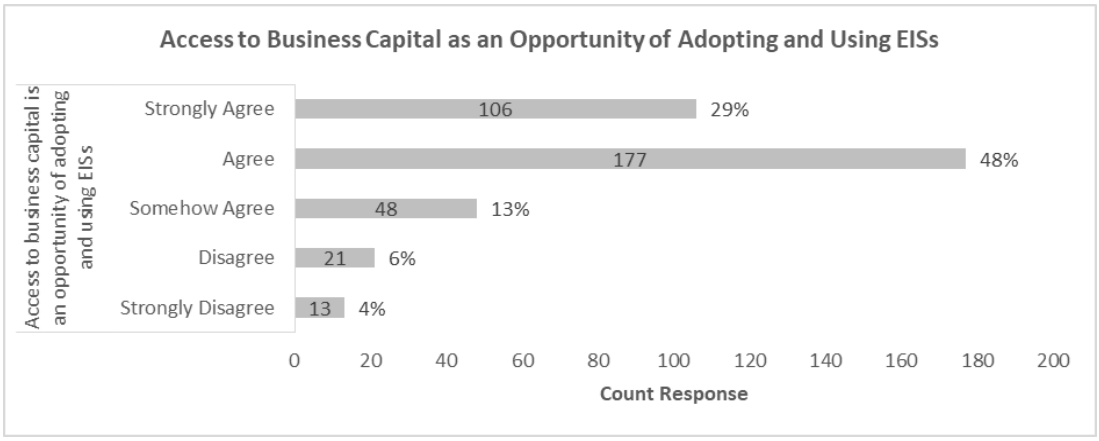


Figure 4.10: Access to Business Capital

The findings show that, 45% of respondents strongly agreed while 29% agreed that adopting enterprise information systems in agribusiness enable the business owners' access operating capital. The results were in line with the comments of the key informants who agreed that introduction of enterprise information systems in agribusiness have made easy for the firm owners to access capital to run the businesses as indicated in the quote below:

...current technological improvement has actually facilitated entrepreneurs to easily share ideas, their problems or challenges, developments … on interactive social platforms like the ERP. Setting up crowd funding platforms by those business individuals or even investors and customers enhances and exposes innovation ideas to a bigger pool of potential and interested investors or well-wishers to support their ideas....

The study assessed the strength and direction of the relationships that exist between access to business capital and use of EISs among agribusiness firms using Spearman correlation. Table 4.19 below shows the findings.

Table 4.19: Spearman correlation between access to business capital and adoption and use of EISs

		Adoption and use of EISs
Access to Business Capital	Correlation Coefficient	.298**
	Sig. (2 tailed)	.000
	N	365

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

The Spearman's correlation results of shows the positive significant correlation between access to business capital and adoption and use of EISs among agribusiness firms ($r = 0.298$, & $0.000 < 0.05$ p-value), however, the relationship strength seems to be weak. The study therefore concludes that adoption and use of EISs among agribusiness firms creates an opportunity for agribusiness people to access business capital.

These results are similar to those of Agwu & Murray (2015), supporting the notion that, technological advancement has enabled development of more business management platforms like the e-commerce, which has increased completion but at the same time levelled the market environment. The presence of financial applications enabled by ICT has facilitated agribusinesses to easily access financial services and assistance on a shorter notice, faster and low interest rates. Through ICT, Financial institutions have design loan products and financial packages that are tailor made for the youth who are considered as high-risk clients due to their inadequate or complete lack of collateral (Afande, *et al.,* 2015). Furthermore, there should be partnerships between associations and financial institutions to ensure that farmers are able to access affordable credit facilities and products when they need them.

Access to Information/Knowledge on Agribusiness

The study participants were asked to state if access to information/ knowledge on agribusiness is one of the opportunities that comes with adoption and use of enterprise information systems adoption in transformation of agribusiness enterprise in Kenya. The findings are as indicated below in figure 4.11.

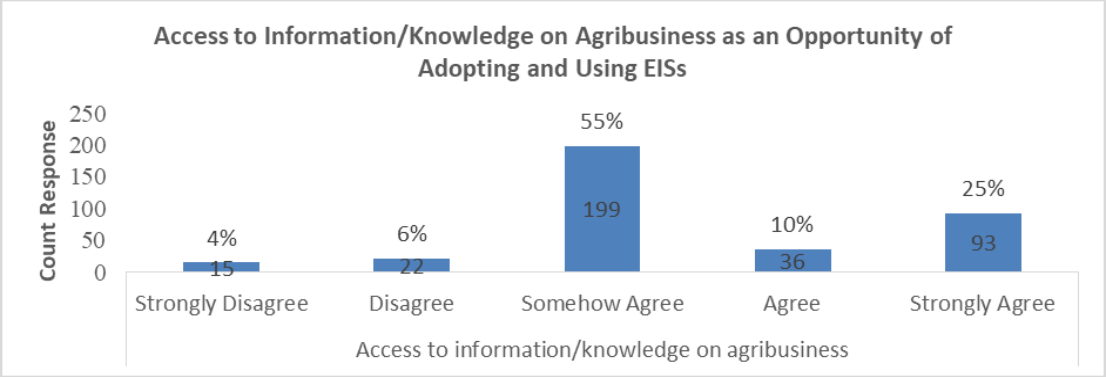


Figure 4.11: Information/ knowledge on Agribusiness

The findings of figure 4.11 shows that 55% of the respondents somehow agreed while 25% strongly agreed that adopting enterprise information systems in agribusiness enable the business people access information and knowledge on agribusiness. The key informants also agreed that the use of technological systems in agribusiness enterprises have made it easy for the firm owners to access information and knowledge on agribusiness as indicated in the quote below:

... the advancement in technology and inception and use of internet, mobile and social network applications and there availability on the market has enabled farmers, agricultural extension officers and agri-entrepreneurs with a platform to improve operations, profits, products, assess to new wide market and communication. The majority of the western Kenya population are predominantly small scale farmers with small parcels of farming land. The results of the study will bring a digital culture that encourages smart agri-preneurship, enhance innovations, improve quality, faster processing & dissemination of information and decisions among the enterprises and business partners locally....

The study assessed the potential strength and nature of the relationships between access to information and knowledge on agribusiness and adoption and use of EISs among agribusiness firms using Spearman correlation. The findings are as shown below in table 4.20.

Table 4.20: Spearman correlation between Access to Information and Knowledge on agribusiness and Adoption and use of EISs

		Adoption and use of EISs
Access to Information and Knowledge on agribusiness	Correlation Coefficient	.374**
	Sig. (2-tailed)	.000
	N	365

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

The Spearman correlation findings indicates a significant moderate positive correlation between access to information & knowledge on agribusiness and adoption & use of EISs among agribusiness firms ($r=0.374$, & $0.000 < 0.05$ p-value), however, the strength of relationship is moderate. The study therefore concludes that adoption and use of EISs among agribusiness firms creates an opportunity for agribusiness people to access information and knowledge on agribusiness.

Technological platforms such as E-commerce enable agribusiness enterprises to be competitive just like other enterprises in deferent industries (Agwu & Murray, 2015). Databases of establishments that can offer information, skills, knowledge, and opportunities to the entrepreneurs are integrated in the EIS and shared widely by accessing even using smartphones, websites, and other ICT services. The platform also has a database of all information that stakeholders require in order to rip full benefits of their organizations. Through EIS, firms are able to link up and create supply chains through which buying and selling takes place both physically and virtually. Import and export markets are nowadays accessible through the availability of knowledge concerning the policies and regulations.

Access to Markets for your Products

The study participants were asked to state if access to markets for products is one of the opportunities that comes with adoption and use of enterprise information systems adoption in transformation of agribusiness enterprise. The results were as shown below in fig. 4.12.

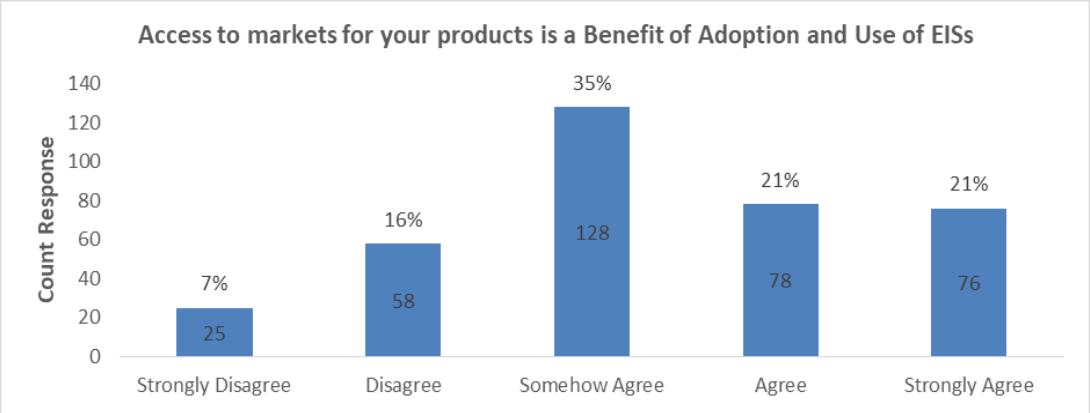


Figure 4.12: Access to Market for Agribusiness Products

From the findings in Fig. 4.12, 35% of the respondents somehow agreed, 21% agreed while other 21% strongly agreed that adopting enterprise information systems in agribusiness enable the business people easily access markets for their products. This view was supported by key informants who also stated that enterprise information systems have been instrumental in marketing agribusiness products. One of the key informants stated as below:

...enterprise information systems have been very instrumental for the agribusiness people to market their products. Availability of internet and development of websites for their business have helped them expose their agribusiness products to both local and global market...

The researcher also assessed the direction and strengths of the relationships between access to markets for their products on agribusiness and adoption and use of EISs among agribusiness firms using Spearman correlation. The findings were as shown below in figure 4.21.

Table 4.21: Spearman correlation between Access to Product Markets on agribusiness and Adoption and use of EISs

		Adoption and use of EISs
Access to Product Markets	Correlation Coefficient	.286**
	Sig. (2 tailed)	.000
	N	365

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

The Spearman findings indicates a significant correlation between agribusiness product markets and use of EISs among agribusiness firms (r=0.286, & 0.000<0.05 p-value), however, the strength of the relationship was relatively weak. The study therefore concludes that adoption and use of EISs among agribusiness firms creates an opportunity for agribusiness people to access markets for their agribusiness products.

Even though the agricultural sector in Africa is yet to integrate technology fully in their operations and processes, efforts are in place to ensure all enterprises fully transit and automate to realize the full potential of their firms (Njeru *et al.*, 2014). Databases of establishments that can offer information, skills, and opportunities to the entrepreneurs should be integrated and shared widely. This will make it easy for the entrepreneurs to be able to seek markets, and supply of inputs and capital. Markets for the farmers' need to be developed and the information regarding the markets shared with the farmers and other agribusiness stakeholders. Through EIS, firms are able to link up and create chains through which buying and selling takes place both physically and virtually. Import and export markets are nowadays accessible through the availability of knowledge concerning the policies and regulations.

Access to technical assistance

The study participants were asked to state if EISs adoption and use in the agribusiness enterprise improves access to technical assistance in technical operations.

Table 4.22: Access to Technical Assistance

Access to technical assistance is an Opportunity created by EISs adoption and use	Count	Percentage Count
Strongly disagree	17	5%

Disagree	46	12%
Somehow agree	131	36%
Agree	70	19%
Strongly agree	101	28%
Total	**365**	**100%**

From the findings in table 4.22 above, 36% of respondents agreed, 19% agreed while 28% strongly agreed that adopting EIS in agribusiness enable the business people easily access technical assistance such as (consultancy services, workshop and seminars on use of technology, pricing of products and finding of online markets among others). The key informants who also stated that enterprise information systems have been instrumental to help market agribusiness products as stated in the quote by one of the key informants below supported this:

...On technical bit, the systems have enhanced efficiency in the work, for example, for costs and sales analysis the systems have been able to do the work with minimal chances of errors compared to human calculations. Executive support systems have enhanced planning of profits and manpower by managements...

The study also assessed the strengths and directions of the relationships between access to technical assistance and EISs adoption & use among agribusiness firms using Spearman correlation. Table 4.23 below shows the results.

Table 4.23: Spearman correlation between Access to Technical Assistance and Adoption and use of EISs

		Adoption and use of EISs
Access to technical assistance	Correlation Coefficient	.413**
	Sig. (2-tailed)	.000
	N	365

**. *Correlation has a significant level of 0.01 (2 tailed).*

The results in table 4.23 implies that there exists a significantly positive moderation correlation between access to technical assistance and adoption and use of EISs among agribusiness firms ($r = 0.413$, & $0.000 < 0.05$ p-value). Therefore, the researcher deduce that adoption and use of EISs among agribusiness firms creates an opportunity for agribusiness people to access technical assistance in the daily operations.

Access to agricultural equipment

The researcher asked the respondents to state if access to agricultural equipment was among the opportunities that come along with the adoption & use of EIS in transformation of agribusiness enterprise in Kenya. Figure 4.13 below shows findings.

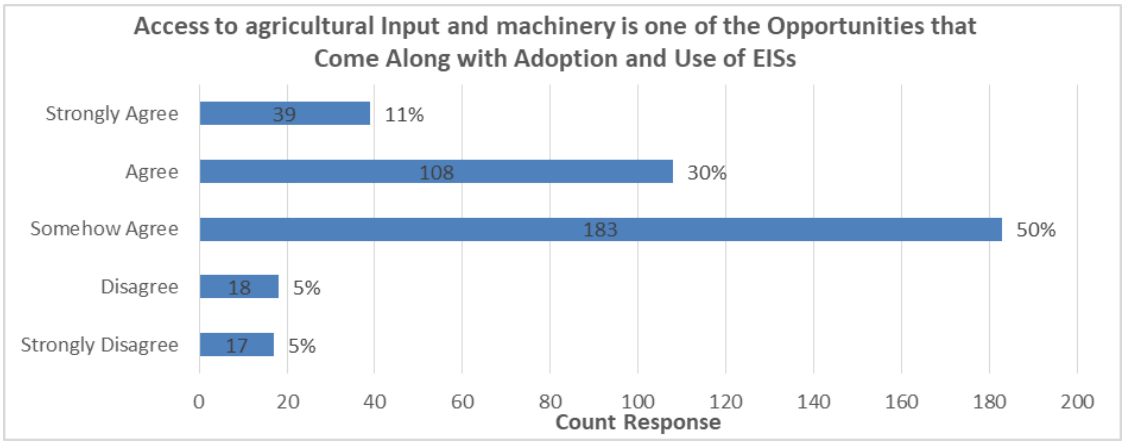


Figure 4.13: Access to Agricultural Machinery and Inputs

Figure 4.13 indicates that 50% somehow agreed, 30% agreed and 11% strongly agreed that integrating systems in agribusiness operations helps the business people easily access agricultural machinery and inputs for their daily operations. The strengths and directions of the relationships between access to agricultural equipment and use of EISs among agribusiness firms were subjected to Spearman correlation.

Table 4.24: Spearman Correlation between Access to Agricultural Machinery and Inputs and Adoption and use of EISs

		Adoption and use of EISs
Access to agricultural machinery and inputs	Correlation Coefficient	.317**
	Sig. (2 tailed)	.000
	N	365

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

From the Spearman correlation results above, there exists a significant correlation between access to agricultural equipment and adoption & use of EISs among agribusiness firms at r=0.317, and 0.000<0.05 p-value, but with moderate relationship strengths. The study therefore concluded that adoption & use of EISs among agribusiness firms creates an opportunity for agribusiness people to access agricultural equipment for their daily operations.

Access to Agricultural Extension Services

The study participants were asked to state if EISs adoption and use in the agribusiness enterprise improves access to agricultural extension services. Table 4.25 below shows the findings.

Table 4.25: Access to agricultural extension services

Access to agricultural extension services is an opportunity created by EISs adoption and use	Count	Percentage Count
Strongly disagree	17	4%
Disagree	24	7%
Somehow agree	193	53%
Agree	37	10%
Strongly agree	94	26%
Total	**365**	**100%**

From the findings in table 4.25, 53% respondents somehow agreed while 26% strongly agreed that adopting enterprise information systems by agribusiness enterprises enhances the access to agricultural extension services such as seminars and workshops for farmers, free, subsidized and cheaper seeds, fertilizers and chemicals, digging, marketing and sells of produce and insurance services among other services. This was supported by the key informants who also stated that enterprise information systems have been instrumental to help agribusiness enterprise in accessing agricultural extension services as stated below by one of the key informants:-

...the integration of technology in agribusiness operations enable the enterprises to access professional services from experts in foreign nations who advice, guide and do consultancy duties free of charge to addition of offering loans, grants and aids to fund their operations. EIS makes it real time and cheaper as compared to physical visits that are time consuming, expensive and dynamic because it is done virtually….

The strengths and directions of the relationships between access to agricultural extension services and use of EISs in agribusiness firms was assessed using Spearman correlation. Table 4.26 indicates the findings.

Table 4.26: Spearman correlation between access to agricultural extension services and adoption and use of EISs

		Adoption and use of EISs
Access to agricultural extension services	Correlation Coefficient	.370**
	Sig. (2 tailed)	.000
	N	365

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

Table 4.26 findings shows a positive moderate correlation of access to agricultural extension services, and adoption & use of EISs among agribusiness firms (r = 0.370, & 0.000<0.05 p-value). Thu, the study concluded that adoption and use of EISs among agribusiness firms creates an opportunity for agribusiness people to access agricultural extension services in the daily operations.

Access to affordable trained employees

The study participants were asked to state if EISs adoption and use in the agribusiness enterprise had helped them easily access affordable trained employees to agricultural extension services. The results are as shown below in table 4.27.

Table 4.27: Access to affordable trained employees

Access to affordable trained employees is an opportunity created by EISs adoption and use	Count	Percentage Count
Strongly disagree	15	4%
Disagree	22	6%
Somehow agree	183	50%
Agree	52	14%
Strongly agree	93	26%
Total	**365**	**100%**

From table 4.25, 50% of respondents somehow agreed while 26% strongly agreed and supported the idea that adopting enterprise information systems in agribusiness enable the business people easily access to affordable trained employees. In support of this, a key informant stated as follows:

…Development of websites by the agribusiness firms help them get easily accessible by the job seekers. Most of the young people of the current generation are computer skilled and therefore always on internet. Though the internet will make you get as many application for the job advertised online including from those qualified and those not qualified, but the firm can choose from such a pool the best-interested candidates globally for the job they will have advertised...

The study also assessed the strength and direction of the relationships of access to affordable trained employees and use of EISs among agribusiness firms using Spearman correlation. The results are as shown below in table 4.28.

Table 4.28: Spearman correlation between access to affordable trained employees and Adoption and use of EISs

		Adoption and use of EISs
Access to affordable trained employees	correlation Coefficient	.344**
	Sig. (2 tailed)	.000
	N	365

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

Table 4.28 findings indicates a significantly positive moderate correlation between access to affordable trained employees and adoption and use of EISs among agribusiness firms ($r = 0.344$, & $0.000<0.05$ p-value). Therefore, it was concluded that adoption and use of EISs among agribusiness firms creates an opportunity for agribusiness people to access affordable trained employees in the daily operations.

Competent employees are effective, efficient and provide time solutions to the enterprise challenges while incompetent employees would be ineffective and inefficient thus resulting to poor performance for the enterprise. These finding are also similar to Barsemoi, Mwangagi and Asienyo (2014) who established that staff competence positively influences enterprise performance of Henkel Chemicals (E.A). Similarly, Kiprotich & Wanyoike (2015) established that staff competence plays a significant influence on the enterprise process efficiency and therefore enhances organization transformation. On their part, Wanyonyi and Muturi (2015) concluded that the competencies of the human resources have positive effects on the performance of the procurement functions in technical training institutions replicated the same results. Senait, Asefa & Ali (2016) revealed that staff competence has positive influence on enterprise performance. Thus, when staff competence is high, enterprise transformation is realized and vice versa.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The chapter is structured into three parts namely the summary, the conclusions and the recommendations.

Summary

The research purposed to assess the value of Enterprise Information Systems as enablers of business transformation in agribusiness enterprises in Kenya. The research was guided by the questions; what is the effect of enterprise information systems on agribusiness enterprise transformation in Kenya, What are the organizational factors that influence adoption of enterprise information systems as enablers of agribusiness enterprises in Kenya, and, what are the emergent opportunities upon incorporating enterprise information systems in agribusiness enterprises in Kenya?

Descriptive study design was used. The target population was 1,621 players in the agribusiness ventures who were embracing and integrating technology in their operations. The target respondents were based in Western region particularly Kakamega County, Kenya. Cluster sampling technique was used to identify a

sample size of 411 respondents/players who were administered with questionnaires using drop-and-pick method for the primary data collection.

Descriptive analysis involved the use of central tendencies measures such as means, standard deviation while inferential analysis that involved cross tabulations, correlation analysis, regression analysis for testing study hypothesis and the moderation analysis helped moderate the effects of organizational factors on relationships between EIS and agribusinesses transformation in Kenya. Graphs, figures, and tables were the basis of data presentation.

On the first objective was further subjected to the correlation, r (beta, β) tested the null hypothesis. The test criteria were neither a negative nor a positive effect of the beta value, $\beta_1 \neq 0$. The EISs use had mean beta correlation of β = 0.518, P=0.000, implying existence of a positive significant EIS effect on agribusiness enterprises transformation. A unit improvement in the EIS adoption and use in the daily activities of the enterprise is likely to lead to improvement in the transformations of agribusiness enterprises in Kenya by 51.8% as shown by the standardized Beta coefficient, Beta = 0.518. The study also found out that the constant in the model was at 5% significance level, β= 2.094, p-value =0.000 < 0.05; these results indicates that besides the adoption and use of enterprise information systems, there exists other factors not covered here that significantly influence the agribusiness enterprise transformations of in Kenya at 5% level of significance thus need for further research. The study rejected the first null hypothesis (H_{01}) concluding that adoption & use of EIS has positive significant effects on agribusiness enterprises transformation in Kenya.

In the second objective as well, the null hypothesis, hierarchical linear regression was applied. The F-statistic was significant at 5% level of significance, F (3, 361) = 71.842, & p-value = 0.000 < 0.05; a proof of good fitness of the model in moderating the organizational factors effects on the relationships between enterprise information systems and agribusiness enterprise transformation in Kenya. The interaction term (I_{EIS}) explained 4.3% of variation in the agribusiness enterprise transformation as indicated by r-square change = 0.043. The findings also shows that change in the F-statistic was significant at 5% level of significance, *F-change* = 24.671 *& p-value = 0.000 < 0.05.* In addition, the interaction effects between "adoption & use of EISs" and "organizational factors" (I_{EIS}) was found significant at ß = 0.300, t = 4.967 & p-value = 0.000 < 0.05. The study therefore rejected the second null hypothesis (**H_{02}**). The findings indicated that enterprise organisational factors have positive significant moderating effects on the relationships between enterprise information systems and agribusiness enterprise transformation in Kenya.

Objective three sought to determine the various opportunities that come along with the use of Enterprise Information Systems in transformation of agribusiness enterprise in Kenya. From the results, 45% respondents agreed that adopting EIS in agribusiness enable the entrepreneurs access business capital and the findings were statistically significant at r = 0.298 & p-value of =0.000<0.05 level. Secondly, majority of respondents, 55% and 25% agreed and strongly agreed that adopting EIS in agribusiness enables the business people free access to advanced information on agribusiness and the findings are statistically significant at r = 0.374, & p-value = 0.000<0.05 level. Furthermore majority of the respondents, 35%, 21% and 21% somehow agreed, agreed and strongly agreed that adopting EIS in agribusiness enable the business people easily access markets for their products and the findings were statistically significant at r = 0.286, & p-value = 0.000 < 0.05 level. To add on, 36% of respondents somehow agreed, 28% of them strongly agreed while 19% of respondents agreed that adopting EIS in agribusiness enable the business people easily access technical assistance from all-over the globe and the findings were significant at r = 0.413, & p-value = 0.000 < 0.05 level. The findings also indicated that EIS enhanced easy access to agricultural machinery and inputs with a 50%, and 30% response rate and statistically significant level of r = 0.317, & p-value= 0.000 < 0.05. Thus, EIS was found to enable the business people easy access to agricultural extension services at response rate of 53%, and 26% and at a significant level of r = 0.370, & p-value = 0.000 < 0.05. Lastly, EIS enabled agribusiness organizations to easily access affordable, experienced and trained employees with response rate of 50% and 26% and the findings were significant at r = 0.344, & p-value of = 0.000 < 0.05 level.

Conclusions of the Study

Effect of Enterprise Information Systems on Agribusiness Enterprise Transformation in Kenya

The researcher concludes that the level of use of the Enterprise Information Systems among agribusiness enterprises in Kakamega County is considerably above average (64%). This implies that most of the agribusiness enterprises in Kakamega County are using the Enterprise Information Systems in their operations, even though most of them have not fully transited thus need for more effort to bring about mass adoption.

This means that a unit improvement in the implementation and of the enterprise information systems in the daily operations will likely lead to improvement in the transformations of agribusiness enterprises in Kenya. Increase in EIS adoption and daily incorporation in operations could be due to need assessment, budget approval and delivery schedule. From the Likert results, it was be concluded that enterprise information systems sets in

motion the entire enterprise transformation in the most agribusiness organization's in Kenya. The results indicates that besides the adoption and use of enterprise information systems, transformation of agribusiness enterprises is influenced by many other factors not covered in this study.

Organizational Factors that Influence Adoption of Enterprise Information Systems as Enablers of Agribusiness Enterprises in Kenya

The organizational factors such as employee competency, organization characteristics and resources availability, unfavourable environment for the implementation of the use of EIS in the daily operations of the agribusiness enterprise determines the EIS adoption and use, greatly impede the business transformation in Kenya.

Using the moderated linear regression analysis findings, there exists a significant influence of organizational factors on the relationships between enterprise information systems and agribusiness enterprise transformation in Kenya. There was 4.3% of variation in the agribusiness enterprise transformation as indicated by r-square change = 0.043. The F-statistic change was significant at 5% level of significance, *F-change* = 24.671, *& p-value of = 0.000 < 0.05.* In addition, the relations between "adoption & use of EISs" and "organizational factors" was indicated to be positively significant at ß = 0.300, t = 4.967, p-value = 0.000 < 0.05. The interaction plot map shows how the organisational factors moderate the relationships between adoption and use of enterprise information systems and agribusiness enterprise transformation. From the findings, a significant positive relationship between adoption & use of enterprise information systems and agribusiness enterprise transformation exists at 5% significance in all the three levels of organizational factors. Whenever the organizational factors are highly favourable towards the agribusiness operations, then the slope (effect = 0.644, p-value= 0.000) is significant and higher compared when the organizational factors are moderately favourable (effect= 0.479, & p-value of = 0.000) and less favourable effect= 0.314, & p-value of = 0.000). Similarly, organizational factors are moderately favourable towards the agribusiness operations, then the slope is significant and higher compared when the organizational factors are less favourable; these findings indicates that the adoption & use of EIS on agribusiness enterprise transformation in Kenya increases as the organizational factors becomes more favourable. The key informants also agreed that the good will of the firms in adopting and effectively implementing enterprise information systems in their daily operation is what will enhance effective transformations in the agribusiness enterprise in the region. Therefore, when organizational factors are favourable and conducive, the effect of adopting and using the enterprise information systems in transforming of agribusiness enterprise will be positive leading to success and profitability. The entities should strive to adopt and implement the systems in there operations to be able to transform and realize not only profits but long term plans.

Emergent Opportunities upon Incorporating Enterprise Information Systems in Agribusiness Enterprises in Kenya

The emergent opportunities upon incorporating enterprise information systems in agribusiness enterprises in Kenya include; access to Business Capital through interactive social platforms like crowd funding platforms, financial institutions like banks and micro-financial firms like Sacco's, online financial platforms. The second opportunity was that of access to Information/Knowledge on Agribusiness matters such as farmers-agricultural officers' platforms where all issues, ideas, and innovations are freely shared. The third opportunity was that of access to Markets for your Products such as both local and global markets via the e-market platforms. The fourth opportunity was readily available technical assistance such as consultancy services, types of new seeds, breeds and farm equipment, and pricing issues, technology using executive/decision support systems. Access to Agricultural Machinery and Inputs through the use of farm management systems; Access to Agricultural Extension Services like insurance, seminars & workshops; Access to Affordable Trained Employees through the social platforms like career point, my jobs.com where all potential job seekers have access to the vacancies.

Recommendations of the study

Effect of enterprise information systems on agribusiness enterprise transformation in Kenya

The study has shown that Enterprise Information Systems have positive impact on transformation of agribusiness enterprises. The case of positive impact on operational excellence, enterprise profitability, and increased market shares has been highlighted. The study recommends emphasis on enhancing the full transition of operations and process from analogue era to the technological way by adoption and implementation of technological systems in daily operations to ensure optimum enterprise output. Further recommendation is that there is need to have concerted efforts across various EIS providers to improve reach, affordability, suitability, and compatibility to all types and sizes of agribusiness enterprises.

Organizational Factors Influencing Adoption of Enterprise Information Systems as Enablers of Agribusiness Enterprises in Kenya

The study has also highlighted the significance of organizational factors in enhancing the relationship between adoption of EIS and agribusiness transformation. The study showed that agribusiness enterprise employees are competent in service delivery but are few and the period too short to adopt the system. The study recommends an improved ratio between tech-enthusiast agribusiness staff and the enterprises to ensure more depth in EIS adoption and the length of programs to be more realistic keeping in mind adoption rates, systems availability, and financial strengths, type and size of agri-firms.

Emergent Opportunities upon Incorporating Enterprise Information Systems in Agribusiness Enterprises in Kenya

The study has highlighted opportunities that come along with the successful adoption and implementation of enterprise information systems in daily operations by the agribusiness enterprises. These internal and external opportunities could be enhanced through lobbying the national and county governments, private investors, financial institutions and the business owners to invest more in the information communication technology infrastructure in the rural areas to attract more locals into agribusiness especially the educated youths who have a negativity towards agriculture. With more investment especially financial and technological, many will be attracted and Kenya shall have food security, employment for the many jobless youths and self-sustenance.

Further Research

The study assessed the influence of EIS adoption in transformation of micro, small & medium agribusiness enterprises in Kakamega County, Kenya. Further studies on different types or even on the same industries and organizations is encouraged to build on, expound or ascertain whether these findings are universal in respect to adoption of enterprise information systems and business transformation.

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