MAKERERE UNIVERSITY

MAKERERE UNIVERSITY BUSINESS SCHOOL

ICT ADOPTION, INNOVATION CAPABILITIES AND EXPORT PERFORMANCE OF AGRO PROCESSING FIRMS IN UGANDA

BY

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A DISSERTATION REPORT SUBMITTED TO MAKERERE UNIVERSITY BUSINESS SCHOOL (FACULTY OF GRADUATE STUDIES AND RESEARCH) IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE AWARD OF A DEGREE OF MASTER OF INTERNATIONAL BUSINESS

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PLAN A

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DECLARATION

I KABALEGA ANDERSON ROWENY declare that this research report is my own composition and has never been submitted to any University or Institution for any award before. All references made to works of other people have been duly acknowledged.

Signature ..... **Date** 14/07/2023

KABALEGA ANDERSON ROWENY

APPROVAL

This is to certify that this dissertation titled, "ICT adoption, innovation capabilities and export performance of agro-processing firms in Uganda" is work done by Kabalega Anderson Roweny under our supervision. It is ready for submission for examination.

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DEDICATION

This dissertation is dedicated to my beloved mother Mrs. Kyomuhangi Justine Lynes for overwhelming financial support, encouragement and the kind prayers she continued to make for me during the research process and my lifetime. May God bless you for me.

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LIST OF ACRONYMS/ ABBREVIATIONS

FAO	-	Food and Agricultural Organization
GDP	-	Gross Domestic Product
ICT	-	Information Communication Technology
ITA	-	Interactive Tax Assistant
OECD	-	Organization for Economic Cooperation and Development
RBV	-	Resource Based View
SMEs	-	Small and Medium Enterprises
UNCTAD	-	United Nations Conference on Trade and Development
WTO	-	World Trade Organization

ABSTRACT

The study was undertaken to examine the relationship between ICT adoption, innovation capabilities and export performance of agro processing firms in Uganda. The objectives that guided the study included; to establish the relationship between ICT adoption and export performance of agro processing firms in Uganda, to examine the relationship between innovation capabilities and export performance of agro processing firms in Uganda and to establish the combined effect of ICT adoption and innovation capabilities affect Export performance of agro processing firms in Uganda.

The study was conducted using a cross sectional survey design which involved a quantitative approach with a sample size of 175 out of the total population of 320 exporting agro-processing firms in Uganda from which 164 responded and hence the response rate of 94.2%. Questionnaires were used for the purpose of data collection.

Descriptive statistics were run to describe the characteristics of the respondents while Pearson Correlation analysis and regression analysis tests were run to test the relationships between the variables and their predictive potential on export performance respectively. The analysis done revealed that a significant relationship existed among all the study variables of ICT adoption, Innovation capability and export performance. Therefore, the study recommended that exporting agro-processing firms should enhance their innovation capabilities, adopt ICT in their operations in order to improve their export performance. This study research provides several insights to a broad constituency of policymakers and business leaders in emerging markets wishing to inquire into whether and how innovation and ICT adoption help to enhance export performance.

CHAPTER ONE

INTRODUTION

1.1 Introduction

This chapter presents Statement of the problem, purpose of the study, objectives of the study, research questions, geographical Scope, significance of the study, scope of the Study, subject scope and conceptual framework.

1.2 Background of the study

Exporting has increasingly become an important activity for many firms in recent years as a way of sustaining and ensuring their growth, profitability and survival (Ahimbisibwe, Ntayi, & Ngoma, 2013). Agricultural products have been identified as one of the major exports to the global export market more so for developing countries. The share of agricultural exports in the total global merchandise trade increased from 6.3% in 2000 to 8.5% in 2020 amounting to $1,492 in monetary terms (FAO, 2021). In Uganda, agriculture accounted for about 24.1% of GDP in FY 2021/22, and 33% of export earnings (ITA, 2022). The Uganda Bureau of Statistics (UBOS) estimates that about 70% of Uganda's working population is employed in agriculture (UBOS, 2021). Globally, the demand for Agro processed exports has increased due to demand of the agricultural products with value added on them to meet standards set by export markets leading to a shift from bulk raw exports to focus more on agro-processed export products (Food and Agriculture Organization of the United Nations 2020, World Bank Report. Agro processed exports from Uganda were valued at US &0.935 billion in 2021, still lower than those neighboring countries like Kenya, US & 3.26 billion and Tanzania, 1.2 billion USD (Agribusiness market scan, 2022). Agro processing industry include foods and drinks, leather processing, cotton ginning, leather and footwear manufacture, saw milling among others and having agricultural

products processed is seen as a solution to poverty, unemployment and an accelerator for economic development (ITA, 2022).

Conscious of the contribution of agro processed exports to the growth of the economy, the government of Uganda has come up with numerous incentives to support the competitiveness of the agro-processed firms in international markets. For instance, the government is developing domestic supply chains and has extended subsidies in terms of financial and technical assistance and free land to investors in agro-processing industries (Barnet 2016). In addition there has been elimination of export taxes and abolition of taxes on import inputs meant for the export sector (Musinguzi, 2002), and Uganda has involved in regional integration initiatives with the aim of promoting her exports in the regional market (Karamuriro & Karukuza, 2015). However, the performance of these agro-processing firms has continued to be poor in terms of low sales, profitability and few export markets accessed (Ecel, Ntayi & Ngoma, 2013)

Empirical evidence suggests that the export performance of agro-processing firms can be attributed to ICT adoption (Ongori & Migiro 2010) and innovation capabilities (Vicente et al, 2015, Ahimbisibwe, Ntayi, & Ngoma, 2013). ICT adoption presents large opportunity to increase total factor productivity of agriculture as well as enhancing export performance within the sector (The World Bank, 2018). ICT adoption can also help firms improve their export performance through access to information about new markets, design and efficient production process and customer relation (Makanyeza and Ndlove, 2015).

In relation to innovation capabilities, it has been noted that agro processing firms need to innovate in terms of enhancing their marketing, market, product and process innovation capabilities to perform better and cope up with intensity of global competition and gain competitive advantage

and sustainable success in international markets (Le & Lei, 2018). Agro exporting firms in Uganda that innovate are able to develop new production processes, methods and technology which has enabled them to compete favorably with other firms (Ahimbisibwe, 2013).

Based on the above submissions, it's evident that the ICT adoption and possession of innovation capabilities within agro-processing firms can enhance their export performance in international markets. While this could be true, there is limited evidence to this effect in the Ugandan context. Thus, this study empirically investigated the relationship between ICT adoption and innovation capabilities on the export performance of agro processing firms in Uganda.

1.3 Statement of the problem

Uganda has been pursuing an export-oriented growth strategy and has so far implemented a number of policies aimed at supporting the agro-processing firms to trade at both domestic and international levels (Kasaija, 2018; Hassan, et al, 2013). This has been implemented through improving on the export promotion policies, reduced taxes and other policies with the aim of increasing the value of agro processed products to targeted export markets. Despite the various strategies that have been undertaken by the Ugandan government to enhance the export performance of agro processing firms, the quality of exports is still low and the volume of agro processed output exported to international markets is still low (Rauschendorfer & Spray, 2018). Existing statistics indicate that agro processed exports from Uganda were valued at US &0.935 billion in 2021, still lower than those neighboring countries like Kenya, US & 3.26 billion and Tanzania, 1.2 billion USD (Agribusiness market scan, 2022).While empirical evidence indicates that ICT adoption (Ongori & Migiro 2010) and innovation capabilities (Ahimbisibwe et al, 2013) could play a critical role in enhancing the export performance of exporting firms, there is limited research to this effect in the Ugandan context. Moreover, it is not clear as to whether the poor

performance of exporting agro processing firms in Uganda could be attributed to failure to adopt ICT in their operations and enhance their innovation capabilities. This research therefore examined how ICT adoption and innovation capabilities influence the performance of export performance of selected agro processing firms in Uganda.

1.4 Purpose of the study

The purpose of this study was to investigate the relationship between ICT adoption, innovation capabilities and export performance among selected agro processing firms in Uganda.

1.5 Objectives of the study

i.) To establish the relationship between ICT adoption and export performance of agro processing firms in Uganda.

ii.)To examine the relationship between innovation capabilities and export performance of agro processing firms in Uganda.

iii.)To establish the combined effect of ICT adoption and innovation capabilities affect Export performance of agro processing firms in Uganda.

1.6 Research Questions

(i)What is the relationship between ICT adoption and export performance of agro processing firms in Uganda?

(ii)What is the relationship between innovation capabilities and export performance of agro processing firms in Uganda?

(iii)What is the combined effect of ICT adoption and innovation capabilities on Export performance of agro processing firms in Uganda?

1.7 Scope of the Study

1.7.1 Subject scope

The study focused on ICT adoption and Innovation capabilities as the independent variables and export performance as the dependent variable and it will seek to establish the predictive potential of ICT adoption and innovation capabilities on the export performance.

1.7.2 Geographical Scope

The study was limited to Uganda's registered agro-processing firms in Kampala and Wakiso because most of agro processing firms in Uganda are located in these districts and their statistics can easily be accessed from Uganda Export Promotion Board.

1.8 Significance of the study

This study might provide a foundation for further research and may help the agro processing firms in understanding the current state of affairs of the adoption and impact of ICT on export performance.

This study also presented the benefits of ICT adoption and innovation capabilities for national development in general and provided an understanding of the importance of ICT to the country's economy

The findings of this study might act as a source of information for researchers and academicians to get access on related information and leading them to look for alternatives which might help SMEs to improve their export performance via ICT.

The study might create awareness to agro processing firms on the benefits that accrue from the adoption of ICT and creation of innovation capabilities.

1.9 Conceptual Framework.

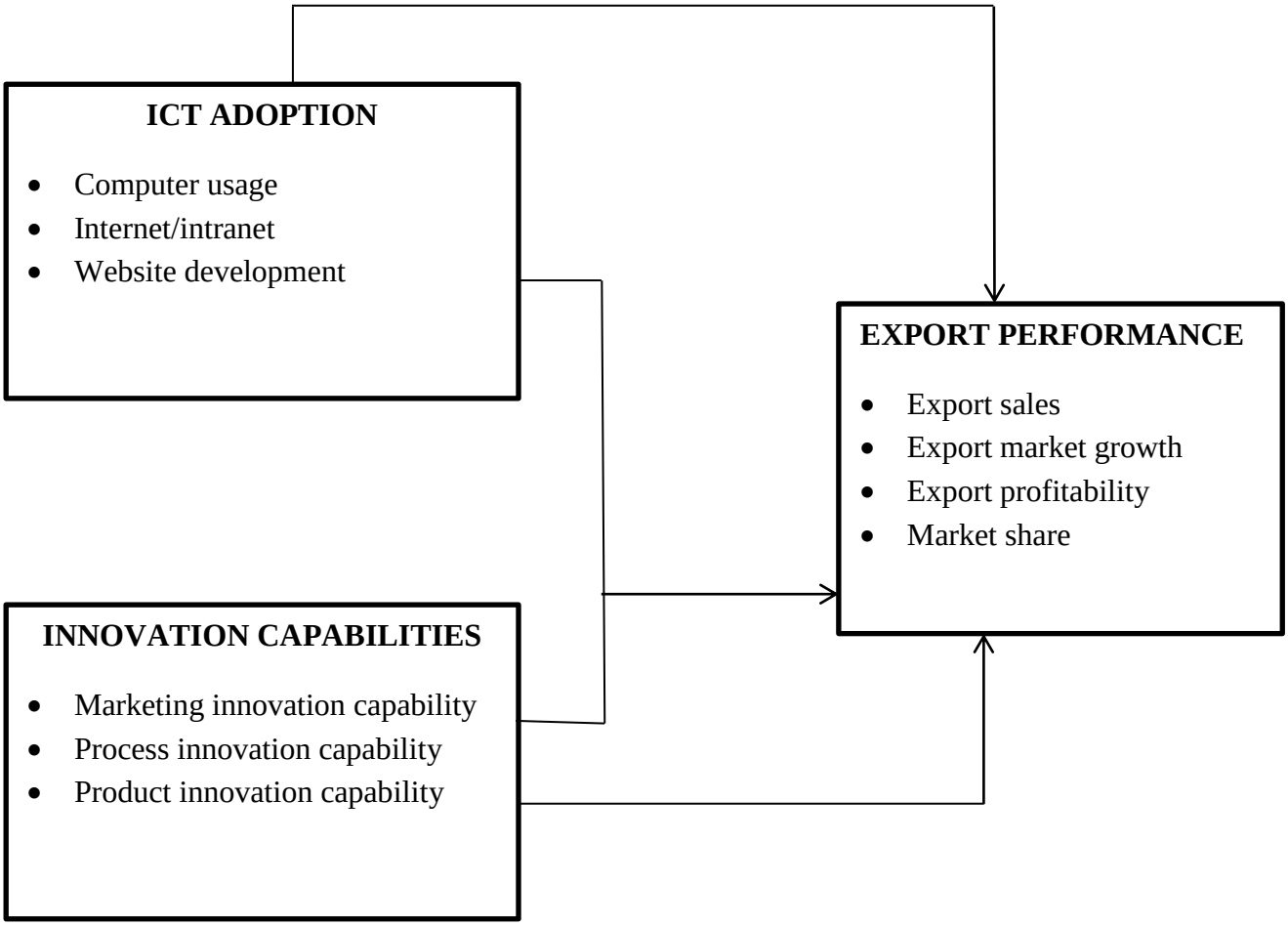


Figure 1: Conceptual Framework

Source: Adopted and modified from Literature review (Hall and Khan, (2003) and Rogers (2003), Ongori & Migiro (2010), White, Griffith & Ryans, 1998; Ibrahim & Ogunyemi, 2012; Ssali et al.*, 2019).*

This framework indicates that export performance can be explained by two variables such as ICT adoption and Innovation capabilities. According to this model, ICT adoption, expressed in terms of website development, computer usage as well as internet/intranet can directly determine export performance. On the other hand, this model indicates that Innovation capabilities in terms of marketing, product, process (research, development and commercialization) can directly influence export performance. The model further suggests that ICT adoption and innovation capabilities can jointly influence export performance. Dholakia and Bayo-Moriones, et al. (2013) and Kshetri (2004) argue that the joint influence of ICT adoption and innovation adoption fosters export performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on the concepts under study where it looks at literature on the concept of international marketing capability, the concept of ICT adoption, as well as the concept of export performance. The chapter fundamentally looks at literature on the objectives being studied.

2.2Theoretical review

2.2.1 The resource-based view

This study relies on the resource based view. This theory focuses on the idea that certain internal resources can be a source of sustainable competitive advantage. Specifically, those internal resources which are valuable, rare, inimitable and capable of being exploited by the organization - the VRIO framework - constitute a sustainable competitive advantage (Barney, 1991). Originally, the RBV has focused exclusively on internal resources; however, it has expanded to include of both internal and external resources that constitute a sustained competitive advantage (Yao et al., 2015).

From this theory, it is evident that organizations encounter change, and that when this happens, they must be in position to plan for change, manage and reconfigure if they are to consistently keep on course. Furthermore, one of the premises which the RBV hinges are capabilities which can easily be traceable among organizational managers and their respective teams when executing their duties and responsibilities. In relation to the study, it can be argued that Innovation capability and ICT adoption are crucial resources that are rarely imitable and can contribute to the export performance of agro- processing firms.

2.3 Export performance

Export performance can broadly be defined as the outcome of a firm's activities in export markets (Ahimbisibwe, Ntayi, & Ngoma, 2013). Export performance of company is viewed as the ability to enhance the sales, market share, secure the company competition in international market, introduce and offer the innovative and quality products / services to customers (Doktoralina & Saluy, 2018). Export performance is measured by Economic measures based on: sales (proportion of export sales and growth in export sales), profits (export profitability and growth in export profitability), and market share (Comi & Resmini 2020). Furthermore, export activity is not only important for company higher performance; it is crucial for any country national production growth and increase the revenue. Furthermore, it is also important to be competitive in international markets as well as well in domestic markets.

Cadogan et al. (2003) define export performance as the firm's degree of economic achievement in its export markets. Export performance is also defined as the extent to which a firm's objectives (both economic and strategic) for exporting a product into a foreign market are achieved through the planning and execution of export marketing strategy (Navarro-García, Rondán-Cataluña & Acedo-González, 2013). From the RBV stand point, export performance is a key expected outcome of superior firm capabilities (Ricciardi et al 2018). On the other hand, Chen, Sousa, and He (2016) contend that export performance is the consequence of a business's export market activities. Export performance can also broadly be defined as the outcome of a firm's activities in export markets (Muhammad & Saleem, 2008).

2.4 Innovation capability

Adler and Shenbar (1990) defined innovation capabilities as the capacity of developing new products satisfying market needs, the capacity of applying appropriate process technologies to produce these new products. Agriculture value chains are not only applying new technology and creating new products but also innovating through new services and new modes of organization (Dias, Rodriquez and Ferreira, 2019).

Innovation is provided by today's significant competitive advantage. It is supported in flexibility speed, efficiency, quality, and speed by potent main capabilities. Innovation has played a significant role for companies for the future of their industries. High innovation performance is able to provide high performance of capabilities, new, faster, and high quality products for markets, and lower costs than competitors. Over and above, firms use processes and market innovation for improving their products and ensuring addition of value for customers. This system combination creates a dynamic and sustainable strategic position, making the organization be a constantly moving target to competitors (Kiernan, 1996). Bos-Brouwers (2010) stated that firms' orientation and innovation processes with sustainability show their proof of value creation, such as the development value of products, services new to the market, and cooperation value with stakeholders.

Innovation capability is the capacity of firms to create new ideas to develop their products, services, and processes to enable them to enhance their organizational performance and attain competitive edge (Jantunen, 2005). Additionally, Innovation capability enables firms to enhance their facility to gather and combine knowledge to become original, uncommon, and difficult to imitate, thus providing them with increased competitive advantage (Ologbo & Nor, 2015). Chen (2009) considered innovation capability as the firm's capacity, based on processes, market, and

organizational structure, which can be used in product or process innovations. Vicente at al. (2015) conceptualized innovation capability as the firm's capacity to develop new products for the export market by combining innovative behaviors, strategic capability, and internal technological processes. Greenhalgh (1994) determined that technological innovation activities increase trade performance. Innovation activities play an important role in determining a firm's strategic decision in export activities and export volumes (Cassiman, Golovko, & Martínez-Ros, 2010). Additionally, innovation's importance is expected to grow further as markets become increasingly globalized. Cassiman et al. (2010) were interested in innovation for appraising export-productivity association effects.

2.4.1 Marketing innovation capability

Marketing innovation is the implementation of new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD Oslo Manual, 2005). Marketing innovations target at addressing customer needs better, opening up new branches or newly positioning a firm's product on the market with intention of increasing firm's sales (Kotler, 1991). The term "innovation" means a new way of doing. Innovation leads to increase in productivity and is the fundamental source of increasing wealth in an economy. Marketing innovation is very important for future market development. The marketing method must not have been previously used by the firm and must be part of a new marketing concept or strategy representing a significant departure from the firm's existing methods (Oslo Manual 2005). Marketing capability refers to a firm's capability to use its existing resources to implement marketing and other related tasks so as to achieve the desired marketing objectives (Bahadir, Bharadwaj, and Srivastava 2008;Krasnikov and Jayachandran 2008; Hui Feng, Neil A. Morgan and Lopo L. Rego. 2015).

2.4.2 Product innovation capability

Product innovation is the introduction of a good or service that is new or significantly improved regarding its characteristics or intended uses, including significant improvement in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics (OECD Oslo Manual, 2005). For success, must involve strong interaction within the firm and further between the firm and its customers and suppliers (Akova et al, 1998). The product innovation process can also be defined as the process from the initial idea to a commercially successful product (Koen et al. 2002). Companies with valuable, rare, inimitable and non-substitutable resources are more likely to perform well in the competition (Wernerfelt 1984). However, to obtain sustainability a company constantly has to address the reconfiguration, renewal, and recreation of its resources and capabilities as a response to a changing environment (Wang and Ahmed 2007).

Innovation capability is influenced by external and internal factors that are mainly explanatory factors of firms' innovation process and/or the outcome of the process. We identified few literature reviews on innovation capability (see for example, Assink, 2006; Frishammar, Kurkkio, Abrahamsson, & Lichtenthaler, 2012; Bell & Figueiro, 2012; Slater, Mohr, & Sengupta, 2014).

2.4.3 Process innovation capability

Process innovation is the implementation of a new or significantly improved production or delivery method, this includes significant changes in techniques, equipment or software (OECD Oslo Manual, 2005). It can be intended to decrease unit costs of production or delivery, to increase quality, or to deliver new or significantly improved products (OECD Oslo Manual, 2005). Process innovation Capability is one of the main elements in innovation capabilities, which depend on it (Ho, 2011; Aberejo, 2009). As procedure innovations take place as normal in a producing company, technological innovation can be further refined to technological product and procedure innovation. Technological process innovation of a firm is one that has carried out importantly technologically enhanced techniques during the time under review (Garcia-Muina, 2007; Guan and Chen, 2010). Additionally, within the field of production industry; technological procedure innovation abilities are deemed as the basis of enhancing performance at manufacturing plants and play a main role in reinforcing their performance (Chen, 2009 , Liu, Baskaran, and Li, S. (2009). Technical procedure innovations are characterized by being more efficient or productive oriented reforms. Consequently, the expectations of process innovations exist for having better performance in productivity

2.5 ICT Adoption

ICT adoption refers to the usage of a wide range of computerized information and communication technologies (Ongori & Migiro, 2009). It is where business processes are automated in anticipation of improved efficiency and improvement in performance outcomes using different technologies including but not limited to desktop computers, laptops, handled devices, wired or wireless intranet, website development, business productivity software such as editor and spreadsheet, enterprise software, data storage and network security among others (Ashrafi &

Murtaza, 2008). Certainly, Zuppo (2012) considers ICT adoption as the use of technologies that facilitate the processing, transferring and communicating of information in a digital manner (Fred, et al., 2009). There is no globally accepted definition of ICT. The definitions can either be extremely broad or meticulously descriptive. However there seems to be some commonality that emanates within the various interpretations. ICTs' adoption offers enormous opportunities to firms including boosting performance through enhanced production capabilities and efficiency (Schware, 2013), improved financial reporting capabilities, decision making, customer support and improved resource management through cloud computing (Jacks et al., 2011). Further studies have demonstrated the continual importance of ICT adoption to the creation of business value and competitive advantage indicating that ICT usage in business has the ability to provide value in each link of a firm's value chain (Melville et al., 2014).

In addition, Ongori and Migiro (2009) noted that adoption of ICTs provides many benefits across a wide range of intra- and inter-firm business processes and transactions. For instance, ICTs' adoption improves information and knowledge management inside the firm and can reduce transaction costs and increase the speed and reliability of transactions for both business-to-business (B2B) and business-to-consumer (B2C) dealings. ICT adoption is measured in terms of computer usage, network settings such as intranet/extranet as well as website development (Forth & Mason, 2014).

2.6 Relationship between ICT Adoption and Export performance

In today's competitive world, ICT adoption among firms has soared over the last two decades because of the increasing need by managers to improve business performance outcomes (Bruque & Moyano, 2007). According to Alegre, et al (2014), firms of all types are utilizing information communication technologies (ICT) around the globe, not only for cutting costs and improving

operation efficiency, but also for improving their performance through provision of better services. This explains why a number of firms have spent huge amounts of money on installing computer systems to support their business processes and information exchange. Moreover, access to information is a critical factor for the success and performance of firms in the global market because through the effective use of ICTs, firms are able to sell their products to international markets and favorably compete with large corporations (Ramsey, et al., 2013; Eton, et al., 2019). Thus, ICTs can be used as a strategic weapon to underpin a firm's performance business strategy. In addition, ICTs enhance firms' efficiency, reduce costs and broaden market reach, both locally and globally.

In the same way, information communication technology adoption is widely regarded as capable of providing considerable strategic and operational value to firms, which in turn enhances performance (Varis & Littunen, 2010). This is in line with Sharma and Bhagwat (2006,) who indicated that the flow of information facilitated by ICT adoption in a firm is the bloodline of any business operating unit irrespective of its size and influences the manner in which firms operate. Notably, ICT has changed the industry structures and altered the degree of competition, it has created a competitive advantage for the businesses which have adopted ICTs in their business processes thereby influencing business outcomes. Therefore, this change compels firms to adopt ICTs in their business processes to cope with these changes across the business environment (Ongori & Migiro 2010). In this way, ICT adoption within firms and its implementation and development has been explored in a wide range of contexts.

Similarly, ICTs' adoption in firms provide a means to access, process and distribute greater amounts of data and information quickly in order to make sound performance decisions (Al-Ansari, Altalib & Sardoh, 2014). Hence, there is need for firms to embrace the state- of-the-art

technologies in order for them to penetrate the international markets and remain competitive despite challenges posed by globalization, liberalization and technological changes. This situation has forced firms to adopt ICTs in their business processes in order to counter the competition posed by large and multinational companies and to improve their performance. The same view was echoed by Spiezia (2011) who argued that the adoption of technology in business affairs enable firms to cooperate more closely with the outside world on the progress of innovations, thus making it easier to keep up with current consumer trends.

However, it is worth noting that the adoption of information technology alone does not guarantee successful business performance (Calantone, Cavusgil & Zhao, 2012). This is because performance is the end-result of a complex process of managerial expertise, proper utilization of firm resources (financial and non-financial), effective strategic planning and integration of available information to generate productive capabilities and competitive advantage in the market place. The above contradiction therefore communicates that the association between ICT adoption and export performance is not an obvious one, and subsequently making conclusive remarks must depend upon an empirically derived connection. Therefore, a question of how ICT adoption relates with export performance is justified.

2.6 Relationship between innovation Capability and Export Performance

Innovation refers to the firm's ability to quickly introduce new products and to adopt new processes into competitive markets (Ahimbisibwe, Ntayi and Ngoma, 2013). Numerous authors such as Freel (2000); Kirbach & Schmiedeberg (2006); Wright, Palmer & Perkins (2004), Rafeal and Richardo (2007), Natalia & Ines (2005) have pointed out that innovation can affect firm's export performance both positively and negatively. Xayhone & Yoshi (2009) asserts that innovation has the capacity to increase and promote stronger export competitiveness that can

ultimately lead to sustainable export performance. Innovation activities play an important role in determining a firm's strategic decision in export activities and export volumes (Cassiman, Golovko, & Martínez-Ros, 2010). Additionally, innovation's importance is expected to grow further as markets become increasingly globalized.

Innovative capabilities are recognized as a major driver of firm growth (Teece et al. 1997), which is little explored in the literature on exports among SMEs (Lisboa et al. 2011). Business growth and success depend on the joint effect of internationalization and innovation (Onetti et al. 2010). Barrios et al. (2003) found that R&D activity is an important determinant of export activity. Hortinha et al. (2011) claim that technological innovation influences export performance. Literature reports a positive relationship between firm's technological innovation and export activities (Lopez, Garcia 2005). Innovative firms are not only capable of developing new capabilities, technologies and processes but also able to transform resources and redesign processes and structures to enter new international markets. (Melia et al. 2010). Claudia, Antonio et al. assert that innovation capabilities have a positive direct effect on export performance.

Zehir et al. (2015) performed a research in relation with small and medium-sized enterprises (SMEs) in Turkey in which they declared that Innovation capability has a positive effect on export performance. Tutar et al. (2015) proved that firm innovation capability has a positive impact on market performance.

2.8 ICT Adoption, innovation capabilities and Export Performance

There is scanty literature regarding the impact of ICT adoption and innovation capabilities on export performance in a single study. However, there is growing interest in research recently to comprehend the extent to which these ascendants influence export performance. The existing

empirical studies have been subject to debate. Researchers and practitioners such as Also, Innovation activities play an important role in determining a firm's strategic decision in export activities and export volumes (Cassiman, Golovko, & Martínez-Ros, 2010). Additionally, innovation's importance is expected to grow further as markets become increasingly globalized. Also, Takahashi et al., (2017) pointed out that Monreal-Pérez, Aragón-Sánchez, and Sánchez-Marín (2012) stated that innovation induces firms to increase their export activities. Numerous empirical studies confirmed that innovation increases the likelihood of positive export results for a firm.

Additionally, empirical findings by Vernon (1966) and Krugman (1979) also maintained that the most significant influencer of export performance is innovation capability because it there is a two-way linkage between a firm's export and innovation activities.

On the contrary, Al-Ansari et al., (2014) identified ICT adoption as the most significant predictor of export performance. These contend that with ICTs' adoption, firms are in position to effectively access, process and distribute greater amounts of necessary formation onto which they rely to make informed performance decisions. That said, it is therefore imperative for firms to embrace the ICT state-of-the-art in order to easily penetrate the international markets and remain competitive despite challenges posed by globalization, liberalization and technological changes. Previous findings by Ongori and Migiro (2009) also maintained that ICT adoption is more significant in the context of export performance simply because it greatly allows firms to stay more competitive both in contemporary business world and at the firm level. It is therefore more certain that firms with a high competitive edge always tend to perform better that their counter parts.

From the above scholarly presentation, a mix-up among different scholars and academia in explaining which variables enlighten a high prediction of export performance is eminent. Such studies which combine both variables of ICT adoption and innovation capabilities as potential influencers of export performance are very limited, if not excluded from the scholarly world. This has a strong implication for managers, traders that is, they cannot easily identify which factor they should direct much effort to achieve remarkable export performance levels.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that the researcher used for the study on ICT adoption, Innovation capabilities and export performance of agro processing firms in Uganda. It explained the research design, study population, sampling methods and sample size, measurement of variables, source of data, data collection procedure and data analysis.

3.2 Research Design

The study adopted a cross-sectional survey design that applied a quantitative approach to the study. Cross-sectional studies involved data collected at a defined time and therefore this study adopted a cross sectional design because it allowed the research a chance compare many different variables at the same time as Oslo and Onen (2009), stated that cross sectional survey design allowed swift collection of raw data and enabling the researcher to interact with experienced people on the subject in question while assessing their opinions, perceptions and feelings at the same time. A survey design was used because data was collected from a sample that was a representative of the population. A quantitative approach was applied in collecting data and this was guided by a self-administered questionnaire because a quantitative approach enables the researcher to collect numerical data in order to explain, predict and control phenomena of interest, then subjecting this data to statistical analysis.

3.3 Study Population

Sekaran and Bougie (2012) defined population as the entire group of people, objects, or incidents where the researcher wants to examine. The study population consisted of registered agro processing firms in Kampala and Wakiso districts of Uganda and these districts were preferred

because this is where most of the agro-processing firms are located. According to Uganda Export Promotion Board (UEPB, 2020) there are 320 registered agro-processing firms located in these two districts.

3.4 Unit of analysis and Unit of inquiry

The unit of analysis was registered agro processing firms in Uganda. According to Uganda Export Promotion Board (2020), there are a total 320 registered agro-processing firms. Each individual firm in the sample size was a unit of analysis and each was presented with one questionnaire and the unit of inquiry was either the export manager or finance manager or marketing manager to provide information for the study. The decision to either of the three was guided by the fact that they are dealing with core activities of these firms and they have sufficient information required for the study.

3.5 Sampling Method

This study adopted both proportionate stratified sampling technique as well as purposive sampling technique to draw samples from the respondents for the study. The sample of 175 firms was determined and selected using Krejcie and Morgan (1970) table for selecting samples from a given population and the selected firms became the unit of analysis. The sampling techniques involved separating the population into three strata according to categories of agro-processing firms and each category was given a percentage to what it was to contribute to the sample size. Purposive non-probability sampling method was used to choose the respondents who had sufficient knowledge about the exporting in these firms and could easily give reliable information. These included the export managers, finance managers and marketing managers.

Table 3.1 this table illustrates the firms per cluster, sample size selection and actual respondents who participated in the study.

Table 3.1: Distribution of staff population and sample size

Type of product	**Population**	**Sample size**
Crops	132	72
Animal and poultry	130	71
Fisheries resources	58	32
Total	**320**	**175**

Source: Export promotions board (2020, Krejcie and Morgan (1970)

3.6 Data Sources

3.6.1 Primary Data

In this study, primary data was collected from firms through self-administered questionnaires where first-hand data about export performance was gathered. The reasons for using a questionnaire was because it saved time and less expensive than other types of primary data collection sources such as observation and interview and also questionnaires ensure high level of accuracy in the data collection process because they are filled by the right respondents with sufficient knowledge on questions being asked and from a big number of respondents (Amin, 2005).

3.6.2 Secondary Data

Secondary data was used to support the empirical findings of the study. Data was obtained from existing literature in previous research paper findings, reports, conference proceedings, reports from Uganda export promotion board and other media reports related to ICT adoption, innovation capabilities and export performance of agro-processing firms in Uganda.

3.7 Data Collection Methods

3.7.1 Self-administered Questionnaire

This study's data collection instrument involved the researcher preparing a set of questions pertaining to the field of inquiry. This method was preferred because it is the single best tool in collecting quantitative data from a big number of respondents (Amin, 2005). According to Dornyei (2007) questionnaires can be used to gather large datasets relatively easily, either through direct contact, by mail or online via the web.

3.8 Validity and Reliability

3.8.1 Validity

Validity is the accuracy and meaningfulness of inferences, which are based on research results. It is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study (Kompo & Tromp, 2006). Expert judgment and Content Validity Index (CVI) were used to check validity of the instrument. Under expert judgment, the researcher drafted the questionnaire and submitted it to the supervisors who reviewed and guided on the best way to present Items. The questionnaire was adjusted based on the guidance obtained. CVI involved distributing the questionnaire to specific people to determine the content validity of Items by ranking them according to relevance that is range of Very Relevant (VR), Relevant (R), Slightly Relevant (SR), and Very Irrelevant (VI), Not Relevant (NR). The researcher computed the CVI from these results to check whether the result obtained under each variable was over the minimum threshold of 0.7 (Dassen & Gemenis, 2012). According to the CVI, all the variables

should be above 0.7 for validity to be confirmed. Based on table 1 below, all the variables met the recommended threshold of 0.7 and hence confirmed the study instrument was valid.

3.8.2 Reliability

Reliability is the degree to which the instrument consistently measure what it is measuring (Amin, 2005). Reliability test is the extent to which outcomes are consistent over time and it gives an accurate representation of the total population under the research study. At the same time, when the repeated application results are consistent, the questionnaire was considered as reliable. In order to ensure the survey questionnaire was reliable and consistency, a reliability test was conducted in this study. Among several tests, Cronbach's coefficient alpha was widely used and I used it to conduct the reliability test for the research study. Cronbach's coefficient alpha represents how well the items in the set of the questionnaire are positively correlated with each other. In order to meet the acceptable standards for research, all alpha reliabilities (α) for all scales are expected to be above 0.7. The tool was subjected to a Cronbach alpha test and a result of above 0.7 Cronbach Alpha rendered it reliable (Cronbach, 1951).

Table 1: Validity and Reliability of Results

Variable and Constructs	Cronbach's Alpha	Content Validity Index	N of Items
ICT adoption	**.895**	**.739**	**13**
Innovation capability	**.818**	**.739**	**15**
Export performance	**.766**	**.817**	**12**
Totals	**.816**	**.7**	**59**

Source: Primary Data

3.9 Measurement of Variables

ICT adoption variable was measured using constructs of computer usage, intranet/extranet and website development. (Forth & Mason, 2014). The study adopted 5-Items of computer usage and 3-Items for website development from Melville et al, (2014) as well as 3-Items of Acharya and Gray (2008) for intranet/extranet.

Innovation capabilities was measured using constructs of market innovation, process innovation and new product innovation as stipulated by Bos-Brouwers (2010).

Export performance was measured based using components of export sales performance, market share and growth, export profitability as stipulated by Sousa (2004), Zou and Stanm(1998). The study adopted items from Shoham (1998) to obtain the 12-items which will be later subjected to a 5-Likert scale for responses.

3.10 Procedure for Data Collection.

The researcher collected data using a self-administered closed-ended questionnaires a data collection method. The questionnaire was in terms of the degree to which they agree or disagree with the statements provided to examine the various concepts under study. The questionnaires were distributed among selected employees of selected agro processing firms. The researcher chose a contact people in the firms who assisted him in moving around while distributing the questionnaires as well as introducing him to respective employees. Similarly, the contact person helped the researcher in distributing and gathering of finished questionnaires. The researcher hired research assistants who constantly made a follow up questionnaires and distributing them to respondents as well as guiding them on how to answer the questionnaire.

3.11 Data Analysis and Presentation

Data was compiled, sorted, edited and coded to ensure quality, accuracy and completeness. The data then entered into a computer using the statistical package for social scientists (SPSS) version 21 for analysis. Correlations and regressions were used in testing the objectives. Demographic characteristics were analyzed in terms of percentage. Relationships between variables were presented in terms of correlation analysis. Regression analysis indicated the extent to which the independent variables explain the changes in the dependent variable.

3.12 Ethical Considerations

Permission was sought from the firms to permit this study to be conducted. The study considered respect and maintenance of confidentiality and anonymity of respondents throughout this study. The data obtained was used for only research purpose. Written or verbal informed consent from all respondents were sought before they were requested to provide information for the study and the purpose and objectives of the study was carefully explained to the respondents.

3.13 Limitations of the Study

Reaching some respondents was a challenge since some staffs were always in the field. The researcher handled this by requesting respective respondents to give him other means like personal emails, phone numbers and that he could use to reach them.

Lack of cooperation from the respondents, none response and reluctance to reveal certain information needed for the study. The researcher handled this by creating a supportive rapport with respondents to win their commitment and loyalty to the task through one on one meeting.

Some of the targeted respondents took a longer time to respond to all the questions. The researcher handled this by constantly reminding the respondents of the time frame.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter contains data analysis, presentation and interpretation of the relationship between ICT adoption, innovation capabilities and export performance among selected agro processing firms in Uganda. It gives information that is useful in fulfilling the objectives of the study. Section 4.2 presents the descriptive statistics of the respondents. Section 4.3 presents the analysis that answers the research objectives. The researcher got a response rate of 93% (164 responses got back from the sample of 175). The Data was collected by use of questionnaires. The findings from the questionnaires are presented in the tables showing the descriptive analysis. The research objectives were:

- To establish the relationship between ICT adoption and export performance of agro processing firms in Uganda.
- To examine the relationship between innovation capabilities and export performance of agro processing firms in Uganda.
- To establish the combined effect of ICT adoption and innovation capabilities affect Export performance of agro processing firms in Uganda.

4.2 Descriptive statistics

This section contains a detailed presentation and interpretation of data in the tables 1 and 2 below:

Table 2: Demographic characteristics of Individuals/ respondents

Gender	**Frequency**	**Percent**
Male	88	53.7
Female	76	46.3
Total	**164**	**100.0**
Work position	**Frequency**	**Percent**
Export manager	25	15.2
Marketing manager	51	31.1
Finance manager	30	18.3
Operations manager	58	35.4
Total	**164**	**100.0**
PERIOD		
1-5 years	53	32.3
6-10 years	69	42.1
11years and above	42	25.6
Total	**164**	**100.0**
Academic Qualification	**Frequency**	**Percent**
Diploma	1	0.6
Bachelors	8	4.8
Postgraduate Diploma	80	48.8
Masters	26	15.9
Professional course	49	29.9
Total	**164**	**100.0**
Age	**Frequency**	**Percent**
25-29	50	30.5
30-34	61	37.2
35-39	51	31.1
Over 40	2	1.2
Total	**164**	**100.0**

Source: Primary Data

4.2.1 Gender

According to the table above, 53.7% of the respondents were males and 46.3% were females. The table shows that males slightly participated more in the study compared to females. The results imply that both sexes were equally considered in examining the relationship between ICT adoption, innovation capabilities and export performance of agro processing firms in Uganda and also shows that the results were majorly based on the opinions of males and they participate more in exporting activities of agro processing firms than females.

4.2.2 Work position

Results from table revealed that majority of participants 35.4% were operational managers. This was followed by 31.1% who were the marketing managers. 18.3% of respondents were finance managers in the firm and 15.2% of the respondents were export managers in the firm. This implies that the results can be relied upon as credible because the operational managers are most active in day to day operations of exporting activities of agro-processing firms.

4.2.3 Length of period

From the Table above, it is indicted that majority of the respondents have spent 5-10 years working with firms and these constituted 42.1%. 32.3% of the respondents have been working with their firms for a period of 1-5 years and only 25.6% for a period of 11 years and above. This implies that majority of the respondents have in export business for a relatively longer period of time and therefore the information obtained can be relied on.

4.2.4 Level of Academic Qualification.

Findings in the Table regarding educational background of the respondents show that majority had Postgraduate diploma reflected by 48.8%. 29.9% have professional course, 15.9% have Master's degree, 4.8% have bachelor's degree and 0.6% have diploma. This implies that the respondents have attained formal education and have sufficient knowledge enough to respond to the questions that they were asked regarding export performance of agro-processing firms and therefore the information can be relied upon.

4.2.5 Age

Concerning the age of the respondents, the study had the majority participants falling in 30-34years age bracket at 37.2%. These were followed by those who were in the age bracket of 35-39years and they constituted 31.1%. These were followed by the 25-29 years with 30.5% representation. The rest had over 40 years represented by only 1.2%. This implies that most employees in managerial positions of agro-processing exporting firms are still in youthful stage of life and therefore still have many years capable of continuing in employment.

4.3 Firm's Characteristics

The demographic characteristics of the samples under study include: turnover, capital, number of employees, years of operation and types of products.

Table 3: Firm's Characteristics

Annual Turnover	**Frequency**	**Percent**
Less than 25 million	22	13.4
25-50 million	58	35.4
51-75 million	18	11.0
76-100 million	51	31.1
Above 100 million	15	9.1
Total	**164**	**100.0**
Capital	**Frequency**	**Percent**
Less than 15 million	23	14.0
16-40 million	59	36.0
41-80 million	29	17.7
Above 80 million	53	32.3
Total	**164**	**100.0**
Number of employees	**Frequency**	**Percent**
1-20 employees	21	12.8
21-40 employees	55	33.5
41-50 employees	18	11.0
51 – 60 employees	55	33.5
61- 70 employees	14	8.5
80 – 100 above	1	.6
Total	**164**	**100.0**
The period the firm has been exporting		
Less than 5 yrs.	70	42.7
6-10 yrs.	76	46.3
10 yrs. and above	18	11.0
Total	**164**	**100.0**
Categories of agricultural products	**Frequency**	**Percent**
Cotton	68	41.5
Tobacco	67	40.9
Leather	29	17.7
Total	**164**	**100.0**

Source: Primary Data

4.3.1 Annual Business turnover

The results from the table 4 above reveal that of the firms have a turnover of 25-50 million, 31.1% had a turnover of between 76-100 million. This implies that most of the firms dealing in agro-processing are small and medium enterprises and operate with limited capital.

4.3.2 Amount of capital employed

Findings from the study on capital indicate that 36.0% of firms have capital of 16-40 million, 32.3% have capital above 80 million, 17.7% of firms have 41-80 million and 14% of firms have less than 15 million as capital. This means that most of the agro-processing firms dealing in export business are small and medium enterprises and still facing financial constraints which limits their expansion.

4.3.3 Number of employees

The results in the table above show that; most of the exporting agro-processing firms employ between 51-60 employees represented by 33.5%, 55 firms (33.5%) have 21-40 employees, 12.8% of firms have 1-20 employees, 11% of firms have 41-50 employees, 8.5% of agro-processing exporting firms have 61-70 employees and 0.6% employ 80-100 and above employees This implies that most exporting firms in agro-processing still have limited production capacity since they are still operating on small scale.

4.3.4 Number of years of operation in export business

Also the results in the table above show that most of the firms have been operating in export business for period of 6-10 years and those firms constituted a percentage of 46.3, firms that have been in export business for five years and less have 42.7% and those of 10 years and above constituted 11%. This implies that the majority of exporting agro-processing firms have been in export business for relatively longer period of time and the information given can be relied upon.

4.3.5 Category of agricultural products

Lastly, results indicate that, majority of the firms (41.5%) cotton, 40.9% exported tobacco and 17.7% exported leather. This implies that most firms still deal in processing traditional agricultural products like cotton, tobacco and leather. The firms haven't ventured in other products within agricultural sector like textile among others.

4.4. Correlation Analysis

Table 5 below shows the correlation analysis of the respondents understanding of the relationship between ICT adoption, innovation capabilities and export performance among selected agro processing firms in Uganda. Therefore, Correlation analysis was run to establish this relationship between the independent variables and the dependent variable as explained below:

Table 4: Showing Correlation Results Between Study Variables

	1	2	3	4	5	6	7	8
ICT ADOPTION	1							
Computer Usage	.211**	1						
Internet	.260**	.790**	1					
Website	.605**	.069	.123	1				
Innovation Capability	**.387****	**.424****	**.507****	**.226****	**1**			
Marketing Innovation	.272**	.300**	.419**	.272**	.722**	1		
Process Innovation	.671**	.279**	.290**	.201**	.393**	.229**	1	
Product Innovation	.201**	.282**	.318**	.014	.267**	.332**	.125	1
EXPORT PERFORMANCE	.352**	.660**	.766**	.172*	.545**	.465**	.314**	.575**

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

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

4.4.1 Relationship between ICT Adoption and Export Performance of Agro Processing Firms in Uganda.

The results in the table above show that there exists a significant relationship between ICT adoption and Export Performance of Agro Processing Firms in Uganda (r=.352, p<.01). Hence the results implied that, the higher the level of ICT adoption, the higher the level of export performance. To further understand the association between the constructs if ICT adoption and export performance. The results revealed a significant relationship between computer usage and export performance (r=.660, p<.01), internet and export performance (r=.766, p<.01), website and export performance (r=.172, <.01). This means enhancing adopting the use of ICT tools, internet and websites influences export performance. However, it was revealed that, constructs of ICT usage and internet and the strongest predictors while website has little influences towards export performance.

4.4.2 Relationship between innovation capabilities and export performance of agro processing firms in Uganda.

Results in the table above revealed a significant relationship between innovation capabilities and export performance of agro processing firms in Uganda. (r=.545, <.01). This means that innovation capabilities are key factor towards export performance. The result also carried out further analysis on the constructs of innovation capabilities to determine their individual effect on export performance and it was revealed that; there is a significant relationship between marketing innovation and export performance (r=.465, <.01), process innovation and export performance (r=.314,<.01), product innovation and export performance (r=.575, <.01) which implies that all the constructs of innovation capability influences export performance and therefore , agro processing firms should focus on product , process and market innovations so as to acquire a competitive advantage to improve their export performance.

4.5 Regression analysis

The study used multiple regression analysis to examine the combined effect of the independent variables towards the dependent variable. These results are presented in Table 6.

Table 5: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	.885	.303		2.917	.004					
ICT Adoption	.204	.086	.166	2.359	.020	.352	.183	.153	.850	1.176
Innovation Capability	.492	.072	.480	6.817	.000	.545	.473	.443	.850	1.176
	R	R^2	Adj. R^2	F	Sig					
	.566a	.320	.312	37.910	.000					

a. Dependent Variable: Export Performance

b. Predictors: ICT Adoption, Innovation Capability

Source: Primary Data

Table 6 obtained Adj. R^2=.312; Sig. =.000 which implied that jointly ICT Adoption and Innovation Capability predicts 31.2% of the variations in export performance among agro-processing firms in Uganda. Furthermore, the results indicate standardized coefficients (β=.166, t=2.359, p<.05) in relation to ICT adoption, (β=.480, t=6.817, p<.05) in relation to innovation capability. Based on the p-values, the results signify that ICT adoption and innovation capability are both significant predictors

however, innovation capability has a stronger predictive power towards of export performance among agro-processing firms in Uganda. That said, again the comparative analysis of the Beta-values (β=.166 and β=.480) confirms that Innovation Capability is the best predictor of export performance among agro-processing firms in Uganda.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a discussion of the findings obtained in chapter four. It is divided into three parts. The first part is on the discussion of findings, the second part provides the conclusion and the third provides the recommendations, limitations to the study and areas of further research.

5.1 Discussion of findings

This part discusses the questions of the study stated in chapter one. It looks at the possible explanations of the results with various views or comparison to results from other scholars. These discussions included the following:

5.1.1 Relationship between ICT Adoption and Export Performance

The study found a significant relationship between ICT adoption and Export Performance of Agro Processing Firms in Uganda. Hence the results implied that, the higher the level of ICT adoption, the higher the level of export performance. This informs us that with the adoption of ICT, firms can process information and products faster and can transform their business processes. By adopting ICT, firms can dramatically improve their business practices, management, and internal organization thereby improving firm performance. This is in line with Sharma and Bhagwat (2006,) who indicated that the flow of information facilitated by ICT adoption in a firm is the bloodline of any business operating unit irrespective of its size and influences the manner in which firms operate. Notably, ICT has changed the industry structures and altered the degree of competition, it has created a competitive advantage for the businesses which have adopted ICTs in their

business processes thereby influencing business outcomes. Therefore, this change compels firms to adopt ICTs in their business processes to cope with these changes across the business environment (Ongori & Migiro 2010).

The results revealed a significant relationship between computer usage and export performance, internet and export performance, website and export performance. This means enhancing adopting the use of ICT tools, internet and websites influences export performance. However, it was revealed that, constructs of computer usage and internet and the strongest predictors while website has little influences towards export performance.

This is also in line with the empirical findings of Bharadwaj and Konsynski (1999) Cainelli, Evangelista and Savona (2004)Kraemer, Gibbs and Dedrick (2005) who suggest that the use of ICT in forms on internet , computers and websites makes it possible for firms to extend their businesses into foreign markets by reducing costs involved in managing international operations, by making it possible to manage value chains that spurn across national boundaries, and by positively contributing to firm performance and future growth).

5.1.2 Relationship between innovation capabilities and export performance

The study findings revealed a significant relationship between innovation capabilities and export performance of agro processing firms in Uganda. This means that innovation capabilities are key factor towards export performance. This is line with the findings of Xayhone & Yoshi (2009) who suggest that that innovation has the capacity to increase and promote stronger export competitiveness that can ultimately lead to sustainable export performance. Innovation activities play an important role in determining a firm's strategic decision in export activities and export volumes (Cassiman, Golovko, & Martínez-Ros, 2010). The study also found significant relationships between the constructs of innovation capability and export performance and it was revealed that; there is a significant relationship between marketing innovation and export performance, process innovation and export performance, product innovation and export performance (which implied that all the constructs of innovation capability influences export performance and therefore , agro processing firms should focus on product , process and market innovations so as to acquire a competitive advantage to improve their export performance. According to a study by Murray, et. al., (2010), a study of 491 Chinese companies found a correlation between marketing innovation and export performance. statistically significant positive market and competitive advantage Supported by the results of a study by Chummee (a) (b) which studies the transmission of agro-industry operators in Thailand. It was found that there was a statistically significant relationship between the paths. Because if there is marketing innovation, it will help promote and develop new products that affect the ability to export, create value, generate income, and profit that is good for the business. Expanding production to more countries. Finally, process innovation was found to be

related to export capability. This is consistent with the study by Chummee et al. (2021) that found a positive correlation between such relationship pathways. Because if there is a modern production process new elements are added, innovations in the product will greatly enhance the export capability. Resulting in the ability to export more Therefore, agro-processing firms must focus on innovation in this area very much.

5.1.3 Relationship between ICT adoption and innovation capability on Export performance

The study found that, ICT adoption and innovation capability are both significant predictors of export performance among agro-processing firms in Uganda. However, our comparative analysis revealed that Innovation Capability is the best predictor of export performance among agro-processing firms in Uganda, a finding which is supported the empirical findings of Vernon (1966) and Krugman (1979) also maintained that the most significant influencer of export performance is innovation capability because it there is a two-way linkage between a firm's export and innovation activities.

5.2 Conclusions

The purpose of this study was to investigate the relationship between ICT adoption, innovation capabilities and export performance among selected agro processing firms in Uganda. ICT adoption and Export Performance are related. The higher the level of ICT adoption, the higher the level of export performance. This informs us that with the adoption of ICT, firms can process information and products faster and can transform their business processes. The implication of this is that agro-processing firms in Uganda are likely to enhance their export performance when they use ICT inform of internet, computer and websites are able to build relationships through social networks in foreign markets to influence export performance.

Innovation capability and export performance of agro processing firms in Uganda were found to be related. Innovation has the capacity to increase and promote stronger export competitiveness that can ultimately lead to sustainable export performance. Innovation activities play an important role in determining a firm's strategic decision in export

activities and export volumes. Our findings have several implications for research pertaining to the effects of innovation capability on export performance and the sources of competitive advantages that enable firms to export. First, this study adds value to the relatively limited body of quantitative research on the relationship between innovation capability and export performance in among agro-processing firms in Uganda. Developed country firms have built their innovation and export models around a set of mature and homogeneous institutions and cumulated substantial internationalization experience. Agro-processing firms in Uganda, by contrast, are at an early stage of innovation and internationalization, innovation in emerging markets takes place in an uncertain environment, and institutional factors, including ownership, vary widely and may have a significant impact on performance (Wu et al., 2021). This study confirms that innovation is an economically significant antecedent of export performance also in agro-processing firms.

Jointly ICT adoption and innovation capability influences exports performance among agro-processing firms in Uganda. Innovation drives ICT usage to impact export performance among agro-processing firms.

5.3 Recommendations

Agro processing firms should direct more resources towards enhancing their innovation capabilities since it has the capacity to influence their export performance. More focus should be on product, process and market innovations.

Firms need to pay particular attention to the specific use of ICT. As such, the study recommends that more emphasis should be placed on the use of ICT to build relationships

as this is likely to result in enhanced export performance. Such technologies as email, Internet, Intranet and web sites may be used to build and maintain the firm's relationships with its customers, suppliers and partners locally and abroad thereby enhancing the firm's export performance.

The government should put in place strategies aimed at encouraging firms dealing in exportation of agricultural products to add value on them before exportation since it presents more opportunities related to accelerating economic growth, employment creation and more incomes generated.

5.4 Limitations of the Study

Although this study extends previous research, it has several limitations.

Reaching some respondents was a challenge since some staffs are always in the field. The researcher handled this by requesting respective respondents to give him other means like personal emails, phone numbers and that he can use to reach them.

Lack of cooperation from the respondents, none response and reluctance to reveal certain information needed for the study. The researcher handled this by creating a supportive rapport with respondents to win their commitment and loyalty to the task through one on one meeting.

5.5. Areas of Further Research

The study only considered Kampala and Wakiso. It is, therefore, recommended that future researches consider other provinces when studying this phenomenon. Apart from agro-processing firms, it may also be useful to consider large business entities in developing countries in order to have a more enlighted understanding of this phenomenon. Lastly, this

study is one of the pioneering researches to investigate this phenomenon especially among developing counties. Therefore, a call is being made to conduct similar studies especially in other developing countries to enhance our understanding of the effect of ICT, and innovation on the export performance of firms.

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APPENDICES

Appendix I:

Questionnaire

Dear Sir/Madam

Am a Makerere University student undertaking a research study on *"**ICT adoption, innovation capabilities and Export performance among selected agro processing firms in Uganda**"*

You have been identified as a key and valuable respondent in carrying out this research. It is purely an academic research being undertaken. Your response will be treated with utmost confidentiality and will be purely used for the purpose of this study. It is my humble request that you spare part of your valuable time and answer the following questions.

I appreciate your cooperation.

Tick where applicable

Background information about the respondent

1. **Gender: Male** ☐ **Female** ☐

2. **Age bracket**

20-29	**30-39**	**40-59**	**60 and above**
1	**2**	**3**	**4**

3. **Education Level**

Ordinary diploma and below	**Bachelor's degree**	**Postgraduate diploma**	**Master's degree**	**Professional course**

4. **Working Experience**

Less than 5 years	5-10 years	11 years and above
1	2	3

5. **Position**

Export manager	Marketing manager	Finance manager	Operations manager
1	2	3	4

Section A (II): Firm's Characteristics

1. **Annual business turnover**

Less than 25 million	25-50 million	51-75 million	76-100 million	Above 100 million
1	2	3	4	5

2. **Amount of Capital Employed**

Less than 15 million	16-40 million	41-80 million	Above 80 million
1	2	3	4

3. **Current number of employees**

1-20 employees	21-40 employees	41-50 employees	51 – 60 employees	61- 70 employees	80 – 100 above	100 employees and above
1	2	3	4	5		

4. **Years of operation in product export business?**

Less than 5 yrs.	6-10 yrs.	11 yrs. and above
1	2	3

5. **What type of agricultural products do you deal in?**

Cotton	Tobacco	Leather
1	2	3

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SECTION B:

Instructions: Please choose only one answer to each question. With reference international marketing capability, rank the statement below on a scale ranging from 5 “Strongly Agree” to 1 " Strongly Disagree"

5	**4**	**3**	**2**	**1**
Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree

	Items	**SD**	**D**	**N**	**A**	**SA**
	PRODUCT INNOVATION CAPABILITY					
IR1	Our company actively carries out work on developing existing products and creating new products	1	2	3	4	5
IR2	Our company provides clients with service with unique benefits	1	2	3	4	5
IR3	We enhance the range of our products and services with not previously released products and services	1	2	3	4	5
IR4	Our firm sees creating new products and services as critical to reach success	1	2	3	4	5
IR5	We try to acquire new products by differing technical specifications and functionalities	1	2	3	4	5
	MARKETING INNOVATION CAPABILITY					
C1	We implement new marketing methods to promote our products.	1	2	3	4	5
C2	We make improvements in the manner of customer relationships to obtain customer satisfaction.	1	2	3	4	5
C3	Our firm constantly looks for new ways to deliver our products to our customers.	1	2	3	4	5
C4	Our firm evaluates new ideas that come from customers and suppliers	1	2	3	4	5

C5	Our firm constantly looks for new ways to deliver our products to our customers.	1	2	3	4	5
	PROCESS INNOVATION CAPABILITY					
P1	Our firm reduces the developing time of new products and services.	1	2	3	4	5
P2	Our company is flexible to provide products and services according to the demands of the customers.	1	2	3	4	5
P3	Our company develops in-house solutions to improve our manufacturing processes.	1	2	3	4	5
P4	Our company actively works to constantly adjust its business processes.	1	2	3	4	5

ICT ADOPTION

	Items	**SD**	**D**	**N**	**A**	**SA**
	Computer Usage					
CU1	The company processes are automated.	1	2	3	4	5
CU2	The firm's systems use computer networks	1	2	3	4	5
CU3	We do timely delivery of products to our customers	1	2	3	4	5
CU4	The company's operations are computer based	1	2	3	4	5
CU5	Our staff have computer based knowledge and skills	1	2	3	4	5
	Website Development					
WD1	We use emails for sharing and displaying company information.	1	2	3	4	5
	The company uses web-based applications to communicate with customers	1	2	3	4	5

WD3	We promote and sell our products online using web based applications.	1	2	3	4	5
WD4	The firm regularly advertises its products using web based applications	1	2	3	4	5
WD5	We use online platforms to interact with suppliers	1	2	3	4	5
	Intranet					
IN1	The firm uses a local area network for information	1	2	3	4	5
IN2	We can easily communicate to our online clients.	1	2	3	4	5
IN3	There is internet access within the firm premises	1	2	3	4	5

SECTION C: EXPORT PERFORMANCE

	Items	**SD**	**D**	**N**	**A**	**SA**
	Export sales performance					
EXP1	The firm has experienced an increase in the export sales over the past years.	1	2	3	4	5
EXP2	The firm experiences bigger sales margins from our export operations	1	2	3	4	5
EXP3	Our sales volume has increased compared to previous periods.					
EXP4	Our export sales value has consistently increased over time.					

	Market share and growth					
MS1	Our firm has been in position to venture into new foreign market segments.	1	2	3	4	5
MS2	Our company has been in position to expand into foreign profitable markets.	1	2	3	4	5
MS3	Compared to our competitors, our exports have rapidly penetrated into various foreign markets.	1	2	3	4	5
MS4	The number of new customers has increased.	1	2	3	4	5
	Export Profitability					
ER1	Our firm has registered an increasing return on the export investment in the past years.	1	2	3	4	5
ER2	Our export profits have consistently increased over the past years.	1	2	3	4	5
ER3	The return on equity for exports handled by our firm has increased compared to the previous year.	1	2	3	4	5
ER4	Our company's return on export has increased in the previous year.					

Thanks for participating!!!!

Appendix II

Research budget

The budget for the study is expected to be Uganda Shillings 2,700,000. The breakdown of this will be as below.

ACTIVITY/ITEM	**TOTAL AMOUNT (UGX)**
Stationery services	400,000
Transport costs	300,000
Research assistants, Data Collection, Entry, Analysis and Interpretation	1, 700,000
Dissertation printing and Binding	200,000
Communications and Miscellaneous	200,000
Total	**2,700,000**

Appendix III

Work schedule

Tasks	**September 2022**	**October 2022**		**November 2022**		**December 2022**	
Proposal writing	✓						
Submission to FGSR for review		✓					
Review of corrections and submission of corrected proposal			✓				
Data collection			✓	✓			
Analysis of Data				✓			
Report writing					✓		
Submission Draft Dissertation for Examination					✓		
VIVA VOCE							✓
Submission of final dissertation							✓

Appendix IV: Sample Size Determination Table

Table 3.1

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*