PROMOTING THE USAGE OF ICT IN CLUSTERS FOR
BUSINESS PROCESS RE-ENGINEERING WITHIN
SIDO SETTINGS

M.Sc. Degree in Information and Communication Technology for
Development(ICT4D)

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PROMOTING THE USAGE OF ICT IN CLUSTERS FOR BUSINESS PROCESS RE-ENGINEERING WITHIN SIDO SETTINGS

By

Datius Joseph

A Dissertation Submitted to the College of Business Education, in Partial Fulfilment of the Requirements for the Degree of Masters of Information and Communications Technology for Development (ICT4D)

Dar es Salaam
2019
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I, Datius Joseph declare that this research dissertation/thesis is my own original work and that it has not been presented and will not be presented to any other higher learning Institution/University for a similar or any other academic award.

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Datius Joseph  Date

(Author)

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CERTIFICATION

The undersigned certify that he/she has read and hereby recommend for acceptance by the College of Business Education a Dissertation /Thesis/Research project titled “Promoting the usage of ICT in clusters for business process re-engineering within SIDO settings in partial fulfilment of the requirements for the award of a degree of Masters in ICT for Development (ICT4D) of the College of Business Education.

_________________________________
(Supervisor’s Name)

__________________________________
(Supervisor’s Signature)

Date: ________________________________
DEDICATION

This dissertation work is dedicated to my family including my parents, my relatives, special dedication to my wife Salma Mshindo and my beloved children Junior Darius and Isla Darius for their love, encouragements and support they have given me during my preparation of this dissertation. Once again thanks for your all advices and prayers for the successful of this output. I value your support and encouragements.
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<tbody>
<tr>
<td>APEC</td>
<td>Asia Pacific Economic Cooperation</td>
</tr>
<tr>
<td>BPI</td>
<td>Business Process Improvement</td>
</tr>
<tr>
<td>BPR</td>
<td>Business Process Redesign</td>
</tr>
<tr>
<td>BPR</td>
<td>Business Process Reengineering</td>
</tr>
<tr>
<td>BRM</td>
<td>Business Process Management</td>
</tr>
<tr>
<td>BRP</td>
<td>Business reengineering Process</td>
</tr>
<tr>
<td>CBE</td>
<td>College of Business Education</td>
</tr>
<tr>
<td>CO</td>
<td>Cluster Organisation</td>
</tr>
<tr>
<td>COSTECH</td>
<td>Tanzania Commission for Science and Technology</td>
</tr>
<tr>
<td>DoI</td>
<td>Diffusion of Innovation</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>FYDP</td>
<td>Five Year Development Program</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>ICT4D</td>
<td>Information and Communication Technology For Development</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>LHRC</td>
<td>Local Human Rights Committee</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development Institutions</td>
</tr>
<tr>
<td>Sida</td>
<td>Swedish International Development Agency</td>
</tr>
<tr>
<td>SIDO</td>
<td>Small Industries Development Organisation</td>
</tr>
<tr>
<td>SME (s)</td>
<td>Small and Medium Enterprises</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>TAM</td>
<td>Technology Acceptance Model</td>
</tr>
<tr>
<td>TBS</td>
<td>Tanzania Bureau of Standards</td>
</tr>
<tr>
<td>TCRA</td>
<td>Tanzania Commission Regulatory Authority</td>
</tr>
<tr>
<td>TFDA</td>
<td>Tanzania Foods and Drugs Authority</td>
</tr>
<tr>
<td>TRA</td>
<td>Theory of Reasoned Action</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>UTAUT</td>
<td>Unified Theory of Acceptance and Use of Technology</td>
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ABSTRACT

There has been considerable interest and activities in clustering and the concomitant link to the regional development in recent times. The study wanted to help promoting of ICT usage in clusters for business process re-engineering within SIDO settings. This is due to challenges faced by SMEs clusters in performing business activities such as promoting their products outside their locality, using ICT in their businesses and gain other more benefits provided by the use of ICT technology. The study was conducted in Morogoro Municipal in Morogoro region with the main purpose of examining the extents to which SMEs clusters promote the usage of ICT within cluster environments. Precisely, the study sought to find out whether the use of ICT provides benefits and opportunities among the SMEs clusters, to assess the level of awareness on the usage of ICT in promoting business and its impact to the development of SMES clusters and to investigate the efficiency and effectiveness of the use of ICT tools to SMEs clusters in promoting business. About 88 SMEs dealing with clusters of (Metal work, Food processing, Clothes and Cereal flour) were involved in this study to understand the relationship between the use of ICT and business process re-engineering promotion among SMEs, the extent of SMEs clusters awareness of ICT usage in promoting their business and the extent of using it in business process re-engineering in improving the service and customer satisfaction. Statistical Package for Social Sciences (SPSS) version 20 was used to analyze the data collected.
UTAUT theory guided this study with empirical literature to weigh on how some of the concepts from the UTAUT theory, which can be used to promote usage of ICT in clusters for business process re-engineering within SIDO settings.

Findings indicated that about 77.3 percent of respondents uses the ICT tools, whereby 86.4 uses mobile phones and they mostly used them for texting and making calls. Also about 55.7 percent used ICT tools for socializing and exchange of information and pictures. About 42.0 percent used ICT tools to read news of different kinds with less participation in information about their products while 51.1 percent agreed using ICT tools and applications facilitates well in the way the clusters would like to operate business. The study recommends that, government and other stakeholders in ICT sector should consider challenges that limit SMEs clusters into fully utilization of ICT usage especially on business process activities. Recommendations for further study should be focused to all clusters being served by SIDO along all regional offices to extend the knowledge of using ICT in business. The impact of using ICT in business to promote cluster products within SIDO setting should be really stated to these clusters in order to create the technology awareness
CHAPTER ONE

1.0 BACKGROUND TO THE RESEARCH PROBLEM

1.1 Background to the Problem
The growing interest in the study of SME operations worldwide is premised on the pivotal role played by the sector in adding value to the economy by creating jobs, enhancing income, lowering costs and adding business convenience (Jevwegaga & Stephan, 2018).

In addition, there has been considerable interest and activities in clustering and the concomitant link to the regional development in recent times. SME clustering is therefore crucial to addressing socio and economic objectives, achievement of which can make them more competitive in the global economy through generating and spreading innovations; creating employment and distributing broad based income and welfare (Jevwegaga & Stephan, 2018; Porter, 1990; Porter & Kramer, 2006).

It is widely accepted that SMEs cluster have in most cases been associated with technological change, innovation and competitive which underpins the growth and dynamism of all economies in global business. In many OECD countries, firms now invest as much in the knowledge based assets that drive innovation such as software, data bases, research and development (R&D), firms’ specific skills and organizational capital, as they do in physical capital such as machinery, equipment or buildings (Braun, McRae-Williams, & Lowe, 2005; Diyamett & Komba, 2008; Porter & Kramer, 2006).
Competitive advantage plays a fundamental role in the success of a given business within its sector. The growing influence of information and communication technologies has become fundamental factor in acquiring competitive advantage. Therefore, information technology plays crucial role in shaping modernity and the distribution of economic advantage to regional development as it directly impacts on the interactions between local and global forces (Nikoloski, 2014). SMEs, have used software, computers and the internet aggregation technologies including social networks, blogs and subscriptions data bases to transform their business to national and global market competitors. Many companies have responded to these changes by automating their business processes and capturing industry-related information and using it to their advantage as well as making business to remain flexible, adapting their operations to newer and better technological advances (Braun et al., 2005; Nikoloski, 2014).

Furthermore, the sustainability of business today environment within the cluster setting is largely depend on the organizational effectiveness and efficient SMEs cluster in identifying technique that would improve the business processes for enhanced organizational performance and ability to upgrade their business activities towards more diversified and sophisticated products and services while meeting customer’s expectations and reach a certain scale through building up a supply-production-distribution value chain, acquiring knowledge and technology and their dissemination and adaptation (Diyamett & Komba, 2008; Sungau, 2013, 2015). Several techniques, namely Business Process Re-engineering
(BPR), Total Quality Management (TQM), Business Process Improvement (BPI), Business Process Redesign (BPR) and Business Process Management (BPM) are being used as part of organizational performance improvement strategies. Amongst the performance improvement techniques, business process re-engineering (BPR) is a radical technique proven to be the most effective means of enhancing organizational effectiveness and efficiency (Sungau & Msanjila, 2012).

Before the emergency of BPR, organizations divided works into small and simple tasks. This led to dominance of functional structured organizations. These functional structures later encountered some problems emanating mainly from changing competitive environment coupled with changing taste of customers (Sungau & Msanjila, 2012). These problems have forced organizations to identify techniques that enable them cope with the changing business environment and complex taste of customers. In early 1990s, Hammer, et al suggested BPR to be a technique that was considered superior in coping with global business competition (Hammer & Champy, 1993).

In 2000, Tanzania formulated a long term National Development Vision 2025. The vision aims at transforming Tanzania to a middle-income country by 2025, with a focus on five attributes: good governance, high quality livelihoods, peace, stability and unity, a well-educated and learning society and a competitive economy capable of producing sustainable growth and shared benefits (United Republic of Tanzania, 2000). The first
one came into effect 2011 and focuses on strengthening the country’s infrastructure; roads, port, energy, and information and communication technology. The second one from 2016 highlights the importance of developing the industrial sector, and the third five-year development plan from 2021 will focus on making manufacturing and service sectors more competitive (Stadenberg, 2016). Therefore, the development of SMEs cluster in Tanzania is described as a tool for sustaining the growth, development, promoting technological innovation, adaptation and crucial for enhancing international competitiveness as well as developing a strategic domestic industrial base through SMEs cluster formation (COSTECH, SIDO, & Sida, 2018).

The overall aim of the SMEs cluster-based initiative is to strengthen the linkages between the cluster actors through collaborative activities, to enhance knowledge transfer and thereby improve innovation, value addition and competitiveness. This in turn will contribute to poverty alleviation, strengthening of local agricultural products and natural resources, preservation of the environment and improved gender equality (Stadenberg, 2016).

However, a review of the National Innovation System by the Ministry of Communication, Science and Technology, (2012) asserted that one of the weakness of National Innovation Systems is the lack of partnership and collaboration between academia, industry and the government has largely contributed to the failure or rigidity of many cluster to compete in local and global market.
Therefore, this study analyses the extent of promoting the usage of ICT in cluster for business process re-engineering within SIDO setting.

1.2 Statement of the Problem
Small Industries Development Organisation (SIDO) is an independent parastatal organization established by an act of Parliament in 1973 with the mandate to plan, coordinate, promote and offer a variety of services to small and medium scale enterprises (SMEs). Among services offered by SIDO are; Technology and Industrial Development, Market and Investment, Business Training & Extension Services and Financial Services.

Since 2006, SIDO has implemented cluster development approach to promote industrial development along with specific commodity value chains, aimed at supporting the growth of business clusters that target particular geographical location.

Currently SIDO is supporting clusters in two ways namely; General cluster services and Project based cluster services

In general cluster services, SIDO supports over sixty (60) SMEs clusters in different services and products productions.

Due to insufficient fund SIDO fails to meet goals and target set to these clusters. Therefore, project based cluster services came in as strategy of empowering few clusters in financial and skills aspects. The projects are being funded by JICA, Sida and COSTECH in collaboration with SIDO. About fifteen clusters in Tanzania mainland and island have been
supported via this project with different value chain products and services. The clusters are namely; Metal work Engineering Cluster Initiatives, Sunflower oil cluster, Food processing, Clothes, Cereal flour, Grape, bee keeping, Paddy, sisal cluster leather processing and product making, rice, Zanzibar seaweed imitative cluster and Pemba fish farming and processing respectively.

These clusters are making good products with standards and certifications of TBS, TFDA and barcode, but most of products are being sold and distributed in their locality areas only. Also most of their raw materials are obtained within their environment and sometimes at higher cost. Finished products need to be marketed outside their border, also raw materials to be imported from outside at a low cost.

Besides, the presence of Business Process Re-engineering consultancy companies and individuals offering Business Process Re-engineering - related consultancy services in collaborations with donor communities in supporting the development of cluster in Tanzania since 2005, through program called innovation system(Stadenberg, 2016; Sungau, 2013). It has been evidenced that, most of cluster organisations knowingly or not, engaged in business process re- engineering (BPR) to explore the risk provided by information technology system in order to reduce the operational costs and improve services quality for adaptation of market
change and strengthen risk control as well as reducing the operation cost (Sungau, 2013, 2015).

Moreover, there have been a progress made regarding to policy issues on industrial clusters. The initiatives have been done by government and other stakeholders to support the acquisition and adaptation of technologies. Also to enhance networking between research and development (R&D) Institutions in bid to upgrade technologies among industrial Cluster organization in Tanzania (Mhede, 2012).

Yet, there is still lack of knowledge and awareness regarding the extent to which industrial clusters can use ICT to improve and promote their business process re-engineering. Therefore, this research intended to find out the best way on how clusters can benefit using ICT to streamline their activities and expand markets in exposed way and big outreach at reasonable cost and time in order to feel the gaps that has been left unfilled.

1.3 Objective of the Study

1.3.1 Main Objective
The purpose of this study is to examine the extents to which SME’s cluster promote the usage of ICT in business process re-engineering within SIDO settings a case of Morogoro Clusters.


1.3.2 **Specific Objectives**

Specifically, the study aimed at achieving the following objectives:

a) To find out whether the use of ICT provides business benefits and opportunities among the SMEs cluster.

b) To assess the level of awareness on the usage of Information and Communication Technology in promoting their business and its impact of the development of SME’s cluster.

c) To investigate the efficiency and effectiveness of the use of ICT tools to SMEs cluster in promoting their business.

1.4 **Research Questions**

The study will be guided by the following specific questions.

a) What are the relationship between the use of ICT and business process re-engineering promotion among SMEs?

b) Examine extent to which the use of ICT tools in business process re-engineering improve the service and customer satisfaction.

c) To what extent are the SMEs clusters aware of the usage of ICT in promoting their business and its impact on the development of SME’s clusters?

1.5 **Significance of the Study**

Throughout the last several decades, Tanzania has been tirelessly struggling to realise pro-poor development plan through growth in the manufacturing sector. This study intended to find out promoting the usage of ICT in SMEs Cluster for business re-engineering within SIDO setting,
particularly the effectiveness and efficiency of the mechanism in place for SMEs cluster in promoting their business. In so doing, the study is significant in the following ways:

The study findings have been of great importance since it opens up a new frontier of knowledge about policy issues relating approaches to Industrial Cluster Organization in promoting business environment among SMEs in Tanzania by raising issues that can be used as input in policy and regulation formulation that would help in redesign business process to achieve dramatic improvement in critical contemporary measures of performance, such as cost, quality, services and speed.

Furthermore, the study aims at bridging the existing knowledge gap. The findings intended to inform policy makers and other industrial development stakeholder about the link between ICT and Business Cluster growth. Indeed, the research contribution was to the improve industrial cluster policy and strategies that will enhance innovation and commercialization of local indigenous technologies so as to achieve long term National Development Vision 2025.
1.6 **Scope of the Study**

The study focused on the usage of ICT in Cluster for Business Process Re-engineering within SIDO setting, particularly on the effectiveness and efficiency of the mechanism in place for SME cluster in promoting their business. Therefore, the purpose of this research study was to emphasise on the application of ICT in SMEs in promoting their business products.

The study area conducted in Morogoro Municipal. This is because, Morogoro is the municipal with more than 70% of registered clusters which are supervised and supported by SIDO.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction.

This chapter presents literatures review related to the study. It presents panoramic survey of literatures on the assessment of the development of cluster organization, also present the definition of key conceptions, theoretical framework that fits to the presents study, conceptual framework guides the study and synthesis of knowledge gap from the reviewed literature.

2.2 Operational Definition of Terms

2.2.1 Definition and Role of Cluster

Clusters is defined as groups of firms engaged in similar or related economic activities in a national economy (Diyamett & Komba, 2008). In most cases they have been defined by two important attributes, namely spatial agglomeration and sectoral dimension (Diyamett & Komba, 2008; Porter & Kramer, 2006).

According to Rosenfeld (1997), cited in Le Veen, (1998), an industry cluster is a geographically bounded concentration of similar, related or complementary businesses, with active channels for business transactions, communications, and that are faced with common opportunities and threats. According to Porter, (1990), clusters are basically of two types: horizontal and vertical. Vertical clusters are made up of firms that are linked through buyer-seller relationships. Horizontal clusters include firms that share common market for the end products, use a common technology or labour
force skills or require similar natural resources; they are basically competitors.

2.2.2 Information and communication Technology (ICT)

Information Technology (IT) can be defined as technology that is used to handle data, information and knowledge. It involves the use of electronic devices and programmes for the processing, storage, transfer and presentation of information (Sekou, 2012). Today, Communication Technology is an important part of IT, hence, Information and Communication Technology (ICT). According to Sungau (2012) ICT can broadly be defined as technologies dedicated to information storage, processing and communications and involve a combination of hardware, software and networks to transform raw data into useful information for speedy retrieval.

2.2.3 Small and Medium Enterprises (SMEs)

There is no universally accepted definition of SME. Different countries define SME differently depending on their level of development. However, the commonly used criteria in the definition include the total number of employees, the total investment and sales turnover. Thus, the Tanzanian Government defines SMEs according to sector, employment size, and capital invested in machinery. Accordingly, in the context of Tanzania SMEs are defined as micro, small and medium size enterprises in nonfarm activities which include manufacturing, mining, commerce and services (Essays, UK. November 2018).
2.3. Cluster Theory

2.3.1 Classical Agglomeration Theory

The concept of agglomeration was proposed and developed by Alfred Marshal in his book “The Principles of Economics” which was first published for the first time in 1890. Essentially, the theory under-lying assumption is that, firms that are located in clusters benefit from agglomeration economies, such as; scale economies, external benefits of production, spillover effects and access to specialized labor (Bekele & Jackson, 2006; Kirankabes & Ariki, 2014; Stadenberg, 2016). The reason for this is their proximity to each other, both geographically and by activities. Benefits also stem from collaborations between the business community, government, and supporting institutions like research organizations and financial supporting institutions, which creates value through joint interests (The World Bank, 2009).

According to Marshall, as cited by Bekele & Jackson, (2006) agglomeration advantages arise from three sets of localization economies, namely a pooled market for workers with specialized skills, the availability of specialized inputs and services, and technological spillovers. This triad of localization advantages first pointed out by Marshal has been at the core of the discussion on industry clustering and agglomeration.

Closely, observing the above arguments of Classical Agglomeration Theory, we come to realize that, industrial cluster will always depend on three important issues, the first reduced transport costs of firms when it comes to people, ideas and goods. The first one, about people, relates to
labor market pooling. Clustered firms can benefit from a large pool of specialized labor, facilitate matching between labor and firms and maximize productivity. The second, about ideas, concerns knowledge transfer between clustered firms, such as workers exchanging tacit knowledge. The third, goods, is related to the proximity to supporting industries, like complementary products or downstream suppliers, which reduces transaction costs (Stadenberg, 2016). This theory is relevant to our study since SME agglomeration are widespread phenomenon in developing countries. On the outskirts of many cities, significant numbers of micro- and small-scale enterprises often operate close to one another and produce similar goods as the case of Morogoro SMEs.

2.3.2 Unified Theory of Acceptance and Use of Technology.

The study concentrated on using first generation of the Unified Theory of Acceptance and Use of Technology UTAUT, Venkatesh et al., 2003) to examine the extent to which SME’s cluster promote the usage of ICT in business process reengineering within SIDO settings.

This theory has been used in studies related to the use of Technology and individual acceptance of Information Technology (Venkatesh, Davis, & Morris, 2003).

The Theory was appropriate to this study because it helped to find out if, ICT tools, ICT usage benefits, efficiency and effectiveness of ICT tools and awareness of ICT itself supports in promoting business process re-engineering within SIDO settings. Concepts from the proposed theory
explores intensively about the behavioural intentions, use behaviour of consumers in using ICT tools/products, which include infrastructures.

Figure 2.1 Original Unified Theory of Acceptance and Use of Technology (UTAUT)


2.3.2.1 Performance Expectancy

Performance Expectancy is defined as the degree to which an individual believes that using the system will help him or her attain gains in job performance (Venkatesh et al., 2003).

Studies also consider performance expectancy as one of factors that affect user behavioral intention (Venkatesh et al., 2003). Performance expectancy is explained in a similar way to usefulness from Technology Acceptance Model (TAM) and relative advantage from Diffusion of Innovations (DoI)
(Venkatesh et.al., 2003). UTAUT identifies a user’s perception of the benefits on a mobile phone such as mobility and always linked connections (Jyoti et.al., 2014). When used effectively, clusters can expect some impending benefits ICT can deliver in their daily business processes activities, and they can be more likely to adopt and use it in promoting their products and other related activities.

Davis (1989) argued that individuals tend to undertake behaviors they believe will help them perform their job better and more efficiently than could be otherwise.

2.3.2.2 Effort expectancy

Effort Expectancy is defined as the degree of ease associated with use of a system (Venkatesh et.al., 2012). Effort expectancy reflects the perceived effort construct when users adopt a new system; in this case, ICT usage. This factor is comparable to perceived ease of use construct of TAM and complexity construct from DoI. It explains a user’s perception of the difficulty associated with usage of mobile phones. If its uses are considered to be strenuous and difficult tasks such that fewer individuals will adopt and use mobile phones in their business activities (Venkatesh et.al, 2003). Previous researches have shown that the perceived ease of use is expected to influence directly perceived usefulness and behavioral intention to use (Terzis and Economides, 2011; Tung and Chang, 2008).
2.3.2.3 Social Influence

Social influence is defined as the degree to which an individual perceives that other individuals important to him/her such as family, friends or other close peers expect him/her to use the new system such as a mobile phone (Venkatesh et al, 2003). It has been learnt that when individuals consider adopting new technologies, they are normally influenced by other individuals, particularly, those who are close to them, for instance, their family members and good friends. If influencers have affirmative view towards using ICT, then those individuals could probably adopt and use ICT tools and applications (Bouwman and Reuver, 2012). Previous studies associated with ICT also show that social influence is important for technology adoption (Zhou, 2008; Zhou et. al., 2010; Song & Han, 2009; Shin, 2007; Kim, 2008; Bouwman & Reuver, 2011; Boulos et.a., 2011).

2.3.2.4 Facilitating Conditions

Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use ICT (Venkatesh et.al, 2003). This factor can be explained by users having necessary resources such as expertise, knowledge and money to adopt information technology (Zhou, 2008; Venkatesh at.al., 2003b). As new technology, users who want to adopt ICT will need to have some knowledge when using the new systems. From previous research works on ICT acceptance, the construct facilitating conditions is viewed to be one of the main factors leading to usage, in other words, adoption (Zhou et. al., 2010; Zhou, 2008). Other studies on technology adoption and use have noted the
need to recognize system factors notably, security, reliability, digital standards and web connectivity (Kleijnen *et. al.*, 2004; Roberts and Pick, 2004; Meso *et.al*, 2005).

Although, attitude, which refers to individuals’ feelings (positive or negative) towards use of technologies (Fishbein & Addision-Wesley, 1975), is an important component of the TRA and the TAM, it is not explicitly included in the UTAUT model.

In this study, level of awareness on the usage of Information and Communication Technology has been added as independent variable to support this study as they have been revised on this chapter.
2.3.3 Conceptual Framework of the Study

The below conceptual framework figure shows the relationships between the independent variables and dependent variables respectively.

Figure 2. 2: Conceptual Framework of the Study

Source: Own Conceptualization adapted from Venkatesh et al., (2003)

2.4 Empirical Literature Review

Porter, (1990) in his study about The Competitive Advantage of Nations - Cluster Theory and practice, he suggested that a nation’s most globally competitive industries are also likely to be ‘geographically clustered’ within the nation; and the interaction between four sets of factors constitute a competitive diamond, namely firm strategy, structure and rivalry; factor conditions; demand conditions; and related and supporting industries.
The more developed and intense these interactions, the greater the productivity of the firms concerned. Martin and Sunley (2002) asserted that the competitive diamond is the driving force making for cluster development, and simultaneously the cluster is the spatial manifestation of the competitive diamond.

Patrick (2017) in his study about Clustering and Product Innovativeness, she asserted that manufacturing SMEs tend to cooperate in order to achieve the effect of synergy in various fields of operation and improve their product innovativeness in the competitive market. The forms of cooperation in the clusters range from informal partnerships and alliances to networks, associations, as well as technological platforms. In addition, the findings of his study revealed that clustering can be seen as a product innovativeness improvement tool, which is critical in enhancing competitiveness in the local, national and global markets. Clustering policies can therefore lead to economic and social development, generating sustainable new jobs and poverty alleviation.

The study done by APEC,(2011) on the “International Seminar on SME Policies and Practices to Promote the Use of Information and Communication Technologies: Experiences in APEC Economies,” held in Lima, Peru from October 25th-26th 2011, indicated that, twenty Peruvian SMEs responded to a survey attempting to identify ICT benefits, challenges and general business needs. In terms of general obstacles to growing their businesses, these SMEs
identified the lack of a qualified labor force and the high costs of labor and capital as the most critical obstacles, issues which fall in line with obstacles to ICT adoption cited by respondents. Also, the participants in the seminar indicated the business benefits of ICT identified are as follows; - Increase sales and marketing opportunities for products and services. Obtain information on new technologies and business trends in a particular industry.

### 2.5 Synthesis and Knowledge Gap

The empirical reviews of the literature have concentrated on the paybacks that clusters get when are in a common geographical area. i.e. creating the synergy between cluster members. Furthermore, the findings of this study revealed that clustering is being seen as a product innovativeness improvement tool, which is serious in attractive competitiveness in the local, national and worldwide markets.

The reviews talked much about what benefits clusters are likely to have rather than what tools to be used especially ICT tools and application in order to have rapid and simplified outcomes.

Both theoretical and empirical provided a clear picture on how clusters can benefit by having informal partnerships and alliances to networks, associations, as well as technological platforms.

This study focused on promoting ICT usage in clusters level in order to have rapid ICT technology knowledge, markets and linkages, reducing of time and cost, etc. that will make contributions on their business process reengineering activities.
In terms of the benefits of ICT use, U.S. SME respondents emphasized increased visibility and reputation in the marketplace, indicating that customers rely heavily on the Internet to find and do business with SMEs. Unlike most less-developed economies, security and privacy concerns were cited as a key obstacle to ICT use, indicating that U.S. SMEs already widely engaged in sophisticated online transactions and information sharing, and suggesting that legal constraints on the use of customer information are a concern. U.S. SMEs expressed limited interest in government programs and interactive activities, indicating a stronger internal knowledge base of ICT than in other economies, and perhaps also scepticism about the effectiveness of government efforts.
CHAPTER THREE

3.0 METHODOLOGY OF THE STUDY

3.1 Introduction
Research methodology as used in this study refers to a systematic way to solve the research problem. It described the research design, research approach, study area, target population, the sample, sampling procedures, data collection methods and analysis techniques which were employed in this study (Kothari, 2004b).

3.2 Area of the Study and Justification
The study was conducted in Morogoro region. The sampled region was selected because it is one of the regions whereby several clusters have been established with intention to increase creativity, positive productivity and competitions in order to increase cluster member's income.

Morogoro region have more than three clusters compared to other regions SIDO is supporting; namely Morogoro Engineering Initiative Cluster, Food processing, Clothes and Cereal flour clusters. With many clusters the researcher intended to gather much evidences and inputs that made some good contributions on promoting ICT within clusters. Different types of product are being manufactured and produced from those clusters located in Morogoro region which are being supported and supervised by SIDO. Therefore, the study area was the best compared to other regions where number of clusters are less than in this region.
3.3 Research Design

This study employed a descriptive research design based on case study. Case study refers to a comprehensive research strategy within an all-encompassing method, which includes the logic of design, data collection techniques and approach to data analysis (Yin, 2003). The Study employed case study approach to assess the effectiveness of the business cluster in promoting the use of ICT within SIDO setting. According to Gall (2007) a case study bear a features like understanding complex social setting and investigates contemporary phenomenon within it real life context using multiple sources of evidence. Given that scenario, this research design was used because it enabled the researcher to obtain the respondents opinions of their experiences in their areas on the use of ICT to promote their business within SIDO settings from which the data were obtained in the course of the study. It was also easier for the researcher to understand the social changes taking place now and then which facilitated the drawing of inferences and helped in maintaining the continuity of the research process.

3.3.1 Research Approach

The study employed both qualitative and quantitative approach. Qualitative approach brought in investigation that is set to produce descriptions from both spoken and written phenomenon and behaviour that are observable (Cohen, Manion, & Morrison, 2007). Quantitative approach, on the other hand, restricts itself to standardized inquiry based on statistical or numerical data.
These two approaches were employed to attain description and narrative form of phenomenon and quantification of the numerical data.

### 3.3.2 Quantitative Approach

The quantitative approach was widely used in the administration of the questionnaires to sample individuals in the study area and sampling of the number of the clusters.

The approach used face to face, open and closed questionnaires that enabled the respondents to provide information according to the needs and interests of the researcher.

### 3.3.3 Qualitative Approach

Qualitative approach was applied due to the nature of the study as it sought to get a detailed and deep account of the study topic, participants, activities and processes, socio-cultural and political contexts of the study areas. It aimed at getting a deeper understanding to the why and how questions that statistical inference cannot provide (Stadenberg, 2016). The approach aimed (Venkatesh, Morris, Davis, & Davis, 2003 at examining the experiences and stories from key informants that helped to illuminate what works, in what context how and why. The approach was seen useful as it provided a depth of understanding of the cluster organizations that are not possible through statistically – based on investigations and how people understand, experiences and operation within settings that are dynamic, and social in their foundation and structure (Tewksbury, 2009).
Qualitative data that were collected, verified and added to more inputs by the quantitative data.

3.4 Sample Size and Sampling Technique

3.4.1 Study Sample/Population

The population sample of this study was, Municipal executive director, SIDO regional manager, SIDO Technical officer, SIDO Business development officer, cluster team leader, Cluster members and cluster customers. However, it is important to note that, due to the nature of the problem of research, financial, geographical and time constraints; some influential people, local and central administrative leaders were not involved in this study.

3.4.2 Sample size

In selecting the sample size, the researcher considered three important aspects namely; the availability of population, methods of sampling to be used and the financial resources available for the facilitation of this study (Charles, 1995). In selecting the sample, the small number of respondents were selected; enough to be true representatives of the population (Kothari, 2004a). Therefore, the sample size which were used in this study was 88 respondents, which included the following Regional Administrative Secretary, Morogoro Municipal Director, SIDO regional Manager, SIDO regional Technical Officer, Business development Officer, Four Clusters leaders, forty members cluster and lastly forty customer members of clusters who are dealing with various activities such
as Metal work products, clothes making, food processing and cereal flour respectively.

3.4.3 Sampling Technique

Sampling is the procedure of selecting a proper subset of the elements from the population so that the subset can be used to make the inference to the population as a whole (Charles, 1995). Moreover, sampling enables the researcher to make judgment or inference about the aggregate or totality which is made (Kothari, 2004a).

Babbie (2007) argues that it is hardly possible to study all members of the population that interest the researcher(s). It is the reason the researcher designed the sample to represent the population targeted for the study. In order to arrive at the desired sample, both Non Purposive and Purposive Sampling were used to select a sample population of 80 respondents from selected clusters, who filled the questionnaire, 08 key informants were interviewed using semi-structured guide questions and the same group engaged in focus group discussions. To obtain cluster members to fill the questionnaires, the study used random sampling method. Under this sampling procedures every items of the universe has an equal chance of inclusion in the universe (Kothari, 2004a). Also the study used Purposive Sampling as a type of non-probability sampling in which the units to be observed were also selected on the basis of the researchers’ judgment about which ones to be useful or representative (Babbie, 2007).
This method used only to represent a particular group of the wider population which included Municipal executive director, SIDO regional Manager, Technical Officer, Business development Officer and Cluster Team Leader.

3.5 Data Collection Methods and Sources

For the sake of triangulation and complementary purpose, the study used multiple methods of data collection. This is suggested by Leedy and Ormrod(2001) arguing that no single instrument is considered sufficient in collecting most valid and reliable data. Hence secondary and primary data were gathered. Secondary data was obtained through documentary review, whereas primary data was gathered using qualitative and quantitative methods.

3.5.1 Secondary Data Sources

The initial stages of this study was drew heavily on documentary analysis. Critical review of various information sources like documents, journals, papers and reports (published and unpublished ones) were done throughout of the study period to gain information on the extents to which SME’s cluster promote the use of ICT in business process re-engineering within SIDO settings. Also, policy documents and guidelines were reviewed to find out exactly industrial cluster are supposed to do in order to increase production.
3.5.2 Primary Data Sources

Survey, FGDs and interview methods were used in collecting primary data. To ensure checks and balance, these methods were sometimes used concurrently. This ensured validity and reliability of the collected data.

3.5.2.1 In-depth interview

The in-depth interview was conducted to a total of eighty (8) respondents which involved Municipal Executive Director, SIDO regional Manager, Cluster team leader, business development officer, technical officer to obtain detailed information on the effectiveness of the use of ICT on business process re-engineering within SIDO Cluster settings.

The researcher asked for appointment in advance and gave the interviewee the interview guide before the actual interview day. This was done purposely to give them some times to prepare themselves. All interviews were planned and done in the morning to make the interviewee respond while still not so much occupied.

The interview time was 30-45 minutes depending on the nature of information needed. The data from interview was recorded by field notebook.

3.5.2.2 Survey Methods

Under survey method, Questionnaire technique was employed. The logical and systematic questions were prepared contained open and closed –ended questions. Closed ended questionnaires were used in order to save
respondents 'time and energy. Also, the closed ended questions allowed the respondents to give their answers from within the restricted areas of researcher interests. The open ended questionnaires on the other hand, guaranteed the respondent an opportunity to plain freely and in breadth and depth the effectiveness of ICT usage in business process re-engineering within SIDO Cluster setting.

3.6 Validity and Reliability of the Data

In order to obtain reliability and validity of the collected data, the following were employed, in-depth interviews, administered questionnaires, observation and documentary review. The expected combination of these research techniques were provided correct and relevant data.

3.6.1 Checking the Reliability (Internal Consistency)

Joppe (2000) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study. He argues that research instrument will be considered to be reliable if the results of the study can be reproduced under a similar methodology and conditions. Helg (2007) believes that similar results can be obtained if the interviews were repeated, but if the data collected are analysed differently, it may not give similar results. Although the methodology used in this study might be similar to other studies, the analysis employed was different as it focuses on the stated objectives of the study. Embodied in this citation is the idea of replica or duplication of results or observations.
Cronbach’s alpha test was used to measure internal consistency (reliability) of Likert variables employed under this study. Cronbach’s alpha of 0.70 or higher is considered acceptable in most social sciences (DeVon et al., 2007). Cronbach’s alpha value of 0.7 or above was accepted, information about the data was collected and Statistical Package for Social Sciences (SPSS) was used to check reliability of the collected data.

3.6.2 Data Validity

In order to ensure validity of the data, no research assistants were employed. This enabled the researcher to have confidence with the collected data. A pilot study also was conducted through interviewing few people to establish if they have understood the questions asked in the questionnaire. This enabled the researcher to refine questionnaire before distributing them to the selected sample. Data validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Babbie, 2007; Kothari, 2004b). As such, given the fact that a sample of between 10-12.5% is acceptable good representative sample according to Babbie (2007), in this study the sampled respondents represented 80% of the cluster members and their leaders around SIDO in Morogoro which reinforce the validity and reliability of the assessments. According to Saunders et al. (2009), test validity is the extent to which inferences, conclusions and decisions made on the basis of test scores are appropriate and meaningful.
N.B. A pre-test of study tool was done by taking ten questionnaire samples to obtain the inputs from stakeholders. These inputs contributed in obtaining the reliability of the tool before being applicable to the study area.

3.7 Data Processing and Analysis Plan

Processing and analysis of data were done in accordance with the nature of the collected data. Hence, qualitative and quantitative data analysis methods were employed.

3.7.1 Quantitative Data Analysis

In this study, the computer data analysis software; Statistical Package for Social Sciences (SPSS version 20) was used to obtain frequencies, and percentages, descriptive tables and making cross-tabulations. Microsoft excel also used to make graphical and figure presentation of the analysis for illustrations in the various sections of the dissertation while tables were constructed using Microsoft word.

3.7.2 Qualitative Data Analysis

Qualitative data from the interviews and documentary review were subjected to content analysis in order to derive relevant information. The data were organized into manageable units which were coded, summarized, categorized manually, interpreted and placed into key themes in form of statements as supported by Griffiths et al., (1998). Those themes were arranged in accordance with informant’s responses and across set of the study objectives. The researcher analysed data through
qualitative method because the study dealt with individuals’ views, ideas, and opinion concerning effectiveness of use of ICT in business process reengineering. The information obtained from the field was summarized and results presented through the use of descriptive tables and figures after being analysed through SPSS (20version).

Additionally, uses of direct quotations as expressed by the respondents were used to support researcher’s arguments.

3.8 Ethical Considerations

All ethical considerations such as informed consent and confidentiality were observed. When human beings are used as a study participants, great care must be exercised in ensuring that the rights of those human beings are protected and should not be harmed as a result of their participation in the study (LHRC, 2014). No respondent below 18 years will be allowed to participate in this study because that would have compelled the researcher to seek parent/guardian’s consent. Respondents were not compelled to give their names. They also did not compel to participate to the questions posed to them. As such, participation to this study it was an option and not obligatory. Moreover, all interviews were conducted in Kiswahili only the surveyed questionnaire for cluster members was written in English but translated into Kiswahili during filling. This was done to ensure that the respondents participate in something they understand and because Kiswahili is the language they understand most unlike English; it was believed that respondents would effectively participate in the study.
3.9 Summary of Chapter

This chapter discussed the methodological framework employed in the study including the area of the study and data collection techniques. Research design, the sampling process are also discussed in this chapter. It outlined data types and data gathering methods, methods of analysis which were used in this study.
CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents data results and discussion. The Chapter consists of the subsequent items: Respondents’ Demographic Characteristics, using of ICT in providing business benefit and opportunities among SMEs Clusters, assessment of the level of awareness on the usage of ICT and efficient and effectiveness of the use of ICT tools to SMEs Clusters in promoting their business.

4.2 Demographic Characteristics of Respondents

4.2.1 Age Distribution

Table 4.2 presents distribution of respondents in terms of age by sex. Findings from the study revealed that out of 88 respondents, 41 (46.59%) were females and 47 (53.4%) were males. In comparison to their age, findings revealed that about 30 of respondents were aged between 41 and 50 years whereby males were 20 and females were 10. Then 25 respondents were aged between 31 whereby males were 11 and females were 14 as well as 16 respondents were under 31 years of age. Only 17 respondents were aged above 50 years. Through interviews, respondents over 50 years old seemed to be unwilling to adjust with the changing technology fearing from risks that may be associated with it. They included the risk of using mobile phones to perform bank transaction. Also they seeming usage of ICT in business, especially the phones and other online tools are difficult for them because those tools are embedded with features they perceived hard for them to cope with.
Table 4.1 Respondent gender * Respondents' age Cross tabulation (N=88)

<table>
<thead>
<tr>
<th>Respondent gender</th>
<th>Less than 30 yrs</th>
<th>Between 31-40 yrs</th>
<th>Between 41-50 yrs</th>
<th>More than 50 yrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>12</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>41</td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>11</td>
<td>20</td>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>25</strong></td>
<td><strong>30</strong></td>
<td><strong>17</strong></td>
<td><strong>88</strong></td>
</tr>
</tbody>
</table>

4.2.2 Education Level

The education level was also important in this study, respondents’ education level was another important factor considered to help determine the type of information and techniques of obtaining information from them. Results in Table 4.2 indicate that 30.7 percent respondents had secondary education level, whereas 27.3 percent respondents had College education. 20.5 percent of respondents had primary education, 11.4 percent of respondent had university degree, whilst 10.2 percent of respondent had no formal education. Results imply that most respondents who filled in the questionnaires were educated and therefore, were able to understand as well as provide required information appropriately. It is important to note that doing research entails dealing with sample to be well versed with the topic (research problem) and can easily clutch asked questions.

Table 4.2 Respondents’ Education Level (N=88)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary education</td>
<td>18</td>
<td>20.5</td>
</tr>
<tr>
<td>Secondary education</td>
<td>27</td>
<td>30.7</td>
</tr>
<tr>
<td>College (Certificate and diploma)</td>
<td>24</td>
<td>27.3</td>
</tr>
<tr>
<td>Non formal education</td>
<td>9</td>
<td>10.2</td>
</tr>
<tr>
<td>University education</td>
<td>10</td>
<td>11.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>88</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
4.3 Checking the Reliability (Internal Consistency)

Cronbach’s alpha test was used to measure internal consistency (reliability) of Likert variables employed under this study. Cronbach’s alpha of 0.70 or higher is considered acceptable in most social sciences (DeVon et al., 2007). Cronbach’s alpha value of 0.7 or above was accepted, information about the data was collected and Statistical Package for Social Sciences (SPSS) was used to check reliability of the collected data.

Computed for each of the variable as presented in the conceptual framework (Figure 2).

The results show that all the variables had the Cronbach’s alpha value of 0.965 in 35 selected number of items (Table 4.3) which indicates the high level of reliability of the Likert scale used to measure the variables under this study. In table 4.4 mean of each variable with the deviation from variable to variable. Hence, all variables had a greater correlation to each other for further analysis. Table 4.5 shows the summary statistics of the item mean, variances, covariances and correlation of the variables.

Table 4.3 Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha based on Standardized items</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.965</td>
<td>.966</td>
<td>35</td>
</tr>
</tbody>
</table>
Table 4. 4 Item Statistics

<table>
<thead>
<tr>
<th>Variable Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using ICT for business process re-engineering with cluster environment</td>
<td>1.51</td>
<td>.871</td>
<td>88</td>
</tr>
<tr>
<td>Using ICT within cluster environment would make it easier to do my job</td>
<td>1.61</td>
<td>.765</td>
<td>88</td>
</tr>
<tr>
<td>Using ICT tools increases my productivity</td>
<td>1.67</td>
<td>.784</td>
<td>88</td>
</tr>
<tr>
<td>Using ICT can significantly increase the quality</td>
<td>1.75</td>
<td>.938</td>
<td>88</td>
</tr>
<tr>
<td>Using ICT would enhance my effectiveness business I am doing</td>
<td>1.68</td>
<td>.824</td>
<td>88</td>
</tr>
<tr>
<td>Learning on how to use ICT tools and applications is easy for me</td>
<td>2.22</td>
<td>.928</td>
<td>88</td>
</tr>
<tr>
<td>My interaction with ICT tools and applications is clear and understandable</td>
<td>2.41</td>
<td>.955</td>
<td>88</td>
</tr>
<tr>
<td>I find ICT tools and applications easy to use</td>
<td>2.44</td>
<td>.969</td>
<td>88</td>
</tr>
<tr>
<td>It is easy for me to become skilled at using the ICT tools and applications</td>
<td>2.20</td>
<td>.949</td>
<td>88</td>
</tr>
<tr>
<td>It is easy to get/find ICT tool and do what I want to do</td>
<td>2.47</td>
<td>1.103</td>
<td>88</td>
</tr>
<tr>
<td>I find ICT tools to be flexible to interact with</td>
<td>2.61</td>
<td>1.087</td>
<td>88</td>
</tr>
<tr>
<td>People who influence my behaviour think that I should use ICT in my business</td>
<td>1.86</td>
<td>.860</td>
<td>88</td>
</tr>
<tr>
<td>People who are important to me think that I should use ICT in my daily activities within the cluster</td>
<td>1.88</td>
<td>.907</td>
<td>88</td>
</tr>
<tr>
<td>People whose opinions that I value prefer that I use ICT</td>
<td>1.91</td>
<td>.866</td>
<td>88</td>
</tr>
<tr>
<td>I use ICT because of the proportion of cluster members who use ICT too</td>
<td>2.81</td>
<td>1.267</td>
<td>88</td>
</tr>
<tr>
<td>The senior management within the cluster has been helpful in use of ICT</td>
<td>2.48</td>
<td>1.050</td>
<td>88</td>
</tr>
<tr>
<td>Cluster SMEs who use ICT for their business have high profile</td>
<td>2.10</td>
<td>.910</td>
<td>88</td>
</tr>
<tr>
<td>I have the knowledge necessary to use ICT tools and applications</td>
<td>2.80</td>
<td>1.030</td>
<td>88</td>
</tr>
<tr>
<td>I am aware of the various ICT activities likely to be exposed to unintended persons outside</td>
<td>2.36</td>
<td>.886</td>
<td>88</td>
</tr>
<tr>
<td>I have enough knowledge to recognise and respond to ICT activities on business process reengineering activities</td>
<td>2.73</td>
<td>1.122</td>
<td>88</td>
</tr>
<tr>
<td>Statement</td>
<td>Rating</td>
<td>Standard Deviation</td>
<td>Cluster</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------------------</td>
<td>---------</td>
</tr>
<tr>
<td>I am aware that sometimes ICT in manipulating jobs or certain activities are not completed due to connectivity problems or failure of a device</td>
<td>2.22</td>
<td>.864</td>
<td>88</td>
</tr>
<tr>
<td>I have control over using ICT tools and applications</td>
<td>2.75</td>
<td>1.117</td>
<td>88</td>
</tr>
<tr>
<td>I have the resources necessary to use ICT tools and applications</td>
<td>2.83</td>
<td>1.031</td>
<td>88</td>
</tr>
<tr>
<td>Given the resources, opportunities and knowledge it takes to use ICT tools and applications, it is easy for me to use the ICT systems</td>
<td>2.32</td>
<td>.891</td>
<td>88</td>
</tr>
<tr>
<td>I think that using the ICT tools and applications fits well with the way clusters like to operate business</td>
<td>2.06</td>
<td>.807</td>
<td>88</td>
</tr>
<tr>
<td>Guidance was available to me in the selection of the ICT tools and applications I am using</td>
<td>2.56</td>
<td>.969</td>
<td>88</td>
</tr>
<tr>
<td>A specific person(or group) is available for assistance with ICT tools and applications difficulties</td>
<td>2.69</td>
<td>1.043</td>
<td>88</td>
</tr>
<tr>
<td>I intend to continue using ICT technology in the future</td>
<td>1.88</td>
<td>.814</td>
<td>88</td>
</tr>
<tr>
<td>I will always try to use ICT devices for business process reengineering in my daily life</td>
<td>1.80</td>
<td>.730</td>
<td>88</td>
</tr>
<tr>
<td>I plan to continue using ICT on business process reengineering within cluster frequently</td>
<td>1.86</td>
<td>.805</td>
<td>88</td>
</tr>
<tr>
<td>I have used ICT tools and applications for cluster business issues</td>
<td>2.48</td>
<td>1.104</td>
<td>88</td>
</tr>
<tr>
<td>I have used ICT tools and applications in order to pay or buy for services</td>
<td>2.43</td>
<td>1.163</td>
<td>88</td>
</tr>
<tr>
<td>I have used ICT tools and applications for reading and general knowledge purposes</td>
<td>2.43</td>
<td>1.059</td>
<td>88</td>
</tr>
<tr>
<td>I have used ICT tools and applications for products promotions</td>
<td>2.70</td>
<td>1.252</td>
<td>88</td>
</tr>
</tbody>
</table>
4.4. Findings with regarding to objectives of the study

4.4.1 Using of ICT in providing business benefit and opportunities among SMEs Clusters

One of the objectives in this study required to find out if the use of ICT provides business benefits and opportunities among the SMEs Clusters. To obtain respondents’ feelings about this concern, they had to answer three sets of questions posed in relation to the ICT tools and applications they are using, part of ICT they are mostly using and their frequency using ICT in their business. Not only that but also respondents were also required to facilitate information on the above objective by indicating the right statements according to them in independent variable Performance Expectancy (PE).
4.4.1.1 **Types of ICT Tools and Applications used by SMEs Clusters.**

The idea of using this question was to understand and identify types of ICT tools and applications the respondents are using in doing their business. Results from the study as indicated in Table 4.6 revealed that out of 88 respondents, 15 respondents disclosed that they are using desktop computers, 22 respondents said that they are using laptops, 71 respondents were using mobile phones, 41 are normally using internet, 4 are using business automation applications to perform their business activities, 52 are using social media (Facebook, WhatsApp, etc), and 16 use online (shopping, buying and selling products) applications. In general, findings from the study reveals that many people who are working with cluster environments are using mobile phones. According to TCRA (2016) report about mobile subscribers in Tanzania, there was a rapid growth in number of people accessing the internet using mobile phones through individual or household connections. This indicates that mobile phones are used and are offering provision to log in and access various pieces of information including download applications together with several pieces of information from different websites concerning topics of their preferences. Through mobile phones, much can be learned concerning business operations. Some SMEs take benefit of the mobile phone connectivity to internet so as to access various educational materials for improving their business activities. Sharing information is inevitable for both SMEs using either ordinary or smart phones. Aspects such as enquiry of raw materials and selling of products are being communicated using mobile phones. This conclusion is justifiable because respondents had different views and opinions on types of ICT tools and applications they are using.
Table 4. 6 Types of ICT tools and Applications used (N=88)

<table>
<thead>
<tr>
<th>ICT tools and Applications used</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop Computer</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Laptop</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>Mobile Phone</td>
<td>71</td>
<td>80.7</td>
</tr>
<tr>
<td>Internet</td>
<td>41</td>
<td>46.6</td>
</tr>
<tr>
<td>Business Automation applications</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>Social media (Facebook, WhatsApp, Etc)</td>
<td>52</td>
<td>59.1</td>
</tr>
<tr>
<td>Online shopping/buying and selling of products applications</td>
<td>16</td>
<td>18.2</td>
</tr>
</tbody>
</table>

4.4.1.2 Part of ICT which were used mostly by SMEs Clusters in business

The study also intended at finding out the degree of ICT tool and applications technology usage as described in Table 4.7 calling and texting seemed to be used by 86.4 percent of the respondents. Nevertheless, 55.7 percent of respondents seemed to use ICT tools and applications for socializing. The lowest usage of ICT tools and Applications was business automation usage. Reasons given to such low usage, were lack of knowledge, facilitation tools or equipment to be used in order to facilitate their business they are doing.

It was observed that ICT tool such mobile phone was used in socializing matters rather than using it for business purposes. Online marketing undertakings are coming up as few were aware of benefits offered by ICT tools in advertising and promoting their products. Browsing internet is also coming up since mobile phones offer internet connectivity. Some of the respondents said that they used their mobile phones to browse to social media to access news, get some information related to their businesses and share whatever about their family as well as relatives.
Similarly, during interviews, all respondents seemed to own mobile phones, and they mostly used mobile phones for calling as well as texting. Marketing of their products using ICT tools and applications were also low due to limited knowledge of promoting and selling their products online. Some respondents were not completely aware of benefits offered from ICT tools and applications in promoting their products. They ended up sharing pictures and videos of their family members or watched fun videos sent by their family members.

Table 4. 7 ICT tools and Applications usage by SMEs Clusters (N= 88)

<table>
<thead>
<tr>
<th>ICT tools and Applications</th>
<th>No of respondents for each tool and application out of 88</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling products</td>
<td>19</td>
<td>21.6</td>
</tr>
<tr>
<td>For product promotions</td>
<td>20</td>
<td>22.7</td>
</tr>
<tr>
<td>Storing information</td>
<td>18</td>
<td>20.5</td>
</tr>
<tr>
<td>Searching for services</td>
<td>27</td>
<td>30.7</td>
</tr>
<tr>
<td>Paying for services</td>
<td>21</td>
<td>23.9</td>
</tr>
<tr>
<td>Business Automation</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Searching for products</td>
<td>19</td>
<td>21.6</td>
</tr>
<tr>
<td>Reading news</td>
<td>37</td>
<td>42.0</td>
</tr>
<tr>
<td>Socializing</td>
<td>49</td>
<td>55.7</td>
</tr>
<tr>
<td>Calling</td>
<td>76</td>
<td>86.4</td>
</tr>
</tbody>
</table>
4.4.1.3 Performance Expectancy contribution to objective one

In addition, the Performance Expectancy (PE) as independent variable also made a contribution to objective number one. This was analyzed through a Likert scale statements, by requiring the respondent to indicate how each statement make a contribute in providing business benefits and opportunities in their businesses.

All statements from Performance Expectancy were responded by using strongly agree from all respondents. The highest rank of statement response by frequency was 62 with 70.5 percent and the lowest statement rank was 40 percent out of all respondents. The idea of using ICT tools and applications on business within clusters was highly supported by huge number of respondent as they all wanted to be update with the technology and simplify business doing.

Table 4.8 Performance Expectancy contribution (N=88)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Independent variables in (PE)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Using ICT for business process reengineering within cluster environment would enable me to accomplish tasks more quickly</td>
<td>62</td>
<td>70.5</td>
</tr>
<tr>
<td>2.</td>
<td>Using ICT within cluster environment would make it easier to do my job</td>
<td>48</td>
<td>54.5</td>
</tr>
<tr>
<td>3.</td>
<td>Using ICT tools and Applications increases my productivity</td>
<td>44</td>
<td>50.0</td>
</tr>
<tr>
<td>4.</td>
<td>Using ICT can significantly increase the quality of output on my business</td>
<td>45</td>
<td>51.1</td>
</tr>
<tr>
<td>5.</td>
<td>Using ICT would enhance my effectiveness of business I am doing</td>
<td>47</td>
<td>53.4</td>
</tr>
</tbody>
</table>
Another area of concentration was to understand the employment status for cluster members. This sought to realize if the income could contribute or support in the increase of business benefit and opportunities among cluster members. In table 4.9 the results show the employment status while table 4.10 shows monthly income of cluster members. It was noted that 68.2 percent were self-employed, 19.3 percent were employed and only 12.5 percent were not employed. About 31 respondents were earning between Tsh 400,001 and 1,500,000 and 5 respondents were earning less than Ths 50,000. Results from interview showed that, SMEs with high income seemed to be able to use ICT in manipulating their tasks and activities in order to get higher profit at a reduced time. Also those with high income they can be able to import raw material from outside compared to those with less income.

Table 4.9 Employment status for cluster Members (N=88)

<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>17</td>
<td>19.3</td>
</tr>
<tr>
<td>Not employed</td>
<td>11</td>
<td>12.5</td>
</tr>
<tr>
<td>Self-employment</td>
<td>60</td>
<td>68.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>88</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 4.10 Income per month in TSH (N=88)

<table>
<thead>
<tr>
<th>Income in (Tsh)</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50,000</td>
<td>5</td>
<td>5.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Between 50,001 - 200,000</td>
<td>17</td>
<td>19.3</td>
<td>25.0</td>
</tr>
<tr>
<td>Between 200,001 - 400,000</td>
<td>28</td>
<td>31.8</td>
<td>56.8</td>
</tr>
<tr>
<td>Between 400,001 - 1,500,000</td>
<td>31</td>
<td>35.2</td>
<td>92.0</td>
</tr>
<tr>
<td>Above 1,500,000</td>
<td>7</td>
<td>8.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>88</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

4.4.2 Assessment of the level of awareness on the use of ICT.

The objective required to assess the level of awareness on use of ICT in promoting business and its impact of development to SMEs Clusters.

With regards to this study, independent variables which are Effort Expectancy (EE), Social Influence (SI) and Awareness (AW) postulated to effect on impetus to ICT usage and Utilization which is dependent variable is a dependent variable

In table 4.11 the results show that out of 88 respondents 77.3 percent uses ICT tools and applications while 22.7 percent of the respondents said they neither use ICT tool nor applications. Based on this study, respondents were aware of ICT tools and applications though they do not practice it into their business processes reengineering activity purposes.
Table 4. 11 ICT usage awareness (N=88)

<table>
<thead>
<tr>
<th>Awareness of ICT Usage</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Cumulative Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who said YES</td>
<td>68</td>
<td>77.3</td>
<td>77.3</td>
</tr>
<tr>
<td>Who said NO</td>
<td>20</td>
<td>22.7</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

To achieve a detailed information on the awareness of using ICT, the researcher also posed six questions about the effort of using ICT tools and applications. Those questions were under Effort Expectancy as an independent variable. Table 4.12 shows clearly the contribution of effort awareness of ICT by SMEs clusters. The research revealed that out of 88 respondents, 40.9 percent responded that they can be able to grasp knowledge of using ICT tools and applications to support their business activities. This implies that although currently clusters are not practicing ICT to their business, but they can be able to learn if at all knowledge of ICT is provided to them. This will provide a great chance of expanding their business and change the way they are running their clusters for business resolutions. While 18 percent where neutral on the question posed to them about acquiring ICT tools to be used to their activities.
Table 4. 12 Contribution of effort expectancy to the awareness of ICT from SMEs clusters (N=88)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F %</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>1.</td>
<td>Learning on how to use ICT tools and applications is easy for me</td>
<td>21 23.9</td>
<td>36</td>
<td>40.9</td>
<td>22 25.0</td>
<td>9 10.2</td>
</tr>
<tr>
<td>2.</td>
<td>My interaction with ICT tools and applications is clear and understandable</td>
<td>17 19.3</td>
<td>29</td>
<td>33.0</td>
<td>32 36.4</td>
<td>9 10.2</td>
</tr>
<tr>
<td>3.</td>
<td>I find ICT tools and applications easy to use</td>
<td>15 17</td>
<td>33</td>
<td>37.5</td>
<td>27 30.7</td>
<td>12 13.6</td>
</tr>
<tr>
<td>4.</td>
<td>It is easy for me to become skilful at using ICT tools and applications.</td>
<td>24 27.3</td>
<td>29</td>
<td>33.0</td>
<td>29 33.0</td>
<td>5 5.7</td>
</tr>
<tr>
<td>5.</td>
<td>It is easy to get/find ICT tool and do what I want to do</td>
<td>21 23.9</td>
<td>25</td>
<td>28.4</td>
<td>23 26.1</td>
<td>18 20.5</td>
</tr>
<tr>
<td>6.</td>
<td>I find ICT tools to be flexible to interact with</td>
<td>18 20.5</td>
<td>19</td>
<td>21.6</td>
<td>32 36.4</td>
<td>17 19.3</td>
</tr>
</tbody>
</table>

KEY: F= Frequency and % represent percentage

Also the study required to find out if social influence among SMEs clusters members if it creates awareness on using ICT in promoting their business. Another variable (social influence) as an independent variable was posed to them with some questions. Table 4.13 shows the response to ICT awareness using social influence, out of 88 respondents 40.9 percent they were aware that using ICT in business is important and it builds high profiles to them and people from outside the cluster encourage them to use ICT too.

This indicates that by expending social influence from outside of the clusters, respondents were able to show the awareness on how they are being pushed to use ICT in their business.
Table 4. 13 Response of ICT usage awareness using social influence (N=88)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Statement</th>
<th>Strongly Agree F</th>
<th>Strongly Agree %</th>
<th>Agree F</th>
<th>Agree %</th>
<th>Neutral F</th>
<th>Neutral %</th>
<th>Disagree F</th>
<th>Disagree %</th>
<th>Strongly Disagree F</th>
<th>Strongly Disagree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>People who influence my behaviour think that I should use ICT in my business</td>
<td>34</td>
<td>38.6</td>
<td>36</td>
<td>40.9</td>
<td>15</td>
<td>17.0</td>
<td>2</td>
<td>2.3</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>2.</td>
<td>People who are important to me think that I should use ICT in my daily activities within cluster</td>
<td>36</td>
<td>40.9</td>
<td>32</td>
<td>36.4</td>
<td>16</td>
<td>18.2</td>
<td>3</td>
<td>3.4</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>3.</td>
<td>People whose opinions that I value prefer that I use ICT</td>
<td>33</td>
<td>37.5</td>
<td>33</td>
<td>37.5</td>
<td>20</td>
<td>22.7</td>
<td>1</td>
<td>1.1</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>4.</td>
<td>I use ICT because of the proportion of cluster members who use ICT too</td>
<td>13</td>
<td>14.8</td>
<td>29</td>
<td>32.9</td>
<td>20</td>
<td>22.7</td>
<td>14</td>
<td>15.9</td>
<td>12</td>
<td>13.6</td>
</tr>
<tr>
<td>5.</td>
<td>The senior management within the clusters has been helpful in the use of ICT</td>
<td>18</td>
<td>20.5</td>
<td>28</td>
<td>31.8</td>
<td>25</td>
<td>28.4</td>
<td>16</td>
<td>18</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>6.</td>
<td>Cluster SMEs who use ICT for their business have high profile</td>
<td>25</td>
<td>28.4</td>
<td>36</td>
<td>40.9</td>
<td>20</td>
<td>22.7</td>
<td>7</td>
<td>8</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>7.</td>
<td>In general, the cluster has supported the use of ICT system</td>
<td>21</td>
<td>27.0</td>
<td>27</td>
<td>30.7</td>
<td>28</td>
<td>31.8</td>
<td>9</td>
<td>10.2</td>
<td>3</td>
<td>3.4</td>
</tr>
</tbody>
</table>

KEY: F= Frequency and % represent percentage

The last contribution aspect to this objective was obtained by using another independent variable as given from questionnaire which was Awareness. On table 4.14 the study also revealed that out of 88 respondents, 52.3 percent of respondents agreed to be aware that, some activities performed using ICT may be exposed outside to unintended person and 1.1 percent strongly disagreed that they were not aware if ICT can cause errors or incomplete jobs due to the connectivity problems or failure of a device. This denotes that SMEs clusters to some extent are aware to the effects of ICT in their business. Only the problem is that, they don’t practice ICT usage fully to their business.
### Table 4.14 SMES Cluster Awareness (AW) on ICT (N=88)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Statement</th>
<th>Strongly Agree F</th>
<th>Strongly Agree %</th>
<th>Agree F</th>
<th>Agree %</th>
<th>Neutral F</th>
<th>Neutral %</th>
<th>Disagree F</th>
<th>Disagree %</th>
<th>Strongly Disagree F</th>
<th>Strongly Disagree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I have the knowledge necessary to use ICT tools and Applications</td>
<td>9</td>
<td>10.2</td>
<td>27</td>
<td>30.7</td>
<td>28</td>
<td>31.8</td>
<td>21</td>
<td>23.9</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>2</td>
<td>I am aware of the various ICT activities likely to be exposed to unintended person outside</td>
<td>11</td>
<td>12.5</td>
<td>46</td>
<td>52.3</td>
<td>20</td>
<td>22.7</td>
<td>10</td>
<td>11.4</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>3</td>
<td>I have enough knowledge to recognise and respond to ICT activities on business process reengineering activities</td>
<td>14</td>
<td>15.9</td>
<td>24</td>
<td>27.3</td>
<td>26</td>
<td>29.5</td>
<td>20</td>
<td>22.7</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>I am aware that sometimes ICT in manipulating jobs or certain activities are not completed due to connectivity problems or failure of a device</td>
<td>17</td>
<td>19.3</td>
<td>42</td>
<td>47.7</td>
<td>23</td>
<td>26.1</td>
<td>5</td>
<td>5.7</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**KEY:** F = Frequency and % represent percentage

Challenges that hinder SMEs clusters into full utilization of ICT technologies were mentioned during the study. They included limited awareness on benefits from the ICT usage for business process re-engineering. Premkumar and Roberts (2010) commented that lack of awareness contains numerous factors, which include uncertainty of technology benefits, lack of guidance and unfamiliarity of technologies. Other factors mentioned by the respondents during interviews included high internet connectivity charges. During internet connection SMEs were charged high price compared to the bandwidth they were getting. This led them to have less downloads information especially when using mobile phones. Also limited knowledge of locating the target market and how to reach it; lack of funds to establish their own websites and lack a centralized cluster database to display and locate their products internal as well as external accessibility; lack of government
portal where SMEs clusters can post their products with description freely and being accessed free of charge.

4.4.3 Efficiency and effectiveness of the use of ICT tools in SMEs cluster for promoting their business.

With this objective, three independent variables were selected to find out and give the determination of the efficiency and effectiveness to use of ICT tools. The study sought to find out how independent variables i.e Facilitating condition, Performance Expectancy, User behavior and Behavioral intention gives out the effectiveness and efficiency of ICT tools usage in clusters. The answers were rated from five-point Likert scale accordingly, the responses with statements were into five into sets, strongly agree, agree, neutral, disagree and strongly disagree. From table 4.15 the study revealed that out of 88 respondents 51.1 percent agreed that using ICT and applications fits well with the way clusters like to operate business. This implies that using ICT facilitation tools in their business can increase the efficiency and effectiveness of their activities hence attain high production and markets. On the other hand, 31.8 percent of the respondents agreed that they have the resources necessary to use ICT tools and applications.

The five Likert scale statements results from Performance expectancy guided this study to measure the efficiency and effectiveness of ICT usage among SMEs clusters. About 53.4 percent of respondents agreed and believed that using ICT enhances the effectiveness of business they are doing. (see table 4.8).
The combination of independent variables User behaviour and Behaviour intention showed a great response in increasing the effectiveness and efficiency with the use of ICT for cluster activities.

**Table 4. 15 Facilitating condition on the efficiency and effectiveness of using ICT tools (N=88)**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>1.</td>
<td>I have a control over using ICT tools and application</td>
<td>13</td>
<td>14.8</td>
<td>26</td>
<td>29.5</td>
<td>22</td>
</tr>
<tr>
<td>2.</td>
<td>I have the resources necessary to use ICT tools and applications</td>
<td>8</td>
<td>9.1</td>
<td>28</td>
<td>31.8</td>
<td>26</td>
</tr>
<tr>
<td>3.</td>
<td>Given the resources, opportunities and knowledge it takes to use ICT tools and applications, it is easy for me to use ICT systems</td>
<td>18</td>
<td>20.5</td>
<td>31</td>
<td>35.2</td>
<td>32</td>
</tr>
<tr>
<td>4.</td>
<td>I think that using ICT and applications fits well with the way clusters like to operate business</td>
<td>21</td>
<td>23.5</td>
<td>45</td>
<td>51.1</td>
<td>19</td>
</tr>
<tr>
<td>5.</td>
<td>Guidance was available to me in selection of ICT tools and applications I am using</td>
<td>11</td>
<td>12.5</td>
<td>36</td>
<td>40.9</td>
<td>22</td>
</tr>
<tr>
<td>6.</td>
<td>A specific person (or group) is available for assistance with ICT tools and applications difficulties</td>
<td>12</td>
<td>13.6</td>
<td>27</td>
<td>30.7</td>
<td>27</td>
</tr>
</tbody>
</table>

**KEY:** F = Frequency and % represent percentage
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Summary of the Study

The study required to promote the usage of ICT in clusters for business process re-engineering within SIDO settings. The motive for conducting this study was due to the challenges clusters are facing on using various ICT tools and applications to their business activities. For instance, for promoting their products within the boundaries and outside the boundaries, acquiring raw materials at a reasonable price and performing business process re-engineering in general within their environment.

On examining the extent to which SMEs clusters promote the usage of ICT in their business process re-engineering within SIDO settings, the study found out that large number of respondents were using mobile phones for calling and texting. About 86.4 percent are using them for sending and receiving cash as this is the easiest way of transferring cash. Also mobile phones were used for sharing information among cluster members and their customers. This showed clearly some of the benefits of using mobile as one tool of ICT well known to SMEs clusters. The issue of using ICT in promoting their business is very low as almost a half of the information shared is not concerning business operation.

The level of awareness on the usage of Information and Communication Technology in promoting business and impact of the development of SMEs clusters were assessed using independent variables i.e. effort expectancy, social influence and awareness.
In comparisons awareness independent variable seemed to play a major role in influencing the SMEs clusters to use information and communication technology in promoting their business products.

The study found out that awareness seemed to be the major factor that influence ICT usage by SMEs clusters for about 52.3 percent followed by effort expectancy 40.9 percent and social influence 40.9 percent respectively. The efficiency and effectiveness on ICT tools usage by SMEs clusters to promote their business was about 51.1 percent. This means that SMEs are motivated with ICT usage but still they need to know how they can use it effectively to their business process re-engineering activities in order to promote their products.

From the interview results, some challenges they face including high cost of purchasing bandwidth to access and use internet. Although about 51.1 percent out of all respondents agreed that using ICT and applications fits well with the way clusters like to operate business, but still SMEs with low income and investment are not able to procure ICT tools and applications for their business. This poses the attainment of efficiency and useful effectiveness of ICT due to lack of facilitating tools. Mobile phones as a part of ICT tool can also be used as a way of reducing the challenge they usually complain about accessing various important information in their businesses that include promoting their products within their locality and outside the locality to gain markets.
5.1 Conclusions

Regarding to this research, it can be concluded that promoting ICT usage gives completely to SMES Clusters business recital despite their low rate of usage in some of the ICT tools and applications due to lack of ICT skills and knowledge. Involvement of information, sending messages, chatting and calling were among of the highest rate in the usage of mobile phones as one facility of ICT tool. This study has tried to articulate the importance of using ICT in the contributions to SMEs Clusters e.g. buying and selling of goods and raw materials online, keeping information and data using ICT tools, information sharing, promoting their products online not only that but also performing business process reengineering within cluster environment using ICT at a reduced time and cost.

SMEs Cluster is an avenue of national development of Tanzania in achieving the industrialization agenda (“Tanzania ya viwanda”). Therefore, supporting these SMEs Clusters to use ICT in order to operate business is very crucial for national industrial achievements. Stakeholders and government have also a role of intervening the industrial policy in order to support SMEs Clusters by providing enough knowledge on the usage of ICT to their environment. The study also demonstrated the role and benefits of the SMEs clustering.
5.2 **Recommendations for Manipulation**

Based on the study findings it is recommended that the following actions to be taken.

- It has been noted from the findings that, lack of ICT skills and applications in business activities to these clusters is a big problem. Therefore, SIDO as a supporting institution of SMEs Clusters within its settings should perform a very comprehensive ICT Training Needs Assessments (TNA) based on which technology tailor made curricula to support various categories within clusters. This will act as a catalyst of developing more and more SMEs cluster industries by using ICT in a simplified and beneficial aspects. Simple ICT tools or tailor made applications to be used by SMEs clusters should be designed to support their business activities. Application tools like online shopping and selling, ways of products promotions online i.e use of WhatsApp, financial records keeping, business automation tools should be taken into consideration when conducting ICT trainings and workshops for SMEs Clusters. Also guideline manuals on using ICT tools and applications should be prepared according to the nature of the cluster and business activities involved. Finally, ICT guideline manuals should be used as a replica to newly formed SMEs clusters within SIDO settings.

- Other stakeholders in ICT industries also should seek a way of intervening in order to provide ICT skills and knowledge to these SMEs Clusters in achieving business goals and objectives at low cost less time spent.
• To empower SMEs Cluster completely exploit the use of ICT, appropriate environment for its usage must be equipped. This is due to the fact that during the study, among of the challenges SMEs face are access for marketing their products. It is difficult to access market information because of less knowledge of using information and communication technology. The government and other stakeholders have to prepare a database of information which is suitable for marketing their products. The database should have enough information i.e buyers, sellers and markets of products for local and international markets

• The study revealed that due to high cost of internet, ICT tools and application to be used in business activities SMEs fails to use and utilize ICT Technology; Therefore, the study recommends that government should impose ICT tools subside in national industrial policy for SMEs Clusters in order achieve maximum usage of ICT tools and application to their business activities. This will increase a number of ICT users to their business process reengineering. Due to the change of technology in the world the study recommends that SMEs to use modern technology especially information technology in patterning of doing business to increase their profit and wide range for their market coverage.
• Also poor ICT infrastructure was one of the dynamics that prevents the utilization of ICT itself due to the change of the technology. Therefore, this study also recommended that, government should establish enough and good ICT infrastructure to enable SMEs Clusters to invest much and use of information technology for their business process reengineering. Infrastructure is considered as a vital thing in enhancing cluster development and achievements in general.
REFERENCES


Boulos, M. N. K., Wheeler, S., Tavares, C., & Jones, R. (2011). How smartphones are changing the face of mobile and participatory healthcare: an overview, with example from eCAALYX. *Biomedical engineering online, 10*(1), 1.


Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003), "User acceptance of information technology: Toward a unified view"


APPENDIX 1

Research Questionnaire

Dear respondent my name is Datius Joseph, a Masters student at College of Business Education. I am conducting a research study titled “Promoting the usage of ICT in Clusters for business process re-engineering within SIDO settings in Morogoro, Tanzania”. Based on your experience you are requested to provide your views and information required on the questionnaire. All the information you provide will be treated confidentially and will be used for the purpose of this research

SECTION A: Demographic characteristics, Information Technology and Communication (ICT) experience and usage.

SECTION A: Respondent Information

Please fill in blanks and tick appropriately using [√] in the square brackets provided:

1. Cluster Name ………………………………
2. Age:
   o Less than 30 yrs
   o Between 31- 40 yrs
   o Between 41 -50 yrs
   o More than 50 yrs
3. Gender:   a. Female [ ]    b. Male [ ]
4. Marital status    Single [ ], Married [ ], Widow [ ], Separated [ ], Widower [ ]
5. Education level:
   Primary Education [ ], Secondary Education (form I-VI) [ ], College (Certificate and Diploma [ ], Non formal education [ ], University Education [ ],
Other(s) (Specify) ……………………
6. **Employment status:** Employed [ ], not employed [ ], self-employment [ ]

7. **What is your income per month in (Tanzania shillings)?**
   - Less than 50,000/- [ ]
   - between 50,001 – 200,000/- [ ]
   - between 200,001 – 400,000/- [ ]
   - between 400,001 – 1,500,000/- [ ]
   - above 1,500,001 [ ]

8. **Do you use ICT tools for your business process reengineering?**
   - Yes [ ], No [ ]
   
   .......If **YES**, continue with other questions and if **NO** skip to Section B

9. **What are the ICT tools and applications you are using? (please select all that apply)**
   - Desktop Computer [ ]
   - Laptop Computer [ ]
   - Mobile phone [ ]
   - Internet [ ]
   - Business automation applications [ ]
   - Social media (Facebook, WhatsApp. Etc) [ ]
   - Online shopping/buying and selling products Applications [ ]

10. **Which part of ICT you use mostly (please select all that apply)**
    - Selling products [ ]
    - for product promotions [ ]
    - storing information [ ]
    - searching for services [ ]
    - paying for services [ ]
    - business automation [ ]
    - searching for products [ ]
    - reading news [ ]
    - socializing [ ]

11. **Frequency of using ICT in your business**
    - Every day [ ]
    - several times a week [ ]
    - several times a month [ ]
    - once a month [ ]
    - once per year [ ]
    - Never [ ]
SECTION B: TO WHAT EXTENT DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS?

Please indicate your level of agreement with the following statements by putting a tick (√) in an appropriate box against each statement or survey items:

**Key:** All items use five-point Likert scale, with the following descriptions.

1=Strongly Agree; 2=Agree; 3=Neutral; 4=Disagree and 5=Strongly Disagree

| Performance Expectancy (PE) (adapted from Venkatesh et al. (2003)) |
|---|---|---|---|---|---|
| No | Statement                                                                 | 1 | 2 | 3 | 4 | 5 |
| PE1 | Using ICT for business process reengineering within cluster environment would enable me to accomplish tasks more quickly. |   |   |   |   |   |
| PE2 | Using ICT within cluster environment would make it easier to do my job |   |   |   |   |   |
| PE3 | Using ICT tools increases my productivity |   |   |   |   |   |
| PE4 | Using ICT can significantly increase the quality of output on my business |   |   |   |   |   |
| PE5 | Using ICT would enhance my effectiveness business I am doing |   |   |   |   |   |

| Effort Expectancy (EE) (adapted from Venkatesh et al. (2003)) |
|---|---|---|---|---|---|
| No | Statement                                                                 | 1 | 2 | 3 | 4 | 5 |
| EE1 | Learning on how to use ICT tools and applications is easy for me. |   |   |   |   |   |
| EE2 | My interaction with ICT tools and applications is clear and understandable |   |   |   |   |   |
| EE3 | I find ICT tools and applications easy to use. |   |   |   |   |   |
| EE4 | It is easy for me to become skillful at using the ICT tools and applications. |   |   |   |   |   |
| EE5 | It is easy to get/find ICT tool and do what I want it to do |   |   |   |   |   |
| EE6 | I find ICT tools to be flexible to interact with. |   |   |   |   |   |

| Social Influence (SI) (adapted from Venkatesh et al. (2003)) |
|---|---|---|---|---|---|
| No | Statement                                                                 | 1 | 2 | 3 | 4 | 5 |
| SI1 | People who influence my behavior think that I should use |   |   |   |   |   |
ICT in my business.

SI2 People who are important to me think that I should use ICT in my daily activities within the cluster

SI3 People whose opinions that I value prefer that I use ICT

SI4 I use ICT because of the proportion of cluster members who use Information Communication Technology too

SI5 The senior management within the clusters has been helpful in the use of ICT

SI6 Cluster SMEs who use ICT for their business have a high profile.

SI7 In general, the cluster has supported the use of ICT system

**Awareness (AW)**

1=Strongly Agree; 2=Agree; 3=Neutral; 4=Disagree and 5=Strongly Disagree

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW1</td>
<td>I have the knowledge necessary to use ICT tools and applications.</td>
</tr>
<tr>
<td>AW2</td>
<td>I am aware of the various ICT activities likely to be exposed to unintended persons outside</td>
</tr>
<tr>
<td>AW3</td>
<td>I have enough knowledge to recognize and respond to ICT activities on business process reengineering activities</td>
</tr>
<tr>
<td>AW4</td>
<td>I am aware that sometimes ICT in manipulating jobs or certain activities are not completed due to connectivity problems or failure of a device</td>
</tr>
</tbody>
</table>

**Facilitating Conditions (FC) (adapted from Venkatesh et al. (2003))**

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC1</td>
<td>I have control over using ICT tools and Applications.</td>
</tr>
<tr>
<td>FC2</td>
<td>I have the resources necessary to use ICT tools and Applications</td>
</tr>
<tr>
<td>FC3</td>
<td>Given the resources, opportunities and knowledge it takes to use ICT tools and Applications, it is easy for me to use the ICT systems.</td>
</tr>
<tr>
<td>FC4</td>
<td>I think that using the ICT and application fits well with the way clusters like to operate business</td>
</tr>
<tr>
<td>FC5</td>
<td>Guidance was available to me in the selection of the ICT tools and applications I am using</td>
</tr>
<tr>
<td>FC6</td>
<td>A specific person (or group) is available for assistance</td>
</tr>
</tbody>
</table>
with ICT tools and application difficulties.

**Behavioural Intention (BI) (adapted from Venkatesh et al. 2003; 2012)**

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>B11</td>
<td>I intend to continue using ICT technology in the future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B12</td>
<td>I will always try to use ICT services for business process reengineering in my daily life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B13</td>
<td>I plan to continue using ICT on business process reengineering within cluster frequently</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Use Behaviour (UB) (adapted from Venkatesh et al. 2003)**

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB1</td>
<td>I have used ICT tools and applications for cluster business issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UB2</td>
<td>I have used ICT tools and application in order to pay or buy for services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UB3</td>
<td>I have used ICT tools and applications for reading and general knowledge purposes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UB4</td>
<td>I have used ICT tools and applications for products promotions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General comments and recommendations.**

Please provide some recommended ways that can be used to promote ICT usage in order to foster business processes reengineering in cluster environments

i. ..............................................................................................................................

ii. .............................................................................................................................

**NB:** You may use extra paper sheet in order to accommodate your further views to share more addition concepts on this study.

Thank you for your cooperation
APPENDIX 2

INTERVIEW GUIDE

*Please feel free to share your ideas by answering to the following questions*

1. Do you have any ICT tool? What kind of ICT tool do you have?
2. What are you using it for?
3. How do you do your business process reengineering using ICT?
4. How do you perceive ICT tool usage in performing business process reengineering for your business within clusters?
5. What environment do you think can accelerate ICT usage in performing business processes reengineering with the cluster(s)?
6. What are other challenges that you are facing in ICT tools usage for business processes reengineering in cluster level?