



UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

**THE INFLUENCE OF ICT IMPLEMENTATION AND USE ON
SACCO INNOVATIVENESS, INNOVATIONS AND
PERFORMANCE**

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A research project report submitted to the School of Computing and Informatics in partial fulfilment of the requirements for award of Master of Science in Information Systems of the University of Nairobi .

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DECLARATION


This research is my original work and has not been presented for a degree in any other university.

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Finally, I wish to sincerely thank my immediate family and friends for their continuous understanding, support, and encouragement during this journey. You were instrumental in the successful completion of this study. Thank you for your unconditional love and support.

DEDICATION

I dedicate this study to the three ladies whose love and support has been limitless. My daughter Tamira Wanjiru Mumbi, my mother Ruth Wanjiru Gichuki and to my recently deceased aunt Sr. Eugenia Wamuyu Gitiche. You were always my greatest cheerleaders.

ABSTRACT

Background

The success and competitiveness of every SACCO is determined by its responsiveness to its evolving environment. Innovativeness is regarded as one of the significant drivers to SACCO economic growth and success, with the ability to innovate being considered one of the main competitive advantages for firms.

Problem

There is need for SACCOs to grasp and master the concepts of innovativeness and innovation in their environment. Existing studies have been derived from the first world countries, whose economy, infrastructure, and resources are vastly different from the African setting. Consequently, the resulting insights they provide are in most cases inapplicable to the East African context.

Purpose

This study aimed to establish how innovativeness takes place in SACCOs and the influence of ICT use on SACCO innovativeness, innovations, and performance. The study focused on Deposit Taking SACCOs in the Nairobi County and provides an explanatory journey into how innovations take place in SACCOs.

Methodology

The study adopted mixed method sequential explanatory approach; first collecting quantitative data using document analysis and questionnaires in a pre-study phase, and thereafter using a case study as the overarching qualitative data collection approach to complete the research.

Findings

The study reveals ICT use in SACCO operations significantly increases its capability for innovativeness.

Conclusion

The study reveals innovativeness process in Deposit Taking SACCOs in Nairobi.

Value

The study implies that SACCOs need to value the impact of ICT use on the innovation capability of their firms. It underscores the importance of the use of ICTs which significantly increased the capability to be innovative and achieve higher operational and financial performance.

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ACRONYMS AND ABBREVIATIONS

AFI	Alliance For Financial Inclusion.
AGM	Annual General Meeting
CBS	Core Banking System
CEO	Chief Executive Officer
CPAS	Comparative Performance Assessment Study
CVI	Content Validity Index
CVR	Content Validity Ratio
DTS	Deposit Taking Sacco
FOSA	Front Office Service Activities
HOD	Head Of Department
ICT	Information And Communication Technology. Used synonymous with IT or IS
ID	Identify
INT	Interview
IS	Information Systems
IT	Information Technology
KPI	Key Performance Indicator
LAN	Local Area Network
LTD	Limited
MFI	Micro Finance Institution
NACOSTI	The National Commission for Science, Technology & Innovation.
OECD	The Organisation for Economic Co-Operation and Development
PDMA	Product Development and Management Association
PM	Project Manager
RESP1	Respondent
SACCO	Savings and Credit Co-Operative
SASRA	Savings and Credit Co-Operative Societies Regulatory Authority
SME	Small and Mid-Size Enterprise
TV	Television
USSD	Unstructured Supplementary Service Data
WAN	Wide Area Network

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DEFINITION OF TERMS

Use of ICTs - Computer technology, encompassing software and hardware, as well as telecommunications tools such as voice networks, data and image.

ICT Enabled Innovation - New modes of creating and using new processes, products, services, and market innovations that has been made possible using ICT.

Intensity of ICT use - The ICT infrastructure that provides the SACCO environment to support innovativeness and to launch innovative ICT applications in SACCOs.

Frequency of ICT use - The number of times ICTs are used in SACCOs during the process of innovations. This covers the frequency of using all ICT tools, including communication tools, in the process of innovativeness and to implementation of innovations.

Proficiency of ICT use - This is the ability of SACCO team members to use appropriate ICT tools efficiently and effectively.

Innovativeness - The imagination and skill to create novel ways of doing things.

Innovation - Creative process through which new ideas, practices and items are developed.

Performance - Outcome of the combination of the firm strategy and capabilities to achieve their specific set goals, for example financial growth.

CHAPTER ONE

INTRODUCTION

1.1. Background

The SACCO sector has been crucial in providing of financial services to Kenyans, continuing to have a key role contributing to the country's savings, hence boosting social development and the economy in general. In its Vision 2020, the Kenya Government underscored the importance of the SACCO movement as a major contributor to financial success, reaching 13 per cent of the population. The government also recognizes ICT as a key foundation of the country's economic development (The National Treasury, 2013). The government noted that for companies to grow and continue to be successful, they need to be innovative. The Kenya Vision 2030 has singled out ICT as a key enabler that can accelerate innovations, development, and competitiveness in all sectors to create economic wealth.

SACCOs account for just 10% of assets of deposit-taking intermediaries — they provide financial services to over four million Kenyans and frequently offer services that cannot be found elsewhere (AFI, 2017). However, though the SACCO movement in Kenya has been reported as the best in Africa, there has been general growing apathy towards their products vis-à-vis competitive products that are being offered by well-established commercial banks. Banks and MFIs on the other hand have been encroaching on the SACCOs traditional market to the point of taking over some of the age-old cooperative ideals of banking the unbanked low income and informal sector population (Tsuma, et al., 2015).

This competitive environment underscores the need for SACCOs to be more adaptive and innovative in order to survive (Maorwe, 2012). The Societies Regulatory Authority (SASRA), states that “SACCOs must continuously innovate to be responsive to the market needs of members”, (The SACCO Societies Regulatory Authority (SASRA), 2019). SACCOs must utilise innovative approaches in their operations to attain proficiency by utilizing systems that assure their sustainability and growth (Mutuku, 2014). The race to maintain competitive dominance has

established innovation as an important enabling factor. (Porter, 1990, p. 579). SACCO's need to be innovative and more responsive to their customer base, while maintaining low operational costs.

1.2. Problem Statement

The need to be innovative in order to maintain competitiveness in the SACCO sector has become increasingly apparent. The sector needs to understand what enables innovativeness and the barriers that exist towards the creation of innovations. Few studies have attempted to assess how innovativeness in SACCOs take place and the influence of ICTs in enabling it. SACCOs need to have a systematic process of encouraging and managing their innovative process in a replicable manner that ultimately monitors the impact of their innovativeness over time. This study looks closely at how innovativeness takes place and the influence that implementation of ICTs has as a catalyst to innovativeness in SACCOs.

1.3. Research Questions

- How does innovativeness and innovations take place in SACCOs? What is the experience of SACCO staff engaged in innovation?
- What factors influence the ability to be innovative?
- What barriers exist that SACCO staff need to overcome to be innovative? How do they overcome these barriers?
- What benefits are derived from innovativeness?

1.4. Study Significance

This study purposes to discover the process that SACCOs undergo in order to be innovative, the influence of ICT tools in enabling innovativeness, and perceived impact on the SACCO's performance. It is envisaged that the study findings will be beneficial to the SACCO sector players who will be interested to establish how innovativeness takes place, how it is triggered, how to build and sustain innovative teams, and find out if technology truly contributes to innovativeness and competitive performance.

The study will also be able to provide insights into what is hindering SACCOs from taking innovations to the next level, identifying the factors that lead to the effective innovations that contribute to the growth of this important industry.

The study will also aid in the establishment of factors that determine innovativeness, which the Government may utilize as an aid to replicating these in other sectors and regions. Government policy makers, economy planners and regulators will be interested in the verification of the importance of ICT tools in facilitating innovativeness.

CHAPTER TWO

LITERATURE REVIEW

2.1. The Growth and Transformation of SACCOs

The formation of SACCOs plays a major role in how they innovate and how they do things. As such, understanding of the characteristics of SACCOs, their origin and how they were/are formed is crucial to the understanding of how innovativeness and innovations takes place within the SACCOs.

SACCOs in their initial formation were by a group of individuals who held a common interest, for instance through common employment contract, the SACCO services being almost exclusively financial in nature. SACCOs started off on self-help philosophy, relying on member contributions to manage their operational costs, and hence tend to keep costs as minimum as possible. Through their savings, members built up capital which they used to finance their economic development initiatives. Consequently, the membership factor is quite significant to SACCOs as it presents an opportunity to generate income, and thereby the economic viability of a SACCO.

Due to competitive pressure, the common grouping of SACCOs is changing as they seek new growth opportunities beyond their traditional common membership bond. For instance, a teachers SACCO is now open to employees of private organisations, business people and farmers while some formerly farmer based SACCOs are now open to service the entire community of economically active individuals.

Similarly, the quest for competitiveness has led to rebranding and change of business names with many SACCOs changing their names over the years. For instance, formerly Kiambu Tea Growers Society Limited was rebranded to Tai SACCO Society Limited in 2009 (TAI Sacco Limited, 2020).

2.2. Characteristics of innovative SACCOs

SASRA's annual reports have categorised SACCOs based on performance, yearly espousing the need for SACCOs to be innovative. SASRA in its SACCO Supervision Annual Reports,

provides the following matrixes to determine the performance of deposit and non-deposit taking SACCOs; total membership, total assets, total member deposits, loans and advances, total capital, and turnover or profits (The SACCO Supervision Annual Report 2010-2019)

Other factors that have been used to distinguish innovative SACCOs have been; intensity of ICT usage, enhanced systematic accountability and compliance, large branch network, rebranding and name change, opening up common bond membership, entry into new markets, having multiple products, having introduced various banking channels, early adopters of services, products, processes, and technology, and the diversification of board members and managers or hiring of external expert advisers.

2.3. Technology Adoption in SACCOs

Given their historical origin as self-help groups formed by people of common interest to assist its members, SACCOs have been associated with traditional ways of operations, and this practice is hindering them from taking advantage of information communication technology to serve their customers effectively. However, SACCOs that have embraced innovations and kept abreast of contemporary technology have attained a competitive edge (Wasonga, 2019). This underpins the fact that ICT driven innovation adoption will aid SACCOs' competitiveness by enabling them to offer value proportion by enhancing their viability in the face of fierce competition in the financial industry.

SACCOs are under pressure to perform better, cheaper and faster if they are to remain competitive. The usage of ICT is enabling the sector to evolve and adapt to the new way of doing business.

Information Systems studies have demonstrated that ICT heightens innovation by increasing a firm's strategic agility, providing more options for competitive actions (Sambamurthy, et al., 2003).

This indicates that to enable the creation of innovative business opportunities, it is important to have complimentary factors in place. Business opportunities are enabled by the use of ICTs which combined with entrepreneurs' ideas and action lead to innovations, (Yunis, et al., 2018).

2.4. ICTs Usage Impact on Innovations and Performance

Several studies have been done to verify the influence of the use of ICTs in the financial sector on innovations, competitiveness, and enhanced performance. Wachira, Muturi and Sirma (2014)

undertook one such a study to gauge the apparent effect of information technology tools on the performance of SACCOs in Nairobi County. On the question of the impact of the ICT infrastructure on SACCO operations, respondents were unanimous in their agreement that “The existing infrastructure helped to cultivate new markets and gave a competitive edge, (Wachira, et al., 2014). This study is important as it indicated a positive relationship between usage of ICTs to bring about innovativeness as the SACCOs were able to cultivate new markets. The study however leaves some gaps as it did not go further into a study of how ICTs influence innovations.

Neirotti and Pesce (2018) conducted a study that sought to analyse the vital role of ICTs in innovation and its role in determining a competitive outcome. They looked at the determinants of ICT investments in firms, related activities around innovation and the related effect on the industrial and competitive dynamics. The study found out that abundant resources and higher ICT spending were interrelated factors, demonstrating that the interaction between ICT spending and growth are positive and significant (Neirotti & Pesce, 2018). This research focused on all industries in Italy, of which Italy is a more economically developed country than Kenya. As such, some parts of the research approach and findings may not be relevant to our economy.

Schubert, Fisher and Leimstoll (2007) undertook a study seeking to understand innovations in small businesses in relation to intensity of ICT investment and usage. The study found that most of the businesses used ICT to support innovation and perceived themselves to be innovative. The study also found a strong link between companies that invested in ICT and how they utilised those tools with the level of innovativeness. The study further determined that the size of the company did not impact its ability to be innovative. Small firms could be just as innovative as large firms (Schubert, et al., 2007). Though this study sought to review small companies, it still represents a gap in relation to our environment. Switzerland is a highly developed country where the factors that support innovation are readily available hence not requiring additional investments in companies. The Swiss study also looked at all companies, which differs from the focus of this study which is SACCOs in Nairobi County. As such, while the report provides a good model of study, factors determining innovativeness differ from the Kenyan setting significantly, hence providing a gap for further studies.

In 2007, The Information for Development Program had a study done in several countries on ICT, innovations, and related economic growth in selected transition economies in Europe, (infoDev, 2007). The study indicated an increase in productivity caused by a combination of factors, of which ICT usage was one of them. The study further revealed that of all the firms reporting productivity increases, 13 percent attributed this to ICT, with an additional 47 percent attributing it to ICT in combination with other factors. While interesting, the infoDev study leaves a gap as it focused on a different region that is significantly more developed than Kenya. A similar study focusing on SACCOs would be beneficial in verifying these relationships in SACCOs.

Macharia and Tirimba (2018) investigated how financial performance was impacted by product innovation factors in deposit taking SACCOs. The study established a significant relationship between financial performance and product range, location and cost for SACCOs in Nairobi City County (Macharia & Tirimba, 2018). Similar study by Mburu (2016) seeking to establish a link between innovation strategies and competitive advantage in the logistics firms found that competitiveness was positively influenced by product innovation strategy (Mburu, 2016). Kiveu, Namusonge and Muathe (2019) investigated the effect of innovation on firm competitiveness for SMEs in Nairobi County. They established that marketing, process based innovations and organisational innovations had positive influence on competitiveness (Kiveu, et al., 2019).

While these studies are important in indicating the positive relationship between innovations and firm performance they leave a gap as they do not go further to review the influence of ICTs on innovation nor to establish the innovative process itself.

Based on the literature reviewed, a clear picture emerges on indicators used to indicate innovativeness and enhanced firm performance, these being; number of innovations introduced in products, services, market, processes or organisational changes; product range; increase in turnover/profits, sales, market share, operational costs; increase in memberships, branch network; intensity of ICT usage, increased investment in ICTs. These factors will be key in analysing and ranking innovative and high performance SACCOs.

2.1. Types of Innovations

Rogers (2003) defined innovation as “an idea, practice, or object that is perceived as new to an individual or another unit of adoption.” Innovation has been further defined as firm activities

needed to introduce new products, processes, or business systems, (Knowles, et al., 2008). Gibbons et al., (1994) opined that at a firm level, innovation can be defined as the application of ideas that are new to the firm (Gibbons, et al., 1994); and (OECD, 2005).

Michael Porter (1990) defined innovation as “a new way of doing things that is commercialised”. He defines innovation in its broadest strategic sense to include new methods or ways of doing things as well as new technologies (Porter, 1990). This definition indicates that an innovation is more than just an idea. To become an innovation, an idea has to deliver value and be adopted. Cobbenhagen (2000) averred that innovation does not automatically mean financial returns, but merely refers to new services or products. To gain financial competitiveness out of innovations, a firm must have “innovation success” (Cobbenhagen, 2000). In Schumpeter’s (1934) view, an innovation could be incremental or radical and may include a new product or the enhancement of an existing one, the usage of new methods of production (process, supply, materials), opening new markets as well as changes in a company structure (Schumpeter, 1934); (Teece, 2010); and (Cozzens, et al., 2010).

Based on the synthesis of the literature reviewed, the general definition of innovation types was summarised for this study as below:

Innovation	Description	Researcher
Processes, Goods or services, new organizational method, and new marketing method.	Implementing new or enhanced products (or services), new organizational or marketing methods or processes.	Oslo Manual 2005, 2018
Business Model Innovation	This is the way a firm produces, delivers, and captures value for its customers, suppliers, and partners, be it through new revenue streams or new supply chains.	Teece, D.J. (2010)
New products, processes, business systems.	The launch of new business systems, processes, or products as a result of adopting new work, business systems, process, or product methods.	Knowles, Hansen, and Dibrell, 2008
New mode of operations, commercialisation, new technologies	A new way of operating that is commercialised. Including new methods or ways of doing things as well as new technologies.	Porter, 1990.

New or modified products, new methods of production, new market, new raw materials, industry structure	Introduction of new or modified: products, processes, markets, organisational structure and/or supply chain.	Schumpeter, 1934
Incremental and Radical innovation	Incremental innovation is based on existing knowledge base, tools, processes, and technological paradigms and is continuous, with low uncertainty. Radical Innovation results from the exploration of new technologies, is sporadic with high uncertainty. It transforms existing markets to create new ones.	Cozzens et al. (2010)

Table 1: Summary of Innovation Types

From the literature, we can conclude that successful innovations come from a series of operational activities such as knowledge management, marketing, technology, and organizational way of doing things that lead to value adding innovations. Ultimately, innovation takes place when a firm combines its skills with the requirements of its customers or market. Innovations vary widely, in nature, size, trigger, degree of novelty and timing.

2.2. Innovation models

The measuring of innovation has been development over the years based on various metrics from 1950s up until the 2000s, divided into seven generations.

Innovation Models Evolution from a Historical Perspective

Generation	Period	Author(s)	Innovation model	Essence of the model
1	1950s – late 1960s		Technology push	Linear process
2	Late 1960s – first half of 1970s	Myers and Marquis, 1969	Market (Need) pull	R&D on customer wishes
3	Second half 1970s – end 1980s	Mowery and Rosenberg, 1979 Rothwell and Zegveld, 1985	Coupling model Interactive model	Interaction of different functions Interaction with research institutions and market
4	End of 1980s – early 1990s	Kline and Rosenberg, 1986	Integrated model	Simultaneous process with feedback loops; "chain-linked" Model
5	1990s	Rothwell, 1992	Networking-model	System integration and networks (SIN)
6	2000s	Chesbrough, 2003	Open innovation	Innovation collaboration and multiple exploitation paths
7 (emerging, not formed yet)	2010		Open innovator	Focus on the individual and framework conditions under which to become innovative

Source: Kotsemir, Meissner, 2013

Table 2: Innovation Models

Researchers have tended to agree on the need for a holistic approach when organisations study the various aspects of innovation. Researchers agree that the interrelatedness of the innovation process and its related environmental variables should be recognised. (Tang, 1998) developed an innovation model to integrate the large amount of research studies on innovation where he proposed a model based on six aspects of innovation which he further linked the factors to key concepts of innovation as listed in the table below.

FACTORS AND CONCEPTS FOR MODEL OF INNOVATION

Factor	Concept
Information and Communication	Flow of information and technology, use of information technology, information as a source of knowledge and stimulus for innovation.
Behavior and Integration	Behavior traits, creative behaviors, motivation to innovate, team roles, cross-functional integration.
Knowledge and Skills	Creativity, intelligence, insights, bisociation, domain-related knowledge and skills, tacit and explicit knowledge, knowledge creation, learning and training.
Project Raising and Doing	Opportunity and problem finding, problem solving, product and process development stages, uncertainty reduction.
Guidance and Support	Organization's mission, task, structure, strategy, resources, operation systems. Shared values, leadership style.
External Environment	Economic rules and innovation, national innovation system, industry structure, culture.

Source: Tang (1998)

Table 3: Model of Innovation - Factors and Concepts

(Morel & Boly, 2004) presented a description of thirteen attributes of innovating processes. These attributes of innovating processes were provided as; Design Task, Project Follow-up, Integrating the strategic dimension, Portfolio strategy management, Conducive work context/organisation, Management of innovation process, Capabilities allocation, empowerment, training, Moral

support, Capitalisation of knowledge, Surveys of the macro-environment, Networking, Collective learning, and the Collecting ideas from R&D, marketing, staff.

(Corona, 2005) on the other hand provided 6 dimensions of innovation listing creativity, new product design, human resources management, strategy, project management and knowledge management (Enjolras, et al., 2016).

Similarly, Hogan and Coote (2014) also listed factors that motivate innovative behaviour, among them internal communication, competence, and flexibility (Hogan & Coote, 2014). A full comparison of the attributes and factors forwarded by these scholars is as below.

SUMMARY OF ATTRIBUTES AND FACTORS THAT SUPPORT INNOVATION

Tang (1998)	Morel and Boly (2004)	Corona (2005)	Hogan and Coote (2014)
Information and Communication	Design Task	Creativity	Success
Behaviour and Integration	Project Follow-up	New product design	Openness & Flexibility
Knowledge and Skills	Integrating the strategic dimension	Human resources management	Internal communication
Project Managing	Portfolio strategy management	Strategy	Competence and professionalism,
Guidance and support	Conducive work context/organisation	Project management	Inter-functional cooperation
External Environment	Management of innovation process	Knowledge management	Responsibility of employees
	Capabilities allocation, empowerment, training		Appreciation of employees
	Moral support		Risk-taking
	Capitalisation of knowledge		
	Surveys of the macro-environment		
	Networking		
	Collective learning		
	Collecting ideas from R&D, marketing, staff		

Table 4: Summary of Attributes and Factors that Support Innovation

The models above each offer useful insights and explanations as to the factors that support the innovation process. Morel and Boly (2004) provide an approach that leans more towards the management of the process as a project, and its subsequent follow up. Hogan and Coote (2014) on the other hand lay emphasis on the culture of the firm in supporting innovativeness, noting the importance of environmental cultural aspects such as openness, co-operation and appreciation in supporting the innovative process. Corona (2005) brought in the aspect of creativity in the innovative process. Tang (1998), Morel and Boly (2004) and Corona (2005) are in agreement on the need to have a means to manage knowledge as well as the innovation process. All agree on the importance of internal communication and knowledge management in successful support of innovations in firms.

A major limitation is that these studies were undertaken in developed countries with ready access to project and knowledge management tools. The same may not be applicable to SACCOs in Kenya due to financial restrictions. Moreover, the level of risk-taking, openness and flexibility mentioned by Hogan and Coote (2014) may not be possible in SACCO settings which are member controlled, with strict governing guidelines and are largely risk averse.

2.1. Drivers and Barriers to innovativeness and innovation

Studies have indicated barriers to innovation for SMEs as being connected to costs, human resources, organizational culture, institutional limitations, slow or lack of information flow, high cost of innovation, lack of financial resource and related high financial risk, lack of skilled personnel, lack of knowledge about technology, poor customer responsiveness, conservative and bureaucratic approach and government regulations and policies (Lim and Shyamala 2007; Mohen and Roller 2005; Silva et al., 2007; and Baldwin and Lin, 2002); cited by (Mugogo & Salau Midala, 2020). Similarly, barriers to innovation as identified by SMEs in OECD countries were lack of financial resources, skilled resources, regulations and the technical infrastructure (OECD, 2005).

Researchers have found various organisational drivers to innovativeness and innovations in firms. Wachira, Muturi and Sirma, 2014 stated that Information and Communication Technologies (ICT) have become major drivers of innovation, growth and social change. Likewise, ICT skills and knowledge by staff were found to increase the level of innovativeness and adoption. Other factors noted were the increased competition between SACCOs, led by increased member awareness of offers available in other SACCOs and ease of switching SACCOs, meaning loss of business.

Besides finding ICTs as a major driver of change Chepkwei, 2019 also found that factors such as political, economic, social, technological, environmental, and legal trends impact and ultimately drive change in organisations (Chepkwei, 2019). Musya, 2009 in his research noted that drivers of innovation in SACCOs were mainly the top managers, indicating that innovations in SACCOs were mainly the work of the top managers in organisations. The research further noted the crucial role of top management in overcoming all innovation barriers (Musya, 2009).

Several scholars observed that larger organizations have greater capacity to innovate because of their better resources and greater need to sustain and improve performance (Ben Youssef, et al., 2011) and (Njau, et al., 2015). This further indicates that the availability of financial resources is an enabler to innovation.

Much of the literature points out the main barriers to innovation as high costs, lack of financial resources, lack of skilled personnel, lack of technology, lack of communication and the organisational culture. On the other hand, literature agree that having financial resources coupled with a supportive environment significantly aids in innovativeness impacting aspects of skills and technology that drive change in organisations.

These insights will be crucial in identification of drivers and barriers in the course of this study.

2.2. Synthesis of innovativeness

In Rogers and Shoemaker (1971 p. 27) view, innovativeness is the extent to which a person or entity is earlier at adopting an innovation in comparison to members of their system, (Rogers & Shoemaker, 1971). Midgley and Dowling (1978) further opine earlier to mean the actual time of adoption or early adopters. They further equate innovativeness with the level at which individuals make decisions independent of what others have experienced and communicated (Midgley & Dowling, 1978).

Lumpkin and Dess's (1996) included both product as well as behavioural aspects in their understanding of innovativeness bringing in the aspect of entrepreneurial orientation, averring that entrepreneurial orientation (EO) consists of five main factors: innovativeness, risk-taking attitude, autonomy, proactiveness and competitive aggression (Lumpkin & Dess, 1996).

Miller's (1983) viewed an entrepreneurial firm as one that participates in risky product and market innovation, often beating its competitors by coming out first with "proactive" innovations (Miller,

1983). According to Wang and Ahmed (2004), innovativeness is a firm’s capability to introduce new products to the market through its strategic and innovative process. An innovative firm tends to consistently participate in and support exploratory ideas that may results in new services, processes or products, (Wang & Ahmed, 2004). Other researchers have averred that entrepreneurial orientation is a combination of innovativeness, proactiveness and risk taking (Wiklund & Shepherd, 2005).

Kamaruddeen et al., 2010 defined innovativeness as the tendency to adopt innovative methods in undertaking daily business for not only profit making but for as well as customer satisfaction and sustainable environmental mindfulness. Innovativeness is reflected in a firm’s propensity to participate in and back new exploratory and experimental ideas, a creative process that results in new processes, products, or services (Kamaruddeen, et al., 2010) .

Factors Indicating Innovativeness

	Earlier Adoption of innovation relative time of adoption	Adoption of new: methods, process, systems new to the firm	Behaviour related; support new ideas, experimentation	Behaviour related: proactiveness and risk taking	Competitive aggressiveness, entrepreneurial orientation, economic exploitation	Autonomy
Rogers and Shoemaker (1971)	X	X				
Midgley and Dowling (1978)	X	X				X
Miller’s (1983)				X	X	
Lumpkin and Dess (1996)		X	X	X	X	X
Wang and Ahmed (2004)		X	X			
Wiklund and Shepherd 2005			X	X	X	
Kamaruddeen et al., 2010		X	X			
Yunis, Tarhini and Kassar (2018)					X	
Schumpeter (1934)		X	X		X	

Table 5: Synthesis of Innovativeness

Source: own development.

All scholars agree that innovativeness is the adoption of new methods, processes, or systems. Rogers and Shoemaker (1971) and Midgley and Dowling (1978) take this further and note that

innovativeness is indicated by being an early adopter relative to others. Most scholars agree upon the importance of certain behaviour such as proactiveness and support of new ideas in encouraging innovativeness. Based on the synthesis of the literature reviewed, it is expected that traits of innovativeness will be indicated in the culture of the organisation by their extent of perceived risk taking, proactiveness, experimentation besides the adoption of new methods. However, in the contextual case of SACCOs, new methods may not necessarily be novel ideas, but more of introduction of new processes at a SACCO , that may not be new to the sector, but new to the SACCO.

2.3. Innovation Process

Schumpeter (1934) argued that innovative entrepreneurs generate new profitable opportunities for their organisations of which these end up becoming new methods, products or services which competitors eventually imitate as well for financial gain. Any organization that seeks profits must innovate.

While many organisations encourage innovation, a specific process of innovation that identifies their strengths and weakness around innovation is largely lacking (Dobni, 2006). A study undertaken in United States and Europe of more than 30 companies found that firms commonly did not have a formalised process to manage the innovation process, relying mostly on luck to attain successful innovations (Desouza et al., 2009). Consequently, many organisations end up wasting many innovative ideas due to lack of a process to manage, stimulate and nurture the innovative process. Desouza et al., further opined that the existence of a formally defined innovation process is the first sign of a successful innovation program in an organization (Desouza, et al., 2009).

Midgley and Dowling (1978) opined that the path to innovation is largely dependent on the prevailing existing environmental conditions which are random. They state that for many people to accept an idea, they need to discuss the idea with another individual, this other individual is willing to transmit favourable information on the idea (based on their knowledge of the idea), the recipient of the information is receptive based on the message content, persuasiveness and credibility of the transmitting individual, and that the recipient is in a position to purchase or follow the receipt of the favourable information. In other words, interpersonal information and

persuasiveness is key for the idea to be adopted as well as having been made aware of and become interested in the innovation previously.

Consequently, the process of innovation has been defined as having five stages; idea generation and mobilization, advocacy and screening, experimentation, commercialisation followed by diffusion and implementation (Desouza et al., 2009).

During the initial phase, ideas are generated. An idea could be totally new or come on the back of an enhancement to an existing idea. Once generated, this is mobilised by moving it to a different department or location for onward discussion/formation. Advocacy and screening aids in verifying if the idea is worth to be implemented as not. During this stage if an idea is considered to have some bright prospects, further consultations and deliberations are held, helping to refine and enhance the idea. Innovation: Management, Policy & Practice Volumes 6 and 7, (2003) notes how this phase handles and prepares to pitch the idea to the firm leadership. The firm leadership could accept the idea as is or request for a differing strategic approach. Sometimes the idea originator may not have the expertise to promote their ideas, in such cases, senior supervisors working with the idea originator can champion, support, and endorse the idea originator, (Innovation: Management, Policy & Practice, 2003).

A pilot test or prototype may be used in the experimentation phase to tests the idea for feasibility timing and appropriateness for a firm. Ideas once tested can be adopted for onward development or set aside if found to beyond the firm's capacity or too futuristic and ahead of its time. Experimentation can sometimes lead to new ideas and can be an iterative process with changes taking place in the idea formation as tests and results are gathered. Time is essential in this stage to allow for the full experimentation take its course (Innovation: Management, Policy & Practice Volumes 6 and 7, 2003).

Commercialisation stage comes next and focuses on an idea's potential impact and its market value. Focus moves from development to persuasion, how to make it appealing to its target audience. In this stage, specifications of the idea are clarified to ensure that actual benefits are perceived and communicated. Once clarified and refined, the idea is ready for the next phase of distribution and execution into the "live" scenario.

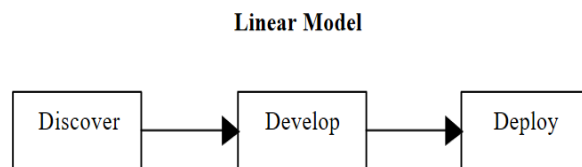
The distribution and execution process is aided along by subject matter experts who have knowledge of the content/application where an idea best fits. For an innovation to be successful, the idea must be used on implementation. At this point, requisite go to market strategy, strong champion or promotor support as well as a conducive supportive culture will aid in its success.

As the idea is implemented, feedback is received and monitoring and evaluation kicks in to measure level of success facilitating the process of rekindling the innovation process once again (Desouza et al., 2009).

The Innovation Process

Previously, innovation was viewed linearly starting from research, and progressing to development, prototyping pilot production, market entry and out eventually to new products and processes rollout. Services were largely absent, focused on products and related production systems.

Figure 1: Linear and Stage Models



(Source: Padmore, T., Schuetze, H. & Gibson, H. 1998, 'Modeling Systems of Innovation: An Enterprise-centred View', *Research Policy*, vol. 26, no. 6, pp. 607)

Figure 1: Linear and Stage Models

Incorporating a feedback loop which provide ongoing information on innovation performance, stage models are extended linear models that describe new product development process having stages such as concept design, test, production and marketing (Tang 1998). The going feedback allows for future adjustments to be made as required to fine tune the innovation.

Stage Model

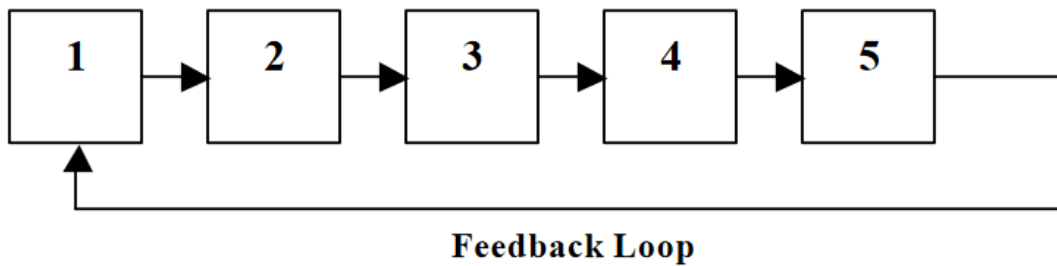


Figure 2: Stage Model

The linear and stage models were found to have limitations as while they catered for product development, they did not cater for process innovations and externally sourced ideas. Innovation aspects such as the external environment and assumption of rigid process of innovation were limiting. Later, other scholars identified that this process is more and more modelled as a process composed of feedback loops (MacGregor, et al., 2006); (Boly, 2008) and (Galanakis, 2006).

The first and second generation models are linear models explaining innovation as either being pulled by market needs, or pushed by technology and science as illustrated below.

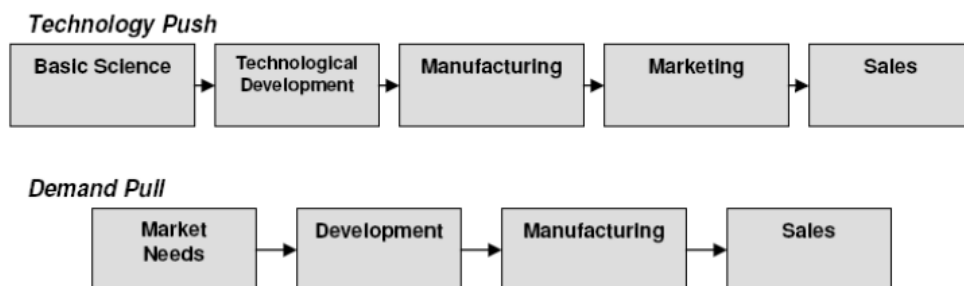


Figure 3: Technology push

The third-generation models are a convergence of technological capacity and market needs.

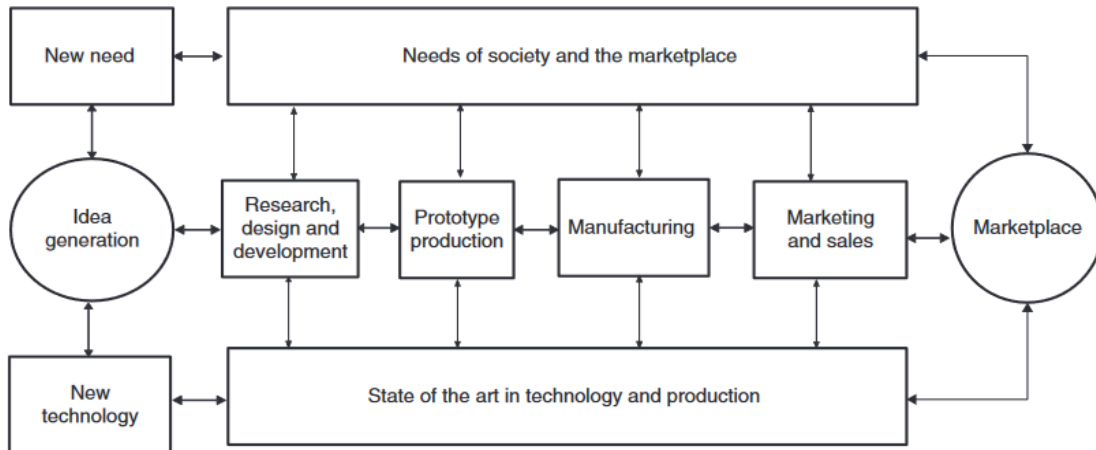


Fig. 3. Combined or coupled model.
Source: Rothwell (1994).

Figure 4: Combined or Coupled Model

Consequently, knowledge on firm level innovation process has advanced into multifaceted models with diverse range of internal and external stakeholders and processes. Most of the studies on innovation were also based on one or few indicators (Hollenstein, 1996). Recently however, there has been progress in separating the multiple resources required to innovate and various indicators have been developed over time to measure innovation intensity.

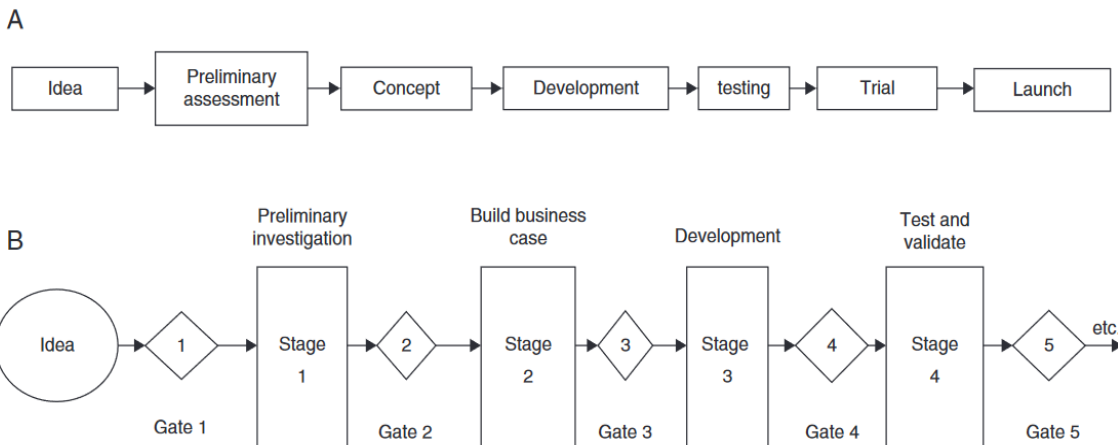


Fig. 4. Second generation model: examples.
Source: Cooper (1994, 2008).

Figure 5: Second Generation Model

The table below provides a look at various proposed models of the process of innovation:

No	Author(s)	Model type	Stages included in the model
1	Neese (2015)	Descriptive	Idea generation and mobilisation, advocacy and screening, experimentation, commercialisation, diffusion and implementation
2	Trias and Kotler (2011)	Descriptive	Objectives, research, ideas, evaluation, development, lunch
3	Kamps (2013)	Graphical	Main innovation management process: Idea management, filtering, R&D, innovation controlling, patent management Supplementary process: Strategic management, customers marketing, production, market implementation, customers/market
4	Vaikuntam, Raja, and Ramachandran (2016)	Graphical	Model 1 Phase I (goal setting, project identification, project selection), phase II (research, development, production), phase III (diffusion) Model 2 Exploration (idea studies, pre-studies), process development (testing and modelling, pilot studies, plans trials), technology transfer (prestudies, preparation for production), production
5	Cormican and O'Sullivan (2004)	Graphical, descriptive, functional	Analyse environment and identify opportunities, generate innovations and investigate, plan project and select sponsors, prioritise project and assign teams, implement the plan
6	Hansen and Birkinshaw (2007)	Descriptive	Idea generation, idea conversion (including screening and funding), idea diffusion
7	Andrew and Sirkin (2008)	Descriptive	Idea generation (including development, testing, and evaluation), commercialisation and realisation (begins with the market launch and ends when the product or service comes to the end of its lifecycle)
8	Havlicek, Thalassinou, and Berezkinova (2013)	Graphical, descriptive	General process: Research, development, testing, production, commercialisation Process in SMEs: Looking for business opportunities, analysis of resources, innovation plan and decision
9	Vitezic and Vitezic (2015)	Graphical	Analysing the company to understand situation, idea generation and selection, idea realisation, implementation and launch, monitoring
10	CGMA (2013)	Graphical	Idea generation, idea selection, investment phase, launch, post-launch

Table 6: Models of the process of innovation

Source: (Szutowski, et al., 2019)

Scholars have defined various innovation processes varying in the number of stages. However, in general, three main stages in the process of innovation can be identified: (a) Idea stage where something new is envisioned, be it a product, service or process; (b) Development of the new idea; (c) Commercialization of the “something new”. Innovation can also be classified at either technology push or market pull or a mix of both. Integration between the different factors within the process of innovation is key and can often be the determinant aspect of the success or failure of the innovation.

From the literature review of the innovation process, it is clear that innovation is a complex iterative learning process that involves many consultations, negotiations and feedback sessions to fine tune to fruition. Stages have been defined for each step of the process. These details will aid in the conceptualisation of the innovation process, further guiding study the exploration of drivers and

barriers along the process of innovation. Most of the proposed models also tend to focus on a particular part of the innovation process, whether it is on operational or management activities. This study takes a more encompassing approach looking at both operational and management activities to form a more holistic picture of the process of innovation in SACCOs.

From a SACCO context, ideas to innovate may not necessarily come from research and development, but from solving problems existing. Innovation is expected to be largely incremental as opposed to radical. Likewise, ideas that lead to innovations may originate from many sources such as customers, internal staff, issues being experienced and external pressures such as competition that force an organisation to become more innovative.

Literature review has revealed that the process of innovation is not linear but an interactive process with many iterations and feedback sessions prior to completion of an innovation, a result of the interaction between many collaborating stakeholders. There is no innovation which does not originate from one or more ideas.

This process of innovation can be further divided into two basic parts; the ideation or invention part and the part of undertaking the innovation process itself to ultimate fruition in the market.

Based on the review of literature on innovation process, a general form of the innovation process emerged. This will facilitate the baseline for review of SACCO innovativeness and innovation process.

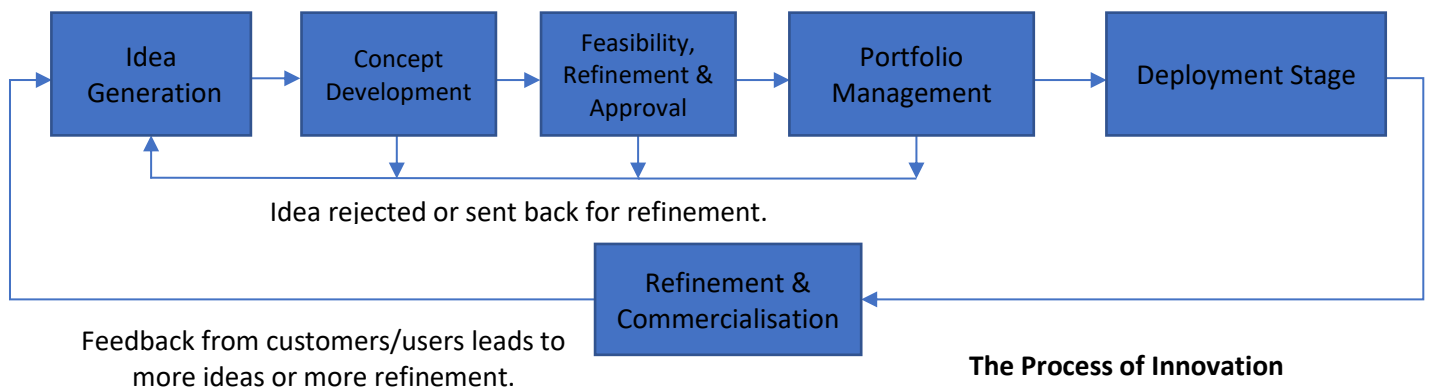


Figure 6: The process of innovation

Adapted from (Du Preez, et al., 2008)

Idea Generation

Concept development

The idea is developed into a workable concept, documented and shared with the leadership team for feedback, inputs and further refinements of the idea as may be required. At the end of this stage, further filtering of ideas to drop and those to pursue further is undertaken. Those selected will undergo a re-evaluation to ascertain their viability and future prospects.

Concept Feasibility and Refinement

This is where the concepts are further evaluated and where the final selection of concepts to develop to implementation stage is made. Further investigation into the concept is undertaken, including possible reconfiguring and creation of design mock-ups to verify the viability of the concept. Out of this stage emerges an approved list of potential innovation ventures. Iterative loops may occur between the concept development and refinement stages.

Portfolio Management

Here, the project/ideas are aligned, prioritised and scheduled based on inputs from the previous stages. Resources are also allocated, and teams responsibilities assigned while establishing modes of continuous monitoring of the initiatives.

Deployment Stage

The design, testing and roll-out into execution of the innovation identified in the previous stages is undertaken in the deployment stage. Testing, training and documentation of the operational processes is completed. Deployment is managed based on the agreed project plan ensuring final roll-out of the innovation as required.

Refinement & Exploitation Stage

During this stage, the innovation is monitored and refined where required. Evaluation is continued on ongoing basis and opportunities for further improvements and exploitation via additional new business models is reviewed. New opportunities and improvements are iteratively reviewed through the whole process of idea to deployment.

Iterative processes

While the innovation process and stages may appear to be linear, it involves several repetitive feedback processes that go back and forth the stages, sometimes the stages even overlapping. Portfolio and project management occur throughout the process.

2.4. The guiding framework

Based on the review of literature on innovation process, a general form of the innovation process emerged. This will facilitate the baseline for review of SACCO innovativeness and innovation process.

Based on the literature review, a general form of the attributes, factors and process of innovation emerged. The study was able to come up with a tentative framework on the process of innovation. The framework serves as the basis for identifying the various aspects of innovation, aiding to pinpoint factors and attributes that support the innovativeness process during the course of this study. The arrows provide a guiding flow of information on the process to be studied.

The study focuses on innovativeness and innovations exploring the following areas:

- How does innovativeness and innovations take place in SACCOs? What is the experience of SACCO staff engaged in innovation?
- What factors influence the ability to be innovative?
- What barriers exist that SACCO staff need to overcome to be innovative? How do they overcome these barriers?
- What benefits are derived from innovativeness?

The framework below will be used to analyse the process of innovation in SACCOs and the influence of ICTs. The step first will be to identify SACCOs that are innovative. The next step will be the identification of types of innovations that the SACCOs have undertaken in the past 5 years. This will aid in further narrowing down to SACCOs that are most representative of the sector's innovativeness and innovations for this study.

Finally, a study will be undertaken in which the process of innovativeness and innovation will be reviewed and mapped. By thus analysing the SACCO innovative process, the study will be able to explore how innovations are made and the impact of the implementation and use of ICTs in either aiding or inhibiting successful innovations.

Analytical Framework for Innovativeness & Innovation Process in SACCOs

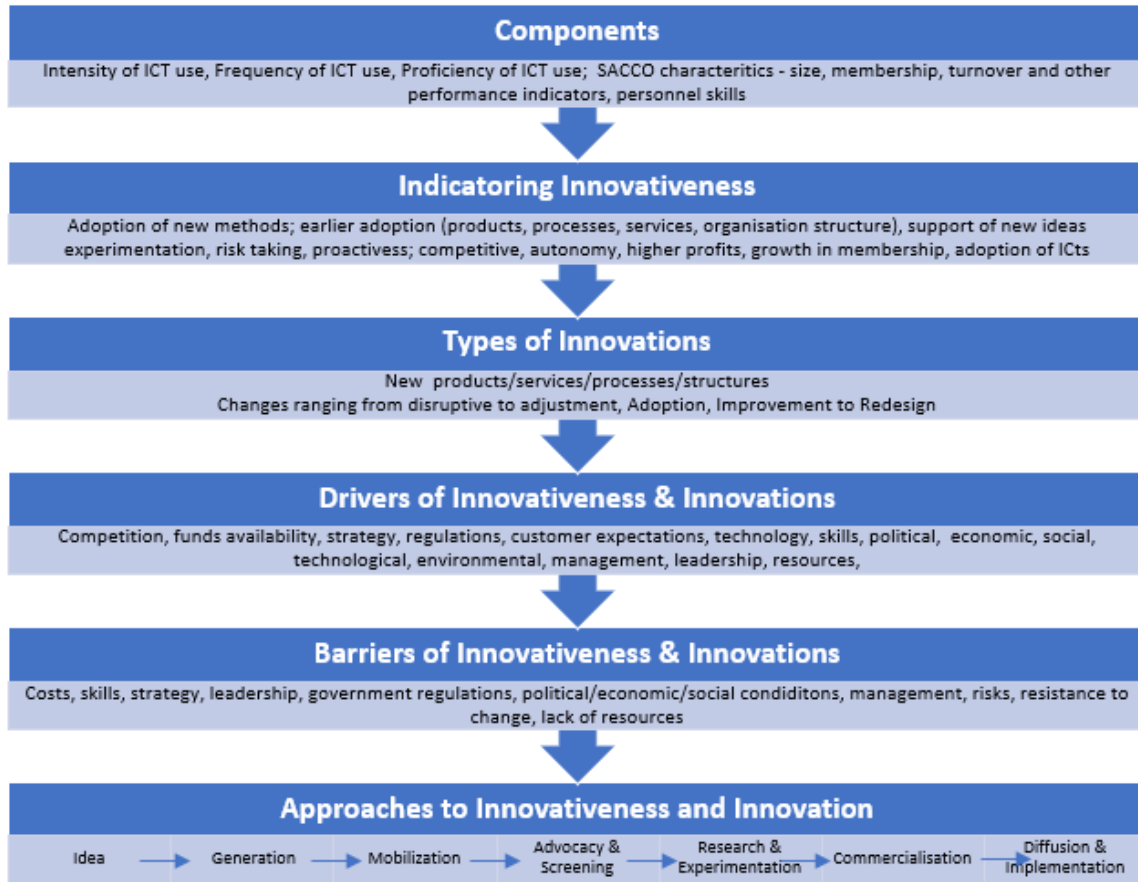


Figure 7: Framework for Innovativeness in SACCOs

(Source: own construction based on literature review)

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

In this section the research process undertaken in completing this study has been outlined. Methods and justification for undertaking the study, data collection and analysis process have been discussed.

3.1. Research Design

The study follows the research question “what is the influence of ICT use on SACCO innovativeness, innovations and performance of deposit-taking SACCOs in Nairobi County?” It looks into the process of creating and implementing innovations and how these impact SACCO performances, the intent of the research being to generate a theory that explains the process, actions, or an interaction. A process unfolds over time in somewhat distinct steps that can be identified. The study reports on how the process develops in steps.

To achieve this objective, the study used a mixed method to collect and analyse data, involving the collection of both qualitative and quantitative data. Tashakkari and Creswell (2009) defined mixed method of research as a study where data and findings from both qualitative and quantitative sources is integrated and inferences drawn (Creswell & Tashakkori, 2007). Specifically, this study adopted the sequential explanatory triangulation design, which incorporates both the quantitative and qualitative data collection and analysis. In this study, quantitative data was collected and analysed first, while qualitative data was collected and analysed second in sequence.

3.2. Target Population

A target population has been defined as the totality of aspects that a researcher wants to study make conclusions about (Cooper & Schindler, 2014). To identify the target case study SACCO, a purposive method was used with top management to supervisor level staff forming the population of the study. To gain access to sites and very senior people, informal contacts were used.

3.3. Sampling Frame

A sample being a subsection of a greater population (Kothari, 2004), the study sample size was 50% of Deposit Taking SACCOs in Nairobi County population in alignment with past studies that have indicated that 10% or more of a population is sufficient for a study, (Mugenda & Mugenda, 2003)The sampling frame for the study was 10% of managers drawn from middle to senior SACCO officials comprised of the Chief Executive Office, Head of Finance, Operations Managers, Head of FOSA, Head of ICT, Head of Risk and Audit, Head of Business Development, Marketing, and Communication, and/or their designated representatives. Besides being the key decision makers and users of ICTs, these personnel represented the key owners and champions of the innovative processes in SACCOs.

3.4. Quantitative Data Collection Methods

The data collection was done in three phases. Quantitative data was collected and analysed in the first two phases, while the qualitative data was collected and analysed third phase in sequence. The quantitative data aided in the identification of attributes of high performing SACCOs, aiding the study in narrowing down to SACCOs perceived to be high performing financially. A further pre-study questionnaire was undertaken to elicit SACCOs that were perceived to have a high intensity of ICTs use.

Data collected was used in the purposeful section of the SACCO to undertake the qualitative case study. The qualitative case study was used to identify the process of innovativeness and how factors identified in the first phase were significant predictors to innovativeness and higher performance in SACCOs, thereby aiding in the elaboration of the quantitative results obtained in the initial phase.

Quantitative Data Collection and Analysis

In phase one, literature on innovativeness and innovation was reviewed to enable initial constructs of the study to be built. A model representation of the innovation process was created, and the initial research questions formulated refined. Thereafter quantitative data analysis took place to guide the study on SACCO contextual innovativeness and innovations indicators.

Document analysis of online publications in the public domain, journals, reports, previous studies was undertaken, in addition to review of key data from SASRA, the Deposit Taking SACCO's

regulating body. From these, the study was able to elicit metrics that define well performing SACCOs. Using these metrics, the study was able to narrow down on top 20 SACCOs whose performance has improved significantly in the last 2 years (2019-2020).

In phase two, those SACCOs identified as high performing were issued with a pre-study questionnaire seeking to evaluate the intensity of use of ICTs. The performance metrics derived aided the study in the narrowing down and selecting a representative SACCO to undertake the case study in.

Quantitative Data validity and reliability

The extent to which a tool assesses what it is expected to assess is validity while reliability is the ability to measure with the chosen instrument consistently (Tavakol & Dennick, 2011). In keeping with maintaining validity, the study has adopted items that are well tested in previous literature for reliability by other researchers.

Data obtained from SASRA, the SACCO governing body, has been used as primary source of secondary data. This documentary evidence has been combined with data from questionnaires to minimise bias and establish credibility. Further, the questionnaire was tested through a pilot test to reveal and amend any weakness identified to ultimately ensure increased response rate.

The validity of data was further improved upon by constructing the questionnaires in an easy to complete on-line format, highlighting questions specific to ICT usage only. Continuous consultation with the study supervisor at the University of Nairobi also provided guidance ensuring the appropriate content and concepts have been maintained.

3.5. Qualitative Data Collection Methods

During phase three, the case study was conducted. This involved the usage of semi-structured questionnaires and interviews to collect data. The instruments were developed based on the study questions established guiding framework on the innovation attributes and processes. One-hour in-depth interviews were conducted. The researcher travelled to where interviews took, based on the participant's convenience. Interviews were digitally recorded and professionally transcribed. The researcher also wrote memos throughout these interviews. Where necessary, further interviews and follow-up were undertaken to clarify data received.

Qualitative Data Analysis

Analysis of qualitative research can be time consuming and demanding involving the collection of huge amounts of data that require ongoing analysis as data is being collected (Gibbs, 2007). Each interview was digitally recorded and later transcribed.

The analysis followed a systematic format to ensure consistency. In the first stage, the researcher familiarised with the data and respondent views by listening and reading through the data collected. This was followed by the next step of distinguishing emerging common patterns and meaning from the discussions held. These constructions were further examined for contradictions, similarities and ambiguities emerging, hence gaining a better understanding of the data collected. After the categorisation of participant's contributions, an encompassing thorough viewpoint was constructed

Case Study Data validity and reliability

Throughout the study, as the interviews progressed, the information gathered was analysed to ensure further reliability and consistency of the findings, with checks incorporated to minimise personal bias. During the interviews, the researcher ensured accuracy of information received by restating and summarising material received for respondents to confirm it had been accurately captured (Lincoln & Guba, 1985).

Data gathered by use of different instruments was carefully checked to ensure that only complete, accurate and relevant data was finally coded. Data analysis for qualitative data commence during, or immediately after, the first data was collected. Initial analysis of the data further informed subsequent data collection where additional clarification was required. This process continued iteratively as needed throughout the study.

In addition, the researcher also consulted available secondary data such as SASRA reports, company magazines and online resources throughout the evolution of this study. Guidance from the research supervisor will also help to maintain focus on relevant data.

CHAPTER FOUR

DATA ANALYSIS, RESULTS, AND DISCUSSION

4.1. Introduction

This section illustrates descriptive findings and discussions relative to the objectives of the study. The study sought to establish the influence of ICT implementation and use on SACCO innovativeness, innovations and financial performance. The analysis is divided into three main sections that represent the activities are analysed within each phase.

In part one of the study, a pre-study to establish the high performing SACCOs was undertaken.

Once information on SACCOs performance had been established, part two of the study undertook a questionnaire on the top 20 identified high performing SACCOs to elicit information on level ICT Usage. Respondents from the identified high performing SACCOs were invited through e-mail and telephone to take part in a questionnaire. Primary data was gathered directly from respondents by use of semi-structured questionnaires. Likert scale was thereafter used to analyse the responses.

Finally, based on responses received from the questionnaire, the one SACCO to undertake a Case Study in the third and main part of the study was chosen.

Ethics approval and ethical issues

Prior to commencement of the research, approval from guiding bodies was sought. Initial approval for a research license was sought from NACOSTI. The license was granted having fulfilled the guidelines for undertaking research in Kenya. A similar application was made to SASRA the SACCO regulating body for access to SACCOs secondary data.

All questionnaire responses were anonymised before analysis, taking particular care not to reveal potentially identifying details of places, practices or SACCOs.

4.2. Preliminary Quantitative Study Findings

The aim of this preliminary study was to establish the most representative SACCO to undertake a case study in the core qualitative case study. The preliminary study was undertaken in two parts:

1. Part I which reviewed secondary data on SACCOs to establish attributes of innovative SACCOs and thereby utilising those attributes to identify top performing SACCOs. This involved the selection of a primary metric to measure SACCO performance.
2. Part II which collected primary data via a questionnaire survey administered to the previously established high performing SACCOs.

The output of the preliminary study is the identification of a SACCO that is most representative of the sector's innovativeness, innovations and high performance and hence suitable for further case study.

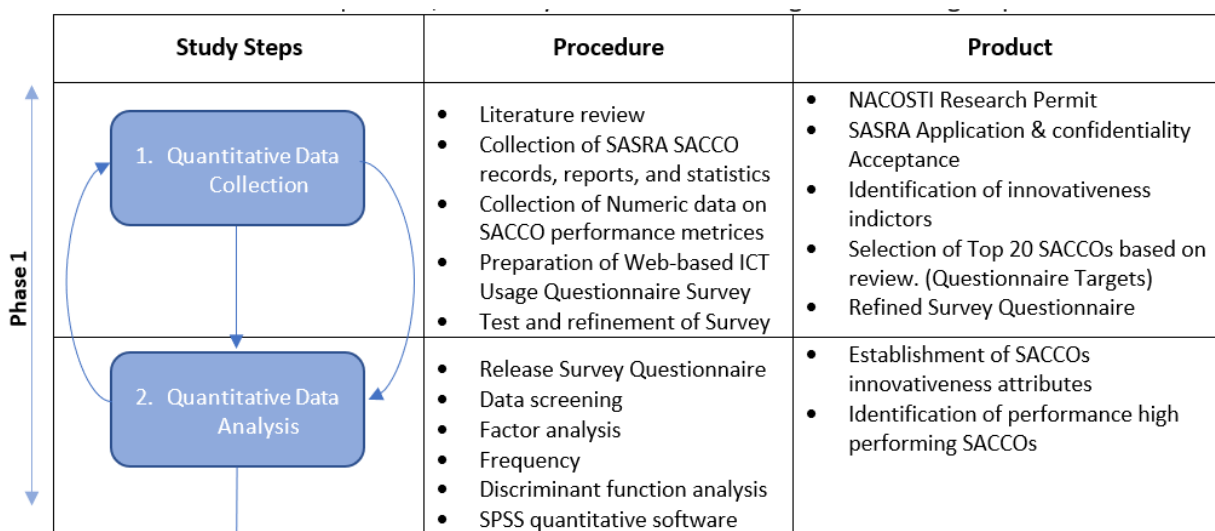


Figure 8: The Research Design

4.2.1. Part I - Secondary Data Collection and Analysis

In this section, secondary data was reviewed to establish factors that are indicative of SACCOs performing well. This involved the study of online document, websites and SASRA annual reports. The study established that SASRA's annual reports have categorised SACCOs based on financial performance, continuously over the years.

Indicators of SACCO Performance

SASRA in its SACCO Supervision Annual Reports, provides the following metrics to determine the performance of deposit and non-deposit taking SACCOs; total assets, Total Membership and percent growth per year, Total Revenue, Turnover / Profits, Total Member Deposits, Loans and Advances and Total Capital.

The table below summarises the key result obtained from review of the secondary data and related literature review and conclusion drawn on the indicators of SACCO performance.

Table 7: Indicators of SACCO Performance

Key finding from secondary data	Literature Evidence	Implication for the current study
SACCO Performance is measured in terms of growth in total assets, membership, total revenue, turnover/profits, member deposits, loans and total capital.	<p>Study by Wachira, Muturi and Sirma (2014) used membership number, gross profit, dividends rate, market share, deposits, interest on deposits and productivity changes to measure performance of SACCOs in Nairobi</p> <p>Macharia and Tirimba (2018) used Branch network, asset growth, revenue growth, size of institution, product range product location and product cost to indicate financial performance</p> <p>Mpiira, et al. (2013) without members, there will be no SACCO.</p>	For this study, the measures of high performance will include percent growth in membership, total assets, net income and total revenue of SACCOs

Validity of measures of high performance

According to (Mpiira, et al., 2013) people will not join SACCO where there is no viable economic enterprise that would generate them income. Co-operatives are independent associations of individuals who have willingly come together to meet common economic, social and cultural needs and objectives through jointly owned and democratically controlled enterprises (Birchall & Simmons, 2004). Without members, there will be no SACCO. Consequently, SACCO membership growth rate was adopted as the primary measure of SACCO performance.

The study further sought to verify the validity of the effect of SACCO membership on performance based on the metrics identified. In order to assess construct validity, Pearson's correlation analysis was employed to examine the relationship between SACCO membership number and financial performance of SACCOs.

Correlation between SACCO membership and financial performance

	Net Income (after tax & Donation)	Total Assets	Total Revenues	Total Deposit	Members Total Share contributions	MEMBERS
Net Income (after tax & Donation)	1					
Total Assets	0.62180661	1				
Total Revenues	0.679310166	0.986079706	1			
Total Deposit	0.601673401	0.9959522721	0.979662856	1		
Members Total Share contributions	0.293200286	0.439178818	0.427922616	0.445301	1	
MEMBERS	0.450039714	0.670328679	0.666498533	0.6508547	0.354929935	1

Table 8: Correlation between membership and financial performance - based on 2013 to 2020 financial records

Results indicated that there is a relatively strong positive correlation between SACCO membership and total assets, total revenues and total deposits.

Correlation between membership and total assets

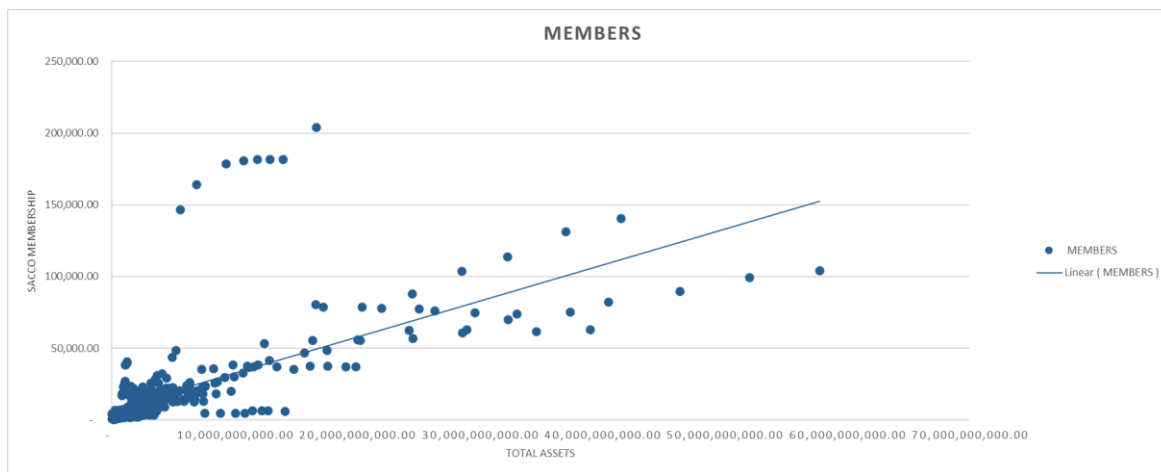


Figure 9: Correlation between membership and total assets

The number of SACCO members was found to have a strong correlation to total assets of a SACCO as indicated by a strong positive coefficient of 0.67.

Correlation between membership and total revenues

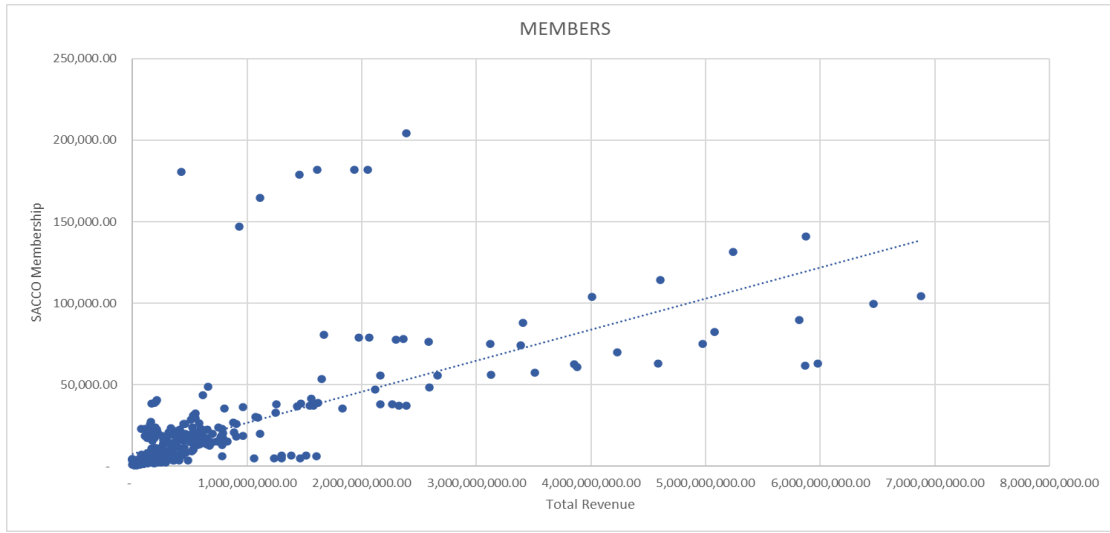


Figure 10: Correlation between membership to total revenues

Total SACCO membership has strong correlation to Total Revenues with a positive coefficient of 0.67.

Correlation between membership and total deposits

SACCO membership is also positively correlated to total SACCO deposits.

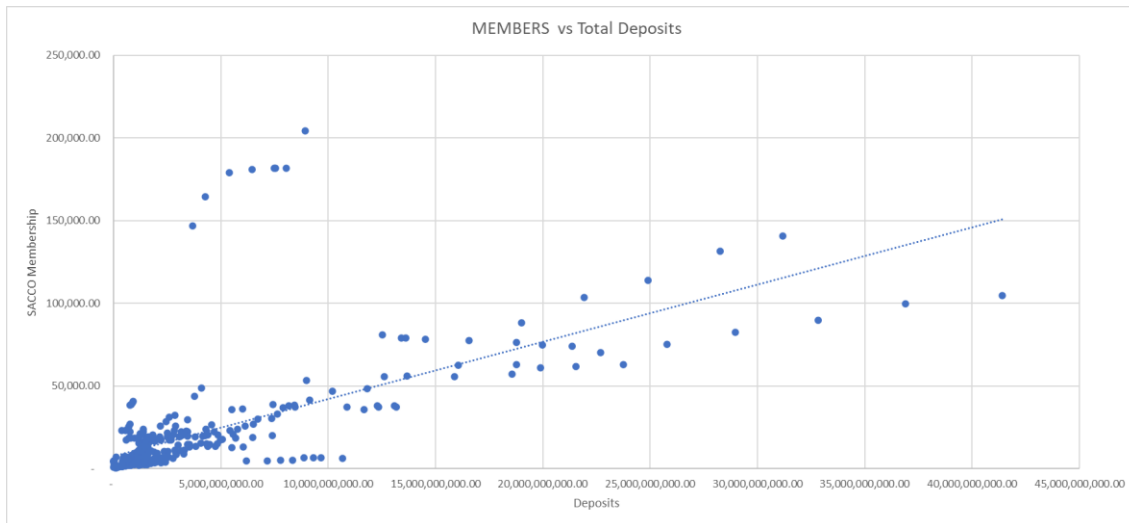


Figure 11: Correlation between membership and total deposits

Correlation between total revenue and assets to SACCO Assets

Total Revenues and Total Deposits have a very strong correlation to Total SACCO Assets with a positive coefficient of 0.99 and 1.00 respectively.

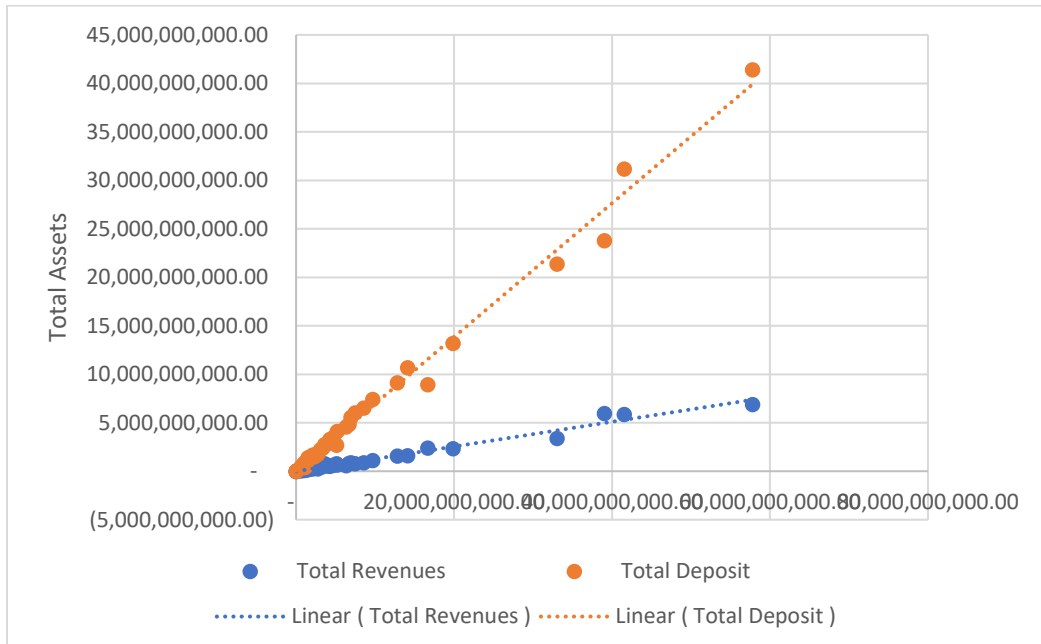


Figure 12: Correlation between total revenue and assets to SACCO Assets

From the results derived, the statistics correlate to the fact that membership numbers contribute significantly to SACCO performance.

SACCO growth rate

The percent growth rate of SACCOs was reviewed based on 2019 -2020 financial reports data obtained from the SACCO governing body SASRA. A growth rate is used when one wants to know identify how fast an indicator has risen (or declined) over a certain period, (Federal Reserve Bank of Dallas, n.d.), hence calculating growth rates levels the playing field when comparing big and small SACCOs. Subsequently, the study took the SACCO growth rate as a primary key metric of SACCO performance.

By ranking the SACCOs by growth rate rather than the actual membership numbers, the study was able to eliminate the bias towards the bigger SACCOs vs the smaller SACCOs.

The following formula was used to determine the growth rate of SACCOs.

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100 \quad \text{Where:}$$

PR = Percent Rate
 $V_{Present}$ = Present or Future Value
 V_{Past} = Past or Present Value

Figure 13: Growth Rate Formula

A quick sort was applied to the percentages derived, sorting SACCOs based on largest percentage growth to the least, for the period 2019 to 2020.

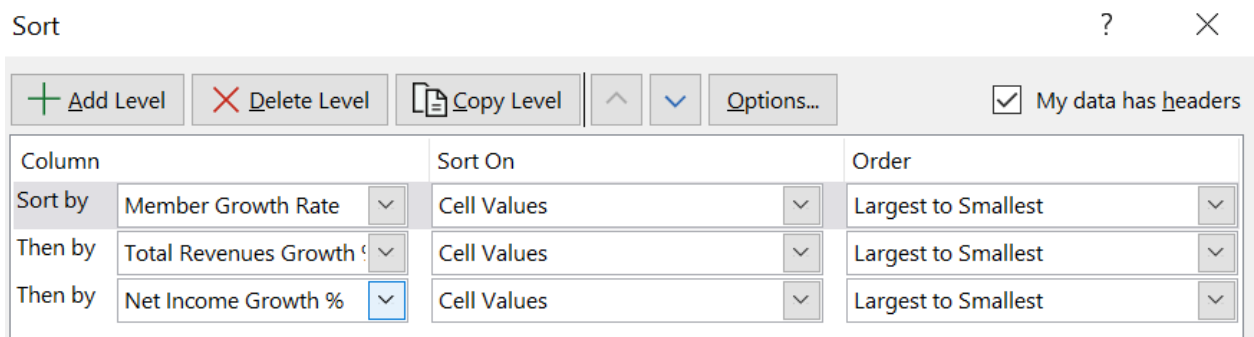


Figure 14: Sorting of SACCO Ranks

Based on the analytic procedure the following table of SACCO performance ranking was derived:

Nairobi County Saccos Growth Percentage Performance Ranking 2019 – 2020

	SACCO Name	Member Growth Rate	Total Revenues Growth %	Net Income Growth %	Total Assets Growth %
1	WANANDEGE SACCO	39%	-22%	-30%	-6%
2	UNAITAS SACCO	12%	16%	-39%	19%
3	WAUMINI SACCO	12%	7%	-10%	7%
4	AIRPORT SACCO	11%	25%	20%	-1%
5	MAGEREZA SACCO	10%	11%	10%	5%
6	NATION SACCO	8%	21%	46%	14%
7	UKULIMA SACCO	8%	6%	1%	8%
8	MAISHA BORA SACCO	8%	11%	27%	14%
9	NACICO SACCO	7%	-1%	-15%	4%
10	KENPIPE SACCO	7%	19%	39%	11%
12	HAZINA SACCO	7%	16%	150%	14%

13	TEMBO SACCO	7%	12%	-4%	16%
14	STIMA SACCO	7%	12%	44%	12%
15	UKRISTO NA UFANISI SACCO	6%	-8%	-32%	-10%
16	NASSEFU SACCO	6%	-5%	-55%	5%
17	MWALIMU NATIONAL SACCO	5%	6%	-64%	11%
18	NAFAKA SACCO	5%	5%	-82%	10%
19	UFANISI SACCO	4%	-99%	-98%	-99%
20	SAFARICOM SACCO	4%	16%	14%	12%
21	KENYA BANKERS SACCO	4%	-3%	-21%	3%
22	KENVERSITY SACCO	4%	3%	14%	12%
23	CHAI SACCO	4%	4%	40%	10%
24	KINGDOM SACCO	3%	-1%	-27%	7%
25	ARDHI SACCO	3%	10%	79%	9%
26	GOOD FAITH SACCO	3%	8%	21%	3%
27	MWITO SACCO	2%	2%	-5907%	2%
28	KENYA POLICE SACCO	2%	2%	-5%	13%
29	ELIMU SACCO	2%	4%	78%	2%
30	SHOPPER SACCO	1%	-30%	241%	-1%
31	AFYA SACCO	0%	-3%	501%	4%
32	COMOCO SACCO	0%	-26%	-115%	-6%
33	JAMII SACCO	0%	47%	14%	7%
34	WANAANGA SACCO	-1%	2%	125%	5%
35	SHERIA SACCO	-1%	12%	91%	12%
36	HARAMBEE SACCO	-1%	9%	-93%	12%
37	FUNDILIMA SACCO	-2%	-6%	8%	4%
38	SHIRIKA SACCO	-2%	104%	-3%	16%
39	TELEPOST SACCO	-4%	6%	53%	3%
40	CHUNA SACCO	-4%	19%	-8%	-5%
41	UN SACCO	-7%	6%	73%	11%
42	ASILI SACCO	-100%	4%	31%	10%
43	METROPOLITAN SACCO	-100%	-2%	133%	10%

Table 9: Data Source: 2019 – 2020 SACCO financial statements as submitted to SASRA

The result in table 12 above shows the high performing SACCOS based upon secondary data from financial documents retrieved from SASRA.

Pearson Correlation analysis was further utilised to re-examine the link between the SACCO membership number and financial performance of SACCOs based on the 2019 to 2020 financial records. Results reconfirmed that there is a relatively strong positive correlation between SACCO membership and total assets, net revenues and net income.

SACCO Correlations based on 2019 to 2020 financial records

	<i>Net Income (after tax & Doantion</i>	<i>Total Assets</i>	<i>Total Revenues</i>	<i>Total Deposit</i>	<i>Members Total Share contributions</i>	<i>MEMBERS</i>
Net Income (after tax & Doantion	1					
Total Assets	0.662049639	1				
Total Revenues	0.734791066	0.987549881	1			
Total Deposit	0.640255825	0.994740036	0.978172449	1		
Members Total Share contributions	0.725960579	0.78049344	0.804893325	0.7320986	1	
MEMBERS	0.578916898	0.695300231	0.710145503	0.6722438	0.881396549	1

Table 10: : SACCO Correlations based on 2019 to 2020 financial records

Based on the 2019 to 2020 financial data, stronger correlations between SACCO membership and shared contribution was revealed while maintaining strong correlations to net income, total assets, total revenues and total deposits.

Conclusion of secondary data review findings

Based on review of SACCO performance utilising the established metrics, the following SACCOs were listed as top 20 performing SACCOs:

Nairobi County Saccos Growth Percentage Performance Ranking 2019 – 2020

	SACCO Name	Member Growth Rate	Total Revenues Growth %	Net Income Growth %	Total Assets Growth %
1	WANANDEGE SACCO	39%	-22%	-30%	-6%
2	UNAITAS SACCO	12%	16%	-39%	19%
3	WAUMINI SACCO	12%	7%	-10%	7%
4	AIRPORT SACCO	11%	25%	20%	-1%
5	MAGEREZA SACCO	10%	11%	10%	5%
6	NATION SACCO	8%	21%	46%	14%
7	UKULIMA SACCO	8%	6%	1%	8%
8	MAISHA BORA SACCO	8%	11%	27%	14%

9	NACICO SACCO	7%	-1%	-15%	4%
10	KENPIPE SACCO	7%	19%	39%	11%
12	HAZINA SACCO	7%	16%	150%	14%
13	TEMBO SACCO	7%	12%	-4%	16%
14	STIMA SACCO	7%	12%	44%	12%
15	UKRISTO NA UFANISI SACCO	6%	-8%	-32%	-10%
16	NASSEFU SACCO	6%	-5%	-55%	5%
17	MWALIMU NATIONAL SACCO	5%	6%	-64%	11%
18	NAFAKA SACCO	5%	5%	-82%	10%
19	UFANISI SACCO	4%	-99%	-98%	-99%
20	SAFARICOM SACCO	4%	16%	14%	12%

Table 11: Nairobi County Saccos Growth Percentage Performance Ranking 2019 – 2020

4.2.2. Part II – ICT Usage Questionnaire

In this section, the study used the established metrics for measuring SACCO performance to generate a questionnaire. To ensure relevance to establishing innovativeness are relevant to the study, the research also incorporated and adopted the Electronic Business Survey (EBS) approach into the study to aid in measuring the intensity of ICT use in SACCO. The tool enables the gathering of data at firm level facilitating contextual review of ICT use in firms (InfoDev, 2007). Verhoest, James, Marais and Van Audenhove (2007) successfully tested this approach for applicability to developing countries in a study undertaken in South Africa (Verhoest, et al., 2007).

The top 20 performing SACCOs were invited to complete the questionnaire on ICT usage in the SACCOs. Respondents were called and pre-notified (either by phone or by physical visit), and their consent sought prior to sending out of the questionnaire.

Due to COVID-19 protocols as well as some organisational policies, the following SACCOs chose to opt out of the study. These were Airports, Nacico, Nassefu, Nafaka, Kenversity, Kingdom, Good Faith and Elimu SACCO. These were subsequently replaced by the next SACCOs on the performance list; Chai , Ardhi , Mwito , Kenya Police, Shopper , Afya, Comoco and Jamii SACCOs.

SACCOs participation in survey

Performance Ranking	SACCO	Participation Status	Completed Survey
1	WANANDEGE SACCO	Accepted to participate	Completed
2	UNAITAS SACCO	Accepted to participate	Completed
3	WAUMINI SACCO	Accepted to participate	Completed
4	AIRPORT SACCO	Opted out of survey	n/a
5	MAGEREZA SACCO	Accepted to participate	Completed
6	NATION SACCO	Accepted to participate	Completed
7	UKULIMA SACCO	Accepted to participate	Did not complete
8	MAISHA BORA SACCO	Accepted to participate	Completed
9	NACICO SACCO	Opted out of survey	n/a
10	KENPIPE SACCO	Accepted to participate	Completed
11	HAZINA SACCO	Accepted to participate	Completed
12	TEMBO SACCO	Accepted to participate	Did not complete
13	STIMA SACCO	Accepted to participate	Completed
14	UKRISTO NA UFANISI SACCO	Accepted to participate	Did not complete
15	NASSEFU SACCO	Opted out of survey	n/a
16	MWALIMU NATIONAL SACCO	Accepted to participate	Completed
17	NAFAKA SACCO	Opted out of survey	n/a
18	UFANISI SACCO	Accepted to participate	Completed
19	SAFARICOM SACCO	Accepted to participate	Completed
20	KENYA BANKERS SACCO	Accepted to participate	Did not complete
21	KENVERSITY SACCO	Opted out of survey	n/a
22	CHAI SACCO	Accepted to participate	Completed
23	KINGDOM SACCO	Opted out of survey	n/a
24	ARDHI SACCO	Accepted to participate	Completed
25	GOOD FAITH SACCO	Opted out of survey	n/a
26	MWITO SACCO	Accepted to participate	Completed
27	KENYA POLICE SACCO	Accepted to participate	Completed
28	ELIMU SACCO	Opted out of survey	n/a
29	SHOPPER SACCO	Accepted to participate	Completed
30	AFYA SACCO	Accepted to participate	Completed
31	COMOCO SACCO	Accepted to participate	Completed
32	JAMII SACCO	Accepted to participate	Completed

Table 12: SACCOs participation in survey

Response Rate

Out of the top 24 SACCOs issued with the questionnaire, 20 were duly completed fully. This gave a response rate of 83%. This further represented 53% of SACCOs in Nairobi. (Mugenda (PhD), 2008) states that a response rate of 50% is suitable for analysis and reporting, with 70% and above rate considered to be excellent. The high response rate can be attributed to the fact respondents were pre-notified and their consent sought prior to sending out the questionnaire. Further, the structured and semi-structured questionnaire was on-line, self-administered, and easy to complete. Several follow-up calls and emails were made to remind the respondents to complete the questionnaires.

Likert scale-based questions were used to determine intensity of ICT usage within SACCOs in their day-to-day operations. This section was divided into three parts; the first part gathered data about the rate of ICT adoption, the second part covered questions related to frequency of ICT usage while the third part sought to look at the proficiency of ICT use.

Questionnaire Results Data Analysis

The questionnaire had a set of initial questions that sought to get the SACCO background information.

Survey results indicated a high level of ICT use in the top performing SACCOs regardless of membership size. Out of the SACCOs surveyed, 75% of ICT staff had a bachelor's degree while 20% had a master's degree. 5% had other qualifications. 65% of the SACCOs had re-branded while 35% had open membership. SACCOs with less employees had a higher rate of ICT usage than those with more employees.

Rebranding, opening of the common bond membership and entry into new markets were highlighted as indicators of innovative SACCOs in the literature review.

The ability of staff to use appropriately ICT tools efficiently and effectively has also been highlighted in the literature review as key to a firm achieving high performance standards. Staff who are proficient are likely to choose the best options out of the various functionalities available in an ICT tool while undertaking their roles during the process of innovation (Dube & Pare, 2004). SACCOs must utilise innovative approaches designed to achieve proficiency at all operational levels by utilizing systems that assure their sustainability and growth (Mutuku, 2014).

Consequently, innovative ICT usage can be gauged by considering the proficiency of use (Durmuşoğlu & Barczak, 2011).

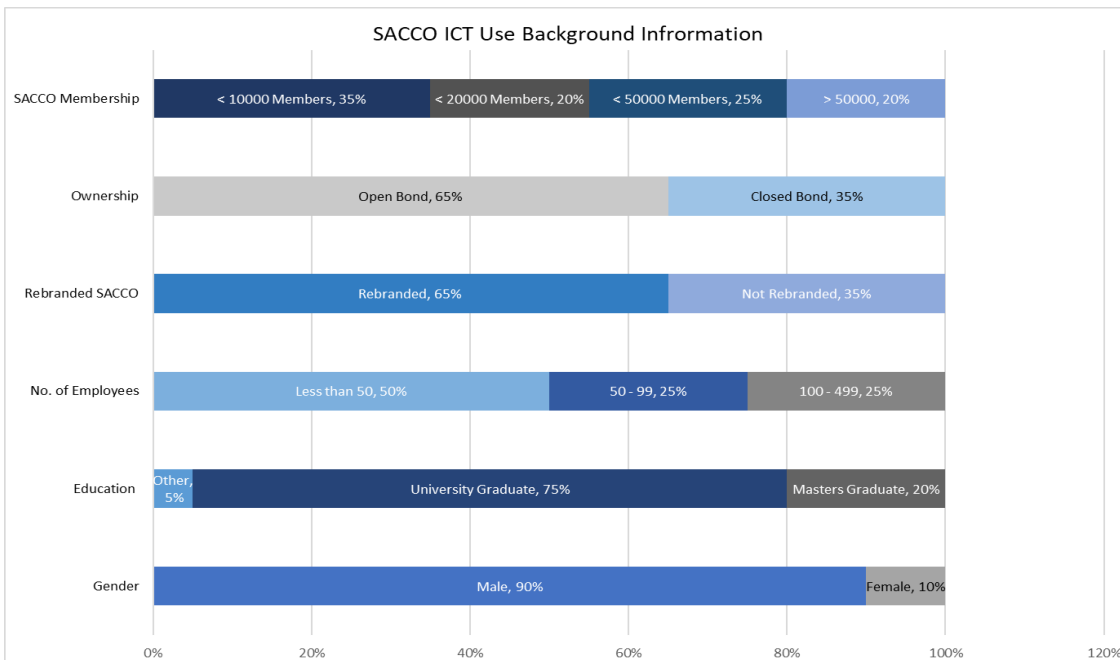


Figure 15: SACCO Demographical Information

ICT Usage in SACCOS

The respondents were asked to rate the extent to which their businesses use ICT tools using a five-point scale. The results indicated a high rate of ICT usage in SACCOS at an average of 79% with an adoption average rate of 76%, frequency of use at an average of 81% and proficiency at an average of 81%

Rate of ICT usage vis-à-vis SACCO performance

While there appeared to be some correlation between ICT usage and performance, it was not conclusive as performance in SACCOS is affected by many other factors such as management of finances.

SACCO ICT Use Survey Results Ranking

Based on data received, SACCOS utilising ICT intensely were identified. Nation SACCO ranked among the top 10 SACCOS with intense use of ICTs. The study identified Nation SACCO as most

representative of the sector’s innovativeness, innovations and high performance and hence suitable for further case study.

Reliability and Validity

The data collection instruments were administered using online survey method. The questionnaire had a list of 25 questions, 10 of which elicited the SACCO background information, one unstructured question on perceived barriers to innovation and 14 Likert scale-based questions on ICT usage in SACCOs. The Likert scale was thereafter used to analyse the responses to the 14 ICT usage questions. The reliability and consistency of the 14 questions data collected was pre-tested using Cronbach’s alpha. Alpha Cronbach's value above 0.6 is considered high reliability and acceptable index (Nunnally & Bernstein, 1996). Whereas the value of Alpha Cronbach that is less than 0.6 is considered low, Alpha Cronbach values in the range of 0.60 - 0.80 are considered moderate, but acceptable. In order to determine the consistency and reliability of the data collected, a pretest of validity and reliability was done. The study measured reliability by using Cronbach's alpha, which goes in an incentive from 0 to 1. An acceptable value of alpha ranges from 0.70 to 0.95 (Nunnally, 1978). The table below on reliability test shows the results of the reliability level.

Reliability Statistics

Question Topic	Cronbach's Alpha	N of Items	% Rate Use
Rate of ICT Adoption	.931	43	74%
Frequency of ICT Use	.938	52	80%
Proficiency of ICT Use	.930	37	80%
Total Items	.966	132	

Table 13: Cronbach Alpha Reliability Statistics

Quantitative Research Findings Conclusion

In the preliminary study, both secondary and primary data was reviewed to facilitate the selection of a most representative SACCO to undertake a case study in. Secondary data sourced from the SACCO regulator SASRA was used to establish a list of high performing SACCOs in Nairobi County. Further review of publicly available documents, published reports and literature review

was undertaken to establish indicators of high performance in SACCOs. These were established as growth in membership, assets, revenues and net income. Nation SACCO was determined as one of the SACCOs with a high growth rates in all these markers. See table 11 above.

Primary data was also gathered by use of an ICT use survey questionnaire that was sent to the SACCOs identified as high performing. Results were analysed and SACCOs intensity of ICT use rated. Nation SACCO was found to have an 82% ICT usage and hence found representative of innovative SACCOs with high use of ICT tools.

Purposeful selection of Nation SACCO as the subject for the case study was done based on their high member growth rate and high financial performance for the period of 2019 to 2020; and their intensive usage of ICT as elicited in the ICT use questionnaire. The study was also able to gain full access to relevant managers inside the SACCO.

4.3. The Case Study

4.3.1. Background of Study

The main approach used in this study was the one point in time method of collecting all the required data. In this approach, each respondent was interviewed alone to enable later comparison of findings across respondents. This approach was most appropriate due to COVID-19 related protocols and constraints which placed a strain on the availability of respondents for interviews. To strengthen the findings, the qualitative study was preceded by two quantitative studies that used both primary and secondary data. Results from the initial quantitative studies informed upon the selection of a case study subject for the qualitative study.

Data Analysis Stages

Literature review undertaken in Chapter two provided insights into practices that promote innovativeness in innovative companies. Initial constructs were identified and utilised in the preliminary studies to build themes and codes on innovativeness and innovations for onward analysis in the study. For each construct under study, initial dimensions were first identified from the literature review. These dimensions were reviewed for relevance in the SACCO scenario and assigned a set of symbols or codes. The data collected was cleaned, coded, sorted, categorized, and analysed line-by-line.

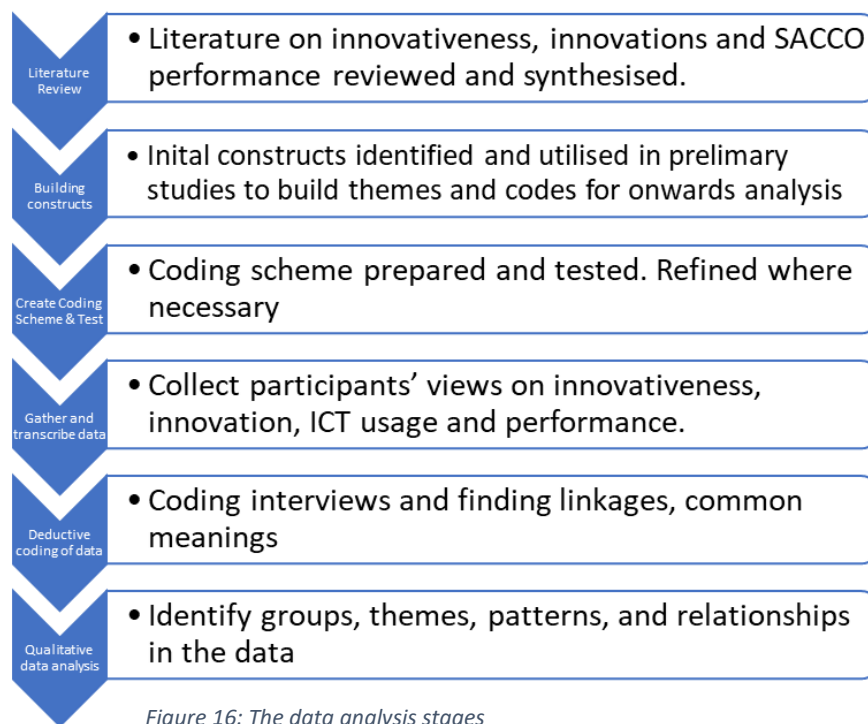


Figure 16: The data analysis stages

Content analysis was used to drive the key themes and sub-themes. Onwuegbuzie, Leech, and Collins (2012) devised a content analysis technique that involved a deductive and inductive systematic reduction of sources to codes, after which the codes could then be counted and quantified (Onwuegbuzie, et al., 2021). This approach has been utilised in the study for detailed data analysis.

Content Validity

The CVR content validity ratio proposed by (Lawshe, 1975) was also utilised to validate codes and ensure validity. The content validity ratio offers information about item-level validity and is a linear transformation of a proportional level of agreement on how many “experts” within a panel rate an item as “essential”. CVR values range between -1 (perfect disagreement) and $+1$ (perfect agreement) with CVR values above zero indicating that over half of panel members agree an item as essential (Ayre & Scally, 2014).

In content areas where it is difficult to find experts, the use of three experts is acceptable; normally, a panel of 5-10 experts is preferred. The use of >10 experts is probably unnecessary (Lynn, 1986), as cited by (Gilbert & Prion, 2016). To ensure content validity throughout the data analysis process, the methodology as outlined in Fig 15 was followed.

The Interview Guide

The interview guideline consisted of three main parts. First the researcher took the opportunity to define what innovation meant to ensure aligned and common understanding of the phenomenon under review with the respondent. For the second part of the interview, socio-demographic questions were included (e.g., information about the interviewed person such as degrees, job description, prior positions, tools used etc.).

The third section posed several questions to the respondent about the specific innovation management in the SACCO. This commenced with the interviewees being asked to provide examples of innovation activities that they had taken part in. Following this were questions regarding how ideas were formed and how these were transitioned into an innovation process and ultimately to the production of a tangible innovation. Finally, questions regarding factors that were supportive of innovation within the SACCO, seeking the perception of the respondent on impact and importance of innovations to the SACCO were discussed.

	Questions	Research Area, Themes
0	What tools individual uses in day-to-day course of work Ranking of the tools: Most important to least important	Use of ICTs
1	What are examples of innovations you have had or been involved in the recent past.	Types of Innovations Indicating Innovativeness Use of ICTs
2	What triggered the innovation(s) ideas?	Indicating Innovativeness Drivers of Innovativeness & Innovations
3	How do you rate the innovation on degree of change it brought to the SACCO?	Types of Innovations
4	How did you go about it promoting it and making it an actual process?	Approaches to Innovativeness and Innovation Use of ICTs
5	Who collaborated or what teams worked on this idea?	Approaches to Innovativeness and Innovation Use of ICTs
6	How was the innovation process itself?	Approaches to Innovativeness and Innovation Use of ICTs
7	How did you organize yourself and communicate within the team and stakeholders?	Approaches to Innovativeness and Innovation Use of ICTs
8	How long did the innovation process take? How did you keep track of the process?	Approaches to Innovativeness and Innovation

9	What resources, environment and tools were a must to have in order for the innovation to work?	Drivers of Innovativeness & Innovations Use of ICTs
10	What hardships did you experience in the process of innovation?	Barriers of Innovativeness & Innovations
11	What was supportive in the process of innovation?	Drivers of Innovativeness & Innovations Barriers of Innovativeness & Innovations Use of ICTs
12	Describe the impact of the innovation on the SACCO.	Types of Innovations
13	What were the top 3 benefits gained after the implementation of the innovation(s)?	Types of Innovations Use of ICTs

Table 14: Interview Questions Themes

Details of the interview guide can be found in the appendix section.

Nation SACCO background

Nation SACCO is a Deposit Taking SACCO that was registered in 1975. Initially, the SACCO was established to primarily serve members from within the Nation Media Group. In 2006, the SACCO opened its closed bond to include membership from other organisations. The total revenue of the SACCO has grown incrementally, posting an annual growth rate of between 13% to 21% in the last five years.

To enable continuous and seamless operations for its members despite the COVID-19 pandemic lockdowns and social distancing protocols, the SACCO has continued to invest intensively in various ICT tools to always ensure seamless operations. All key staff are equipped with laptops and relevant tools required to enable remote working at any given point in time.

In 2019 to 2020, despite the lockdown enforced due to the COVID-19 pandemic, the SACCO posted a total revenue growth rate of 21%, making it one of the top five financially performing SACCOs, registering some of the highest revenue growth rate in addition to high membership, net income and total assets growth rates.

4.3.2. Demographical information

Level of Education

The interviews were commenced with queries posed to the respondents on their role at the SACCO. The SACCO had twenty-one employees with the key staff being the CEO, Finance

Manager, FOSA Manager, Credit Manager, Marketing Manager and the ICT Administrator. These six staff formed the subject matter experts for the interviews.

50% of the respondents at the SACCO were found to have master’s level education while 50% had bachelor’s level of education.

Use of tools

The respondents were asked to list the tools they considered to be crucial for undertaking their day to day operational and innovative activities, ranking them from most import to least important. 100% of the respondents listed the most important tool as their laptops. The study further noted the SACCO’s high reliance on several ICT tools to run the day-to-day activities of the SACCO. 83% considered email and internet to be crucial for performing their daily tasks, unlike the requirement to be in the office which was rated at 0% importance. Other results were as listed below.

	Laptop	Email	SACCO system	Internet	MS Office	Space & Staff	Mobile
	100%	83%	63%	83%	50%	0%	13%

Table 15: Ranking of most import tool by SACCO staff

The respondents were further asked to rank tools by level of importance in undertaking their day-to-day SACCO activities with the following results:

Tools	% Level of Importance
Laptop	26%
Email	21%
CBS, Data Centres	16%
Internet	21%
MS Office	13%
Space & Staff	3%

Table 16: Tools and level of importance

The SACCO CEO credited their ability to work remotely through the COVID-19 pandemic as a major contributor to their ability to remain in business during the lockdowns. This was consistent with the lower importance rating given to office space by respondents during the interview.

A heavy reliance on ICT tools for undertaking daily operational activities was noted, as was the high level of education of the SACCO staff; 50% of the respondents having been found to have master's level education while 50% had bachelor's level of education. The ability of staff to use appropriately ICT tools efficiently and effectively is key to a firm achieving high performance standards, ICT skills and knowledge of staff is key to a firm achieving high performance standards. Dube & Pare, (2004) stressed the importance of user competence and proficiency when it comes to utilising ICT tools over having a variety of sophisticated tools at their disposal that they have no skills to fully utilise. Employee competences is key to making optimum use of ICT tools and can have varied outcome on the team performance and outputs.

This finding of high prevalent usage of ICT tools was consistent with findings during the ICT use questionnaire. Nation SACCO was found to have 83% ICT usage prevalence versus the average 80% prevalence among the high performing SACCOs surveyed.

An average of 86% of SACCOs were also found to have setup standard infrastructure such as internet, email, corporate intranet, mobile, LAN, WAN and even social media accounts.

This finding is in keeping with the PDMA Comparative Performance Assessment Study (CPAS) 2012 study that indicated that the best performing firms use a variety of ICT tools more frequently in their innovation process than the rest of the lower performing firms (Markham and Lee, 2013).

Validity

The results indicated a high reliance on ICT tools to undertake day to day operational activities with the use of Laptop, Email and Internet being rated 100% critical to run operations successfully, with a content validity ratio (CVR) of 1 for all business units at the SACCO, while the Core Banking System, MS office tools, Mobile, Social and Media networks came a close second at 83% usage. Lawshe (1975) proposed that a level of 50% consensus provides some measure of assurance of content validity, (Ayre and Scally, 2014).

Tools	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6	CVR	% Usage
Laptop	x	x	x	x	x	x	1	100%
Email	x	x	x	x	x	x	1	100%
Core Banking System (CBS), ICT Infrastructure	x	x		x	x	x	0.667	83%
Internet	x	x	x	x	x	x	1	100%
MS office tools	x	x	x	x		x	1	83%
Office premises, workforce, Internal controls, Cash in hand	x	x		x		x	0.333	67%
Mobile, Whatsapp, Social Media, e-shots, TV	x	x	x	x	x		1	83%
Infrastructure; Data Centre, Servers, Design Tools, USSD, Service Providers	x	x	x	x	x		0.667	83%
Skills, Training, Seminars	x	x		x	x	x	0.667	83%
CVR(Critical) for a panel size (N) of 6 is 1.							0.833	

Table 17: Intensity of ICT use

4.3.3. Types of Innovations

Literature reviewed in section 2.1 established the types of innovations. With these attributes established, a look into the types of innovations undertaken within the SACCO was carried out. This commenced with the interviewees being asked to provide examples of innovation activities that they had taken part in.

From the responses received, five main innovation themes emerged: Strategic change of business direction, introduction of new process, new products, technology innovation and organisational innovation. A further refinement of the themes elicited the final codes which were used to analyse results; product or service Innovation, process innovation, technology Innovation, business model Innovation, marketing, organisational and market innovation, incremental and radical innovation.

The study found that while most innovation were ICT related at 30%, product and process innovations combined made up for 42% of innovations undertaken by respondents.

Types of innovations in the SACCO – Code Frequencies

Product/ Service Innovation	Process Innovation	Technology Innovation	Business Model Innovation	Marketing Innovation	Organisational Innovation	Market Innovation	Incremental Innovation	Radical Innovation
12	12	17	4	6	2	3	16	11
21%	21%	30%	7%	11%	4%	5%	61%	39%

Table 18: Summarised code frequency – Types of innovations

The results indicated that the most innovations undertaken by the SACCO were ICT rated at 30%, followed by process and product innovation each at 21%.

Reliance on ICTs for innovations

Out of the types of innovations identified as having been implemented at the SACCO, 83% of the process innovations, 50% of product innovations and 83% of market innovations undertaken were fully reliant upon ICT infrastructure for implementation. Respondents noted how these innovations had brought efficiencies and cost savings within their operations.

Data was analysed with the following results:

	Product/Service Innovation	Process Innovation	Technology Innovation	Business Model Innovation	Marketing Innovation	Organisational Innovation	Market Innovation
No. of Innovations	12	12	17	4	6	2	3
Reliant on ICT	6	10	17	1	5	0	1
% ICT Infrastructure reliance	50%	83%	100%	25%	83%	0%	33%

Table 19: Reliance on ICTs for innovations

71% of innovations undertaken at the SACCO were fully reliant on ICTs for implementation

The study further found that 61% of innovations undertaken at the SACCO were incremental as opposed to radical innovations which were 39%. This result was consistent with literature which showed a high prevalence of incremental innovations in products and processes for financial gain in SMEs, (Kiveu, 2017; Kiveu, Namusonge and Muathe, 2019; Macharia and Tirimba, 2018). (Kiveu, 2017), notes that incremental innovation is the common type of innovation in many organizations especially in SMEs and it builds upon existing knowledge and resources within a firm.

Garcia and Calantone, (2002) noted that such innovations include enhancements or line extensions by adding new features, (Garcia & Calantone, 2002).

Validity

An analysis of the findings with Lawshe (1975) content validity ratio (CVR) indicated a CVR of 1 (perfect agreement) for technology innovation, with CVR 0.667 indicating over 50% agreement on importance of process and incremental innovation having taken place at the SACCO. Lawshe (1975) proposed that a level of 50% consensus gives some assurance of content validity, (Ayre and Scally, 2014).

Tools	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6	CVR
Product/ Service Innovation	5	4	1			1	0.333
Process Innovation	4	3		3	1	1	0.667
Technology Innovation	4	3	2	3	1	2	1
Business Model Innovation	3	1			3		0.333
Marketing Innovation			6				-0.667
Organisational Innovation	2						-0.667
Market Innovation	2		1				-0.333
Incremental Innovation	3	3		3	3	2	0.667
Radical Innovation	7	3					-0.333
CVR(Critical) for a panel size (N) of 6 is 1.						CVI	0.167

Table 20: Tools rating validity

4.3.4. Influence of Innovations on SACCO Operations

Respondents were queried on their perception as to extent to which innovation had impacted the SACCO operations. Results indicated that innovations had impacted business efficiency by 45%, business growth activities by 33% and the ability to create new products and services impacted by 22%.

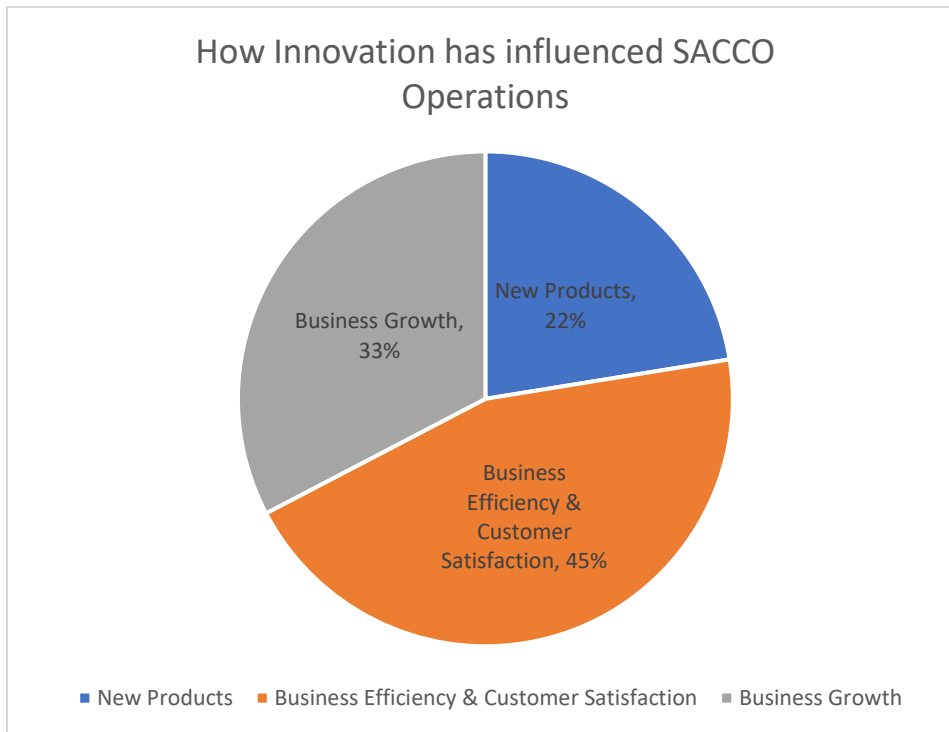


Figure 17: How Innovation has Impacted SACCO Operations

Tools	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6	CVR
New Products	x	x	x	x	x	x	1
Business Efficiency	x	x	x	x	x	x	1
Business Growth	x	x	x	x	x	x	1
Customer Satisfaction	x	x	x	x	x	x	1
CVR(Critical) for a panel size (N) of 6 is 1.						CVI	1

Table 21: Responses CVR rating

Noteworthy was the fact that respondent had placed the reliance of innovations on ICTs at 71% across all types of innovations. By inference, ICT usage made impact on the SACCO operations.

4.3.5. Indicators of Innovativeness in SACCOs

The previous question as to types of innovations that respondents had been involved in served as a preamble to exploring innovativeness at the SACCO as it placed the respondents in a reflective attitude. The next set of questions set to explore the existence of the innovativeness trait at the SACCO and its triggers.

Innovativeness

Synthesis of literature in section had aided the study in establishing a general definition of innovativeness and what it might look like in SACCOs. This aided in the identification of indicators that assisted the research in identifying innovativeness at the SACCO. Based on these predefined codes, the study was able to identify innovativeness indicators during the interviews with the respondents (see table 5). A close review of respondent responses elicited the existence of the following innovativeness traits within the SACCO:

Innovativeness Trait	Instances Exhibited	% of Trait Exhibited
Early Adoption Ideas	0	0%
Adoption of New Methods	52	28%
Adoption of New Ideas	35	19%
Proactive Staff, Risk taking	7	4%
Competitiveness	92	49%
Autonomy	3	2%

Table 22: Innovativeness traits within SACCOs

Interviews indicated several new ideas and methods of operations had been adopted at the SACCO indicating innovativeness. Staff were encouraged to be innovative with an innovation bonus policy being established at the SACCO. Staff were engaged in research and survey of their environment in justifying their innovative ideas. The management also encouraged experimentation and some level of risk taking, albeit in small quantities. Innovations that were found to be unsuccessful were quickly cancelled and taken back to the “oven” as per the respondents. The staff also had some

level of autonomy in making decision where costs were within their approved spending margins. This was especially common in marketing innovations. However, the SACCO scored low on early adoption of ideas as the favoured mode on innovation was to implement innovations that had been tested and found successful in other SACCOs.

There was no score for early adoption of innovative ideas indicative of the low-risk averse approach to innovation.

4.3.6. Sources of Ideas

Respondents were further asked how they got their innovative ideas. Respondents provided several sources such as brainstorming, problem solving, financial reports, research and survey over other SACCO activities, SACCO training network via regulatory bodies, experience in past jobs, occurrences in their environment (such as new regulations) and evolving customer demands.

Source of Ideas	Frequency
Problem solving (e.g. inefficiencies, loss)	12%
Regulatory Requirements	1%
Proactiveness (e.g. brainstorming, research, surveys)	16%
Exposure, Skills, Experience	3%
Technology push, Trends,	7%
SACCO network (KUSCCO, SASRA etc)	7%
Financial performance; Financial Targets	7%
Competition, environment	32%
Customer demands	16%

Table 23: Source of Ideas/Frequency

These findings were consistent with literature which substantiate these results , (Demircioglu, et al., 2019). Literature shows that particular knowledge such as customers, workers, universities or societies can enable firms to generate innovations.

4.3.7. Triggers of Innovativeness

The question as to what triggers innovation in SACCOs was posed to the respondents. Literature review undertaken in Chapter 2 indicated that the triggers to innovation can mainly be categorised as market pull or technology push. Market pull occurs when the market or customers demands a product or a service and businesses respond by providing the required product or service. Technology push occurs when businesses recognise a prospective opportunity arising that will benefit the customer (while improving performance for the business) and implement the prospective product or service for its customers use (Dixon, 2001). Innovation triggers have been further broken down as: financial where a company is seeking to increase its revenue, strategic depending on trends in the market, regulations from the regulatory bodies, seeking operational efficiency, customer demands, entrepreneurial or risk-taking behaviours and competition.

With the synthesis of the innovation ideas and triggers, the study was able to identify the following aspects of innovation triggers at the SACCO; shrinking numbers, bad publicity, poor records, loss of income, changing environment causing new ways of doing business, competition, customer demands among others.

Responses were recorded and coded, patterns and themes identified, refined and thereafter analysed for frequency of occurrence with the results below.

Innovation Triggers at the SACCO

FP	SK	CD	RR	TC	CP	MP	TP
Financial Performance	Staff Knowledge	Customer Demands	Regulatory Requirements	Technology	Competition	Market Pull	Technology Push
10	7	9	1	8	16	36	15
20%	14%	18%	2%	16%	31%	71%	29%

Table 24: Innovation triggers and frequency

The highest trigger to innovation was found to be competition being 31% of all triggers noted. The second highest trigger at 20% was the need for better and improved financial performance. This was followed by customer demands at 18% and available technology at 16%. Following closely was staff knowledge at 14%. Regulatory requirement triggers were found to be the least at 2%.

Overall analysis of the innovation triggers indicated that the SACCO innovations were a combination of market and technology pull. Market pull innovations were found to be higher at 71% while technology pull innovations were at 29%.

4.3.8. Barriers of Innovativeness and Innovations

The study sought to learn from the respondents the barriers to innovativeness and innovations. (Groskovs, 2016) defines a barrier as something “prohibiting, breaking, impeding or standing in the way of a successful outcome”. Respondents identified several barriers: internal resistance by staff and/or board members leading at 43%, lack of skills, lack of funds and competing priorities following at 29%, followed by lack of skills at 14%. Limited technology and low customer uptake of innovation were also listed as barriers at 7% each. These barriers undermine the success of the innovative process.

Causes of internal resistance were noted as fear of change, lack of training, risk aversion or fear of loss. Respondent noted that such internal fears could be overcome with provision of training, awareness creation of what was happening in the environment coupled with detailed justification of the innovation providing; potential for growth and profits, projection of future profits and cost benefit analysis indicating the cost of changing versus the cost of remaining the same.

Funding was also found to be a big barrier, with competing priorities being noted. Lack of skills was also seen as a barrier to innovativeness.

Barriers to Innovation (Case Study Findings)	% Percent
Internal, Board, member resistance	43%
Funding, resources, competing priorities	29%
Low customer uptake	7%
Lack of skills	14%
Limited technology	7%

Table 25: Barriers to innovation – case study findings

These findings confirmed the results of the survey questionnaire undertaken in the previous section of the study where barriers to innovation were provided by respondents. The finding placed the highest barriers as Budgetary constraints, internal resistance and lack of skills.

Barriers to Innovation (Survey Findings)	% Percent
Budget/Cost/ Priorities	30%
Resistance; Management/ members	27%
Lack of Skills	20%
No Standard systems/ Vendor Support	14%
ICT Not in Top Management	7%
Regulations	2%

Table 26: Barriers to innovation - SACCO survey findings

Drivers of Innovativeness and innovation

In this section, respondents were queried on aspects of their working environment that they found to be supportive of innovativeness. The following questions were posed to the respondents; what resources, environment and tools were a must to have in order for the innovation to work and what was supportive in the process of innovation?

All the respondents agreed that ICT tools, the incentive to be innovative policy, a management that supported innovation and a culture that allowed experimentation were the biggest enablers to innovation at the SACCO. Teamwork within the SACCO and peer networking were also seen as big drivers to innovativeness. Respondents mentioned getting ideas from their SACCO network. Respondents found that funding was not an issue as long as an idea was well researched and justified. Respondents found that there was some level of autonomy as long as the idea was within the approved operational parameters of the SACCO. Anything exceptional would have to get the requisite approval.

Factors Supportive of Innovativeness	% Percent
ICT tools	100%
Budget/Funding	50%
Skills	50%
Autonomy	50%
Incentive Policy/ Bonuses	100%
Supportive Culture, Leadership, Board support	100%
Experimentation allowed, follows trends, vibrant innovative culture	100%
Teamwork, Open door	83%
Training, team building	50%
SACCO, Peer Networking	83%

Table 27: Factors supportive of innovativeness

These findings were also consistent with studies by other scholars who reviewed drivers and barriers of innovations in SACCO, (Wachira, Muturi and Sirma, 2014; Chepkwei, 2019; Musya, 2009; Njau, Waiganjo and Kamau, 2015).

4.3.9. The Process of Innovation

In the previous chapters, several innovation process models and factors were reviewed which showed the various ideas in terms of innovativeness and what stems innovation success. All reviewed models classify some form of stages or main activities along the innovation process, indicating some form orderly process, though not necessarily linear.

The innovation process is primarily a knowledge transformation process. A problem or a concern being faced is the trigger of the innovation process that generates ideas, plans, objectives and other intentions along the innovation process (Penide, et al., 2013).

Innovation process synthesis

Review of literature on models of the innovation process found commonalities that indicated that all models start with the quest of an idea for innovation. Idea options are then narrowed down to make a decision, and to select prioritised projects that will be pursued. Thereafter, the process of refining, developing and managing the project activities to turn the selected idea into a tangible output commences. Once development is completed, it is implemented into the “real world” where it is thereafter commercialised and monitored for KPIs and for any corrective adjustments where required (also termed as learning by some scholars), going back through the cyclical process where required.

The reviewed innovation process models have been further refined whereby a stage or phase is included where two or more scholars have considered it to be a stage or a phase. This refined model outlined below will be used in this study for further analysis of the process of innovation in SACCOs.

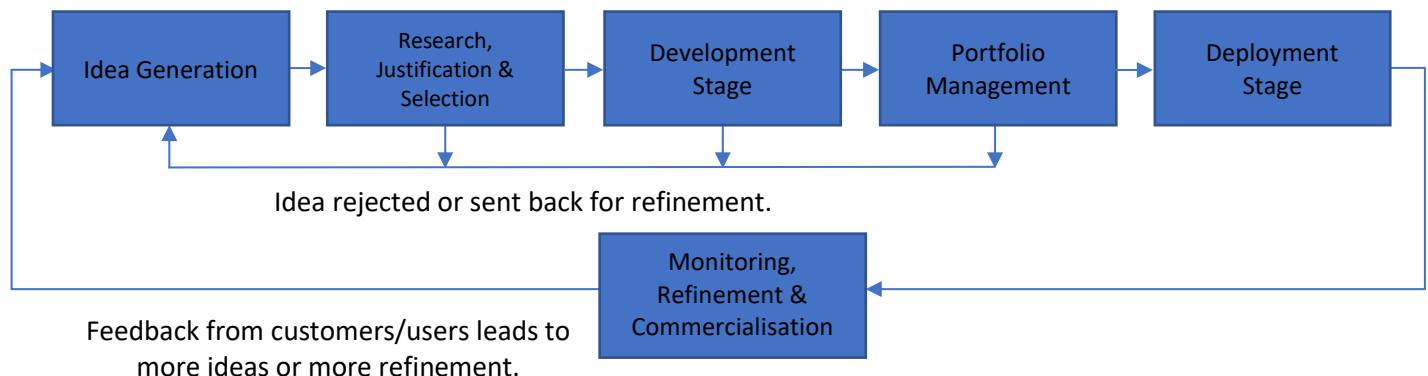


Figure 18: Refined process of innovation

Coding Scheme

From the models reviewed, the main innovation process in this study was formed by finding common names for combined stages, reducing them to codes for each innovation stage. Therefore, initial idea formation stage i.e. “Idea Generation, Scoping, the generation of possibilities, Idea crystallisation, Analyse environment and identify opportunities, Search, Objectives” was reduced to “Ideation” as the main stage. Descriptive words such as “Scoping, brainstorming,” were also added as codes under “Ideation.” Similar routine was used to the other stages as well resulting in the table below.

Stage	Code	Stage	Code
Ideation	Idea, Scoping, Possibilities strategy, Opportunities Search, Objectives	Justification	Persuasion, investigate, Advocacy, Selection, Screening, Filtering, Funding Decision, Business case, Research, Consolidation, Select, Research, Project, Investment
Development	Development, Prototype, Demonstration, Plan, Execute, Conversion, Experimentation, R&D, Testing, Modelling, Pilot, Trials, Evaluation, Validation	Portfolio	Plan, Project, Sponsor, Prioritise, Teams, Controlling, Strategy, Management, Realisation, Monitoring, Analysis
Deployment	Launch, Implementation, Implement, Production	Commercialisation	Marketing, Customers, Market, Diffusion, Differentiation, Multiplication, Replication, Sales, Learning

Table 28: Coding scheme

To enrich the above codes to be more expansive, these were further enhanced using a coding scheme utilised in developing dimensions of software quality by (Usrey & Dooley, 1996). This was used to allocate additional codes to the various aspects of innovation shown in the table above.

Further localisation of terms to suite the local SACCO environment was also undertaken to include words such as “board paper”, “sub-committees” and “return back to the oven” which meant to withdraw an innovation and return it back to R&D for enhancement. Based on interviews held with the SACCO, two additional analysis codes were added; communication which occurs throughout the lifetime of the innovation process and monitoring which continues past implementation and sometimes informs on withdrawal of innovations gone wrong.

Extended Coding Scheme

Stage	Code	Stage	Code
Ideation	Idea, Scoping, Possibilities, strategy, Opportunities Search, Objectives, idea, brainstorm, inspiration, invention, inventiveness, study, competition, research, survey, Issue, challenge, boredom, targets, lack of growth, competition, commission a study, business requirements, business need, business concern, financial performance, incentive policy, board paper, network.	Justification	Persuasion, investigate, Board paper, Sub-committee buy-in, Board Committee, business projection, AGM, Advocacy, Selection, Screening, Filtering, Funding, Decision, Business case, Research, Consolidation, Select, Research, Project, Investment, confirmation Explanation, rationalisation Account, advocacy, defence, Support, validation, approval, budget
Development	Development, Prototype, Requirements, Vendor, Contract, Programming, Demonstration, Plan, Execute, Conversion, Experimentation, R&D, Testing, Modelling, Pilot, Trials, Evaluation, Validation, Build-up, Expansion, evolution, advancement, increase, Enhancement, progress,	Portfolio	Plan, Project, Sponsor, Updates, Timeline, Targets, Prioritise, Teams, Controlling, Strategy, Management, Realisation, Monitoring, Analysis, Programs, pipeline, Roles & Responsibilities allocated, HOD Meetings, Action plans, Timelines

	addition, boost, contract, bring a policy or change, Select team, plan commence, execute		
Deployment	Launch, Implementation, Production, Distribution, Positioning, Delivery, Setup, rollout	Commercialisation	Rollout, Announce, Alert, e-shots, TV promotion, visibility, Marketing, Customers, Market, Diffusion, Differentiation, Multiplication, Replication, Sales, Learning, Profitable, Sell, Returns Market, Advertise, Marketable, Monitor, Evaluating for success, withdrawal, Growth
Communication	Sub-Committees, Board of Directors, AGM, HODs meetings, team meetings, Action plans and timelines, formal and informal in-person meetings, Emails, Fliers, e-shots, TV, Website, WhatsApp, Social Media, Announce	Monitoring	Realisation, Monitoring, Analysis, Learn, Enhance, Tweak, Withdraw, Stop, Remove

Table 29: Extended coding scheme

Ideation to Project Funding Approval Process

The question as to how respondents went from idea formation to actual approval of an idea and to allocation of funding was posed. Based on the predefined codes, the study was able to identify the following steps in the ideation to project process with the respondents responding as below.

Table 30: Ideation to project approval steps

	Process	INT1	INT2	INT3	INT4	INT5	INT6
1	Strategy		x				
2	Problem / Issue / Challenge	x	x	x		x	x
3	Idea Generation	x	x	x	x	x	x
4	Unit Team Discussion	x	x	x	x		
5	Research, Proposal	x	x	x	x	x	x
6	Management Approval / CEO	x		x	x	x	x
7	Board Paper	x	x	x		x	x
8	Sub Committee Buy-in	x	x	x	x	x	
9	Board Approval	x	x		x	x	x

10	Funding	x	x	x	x	x	x
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Question. How did you go about promoting it (idea) and making it an actual (innovation) process?

Question. Who collaborated or what teams worked on this idea?

Results Refinement

Results were analysed with the Lawshe (1975) content validity ratio (CVR) and found to have an overall Content Validity Index (CVI) of 0.667.

Tools	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6		CVR
Strategy		x						-0.333
Problem / Issue / Challenge	x	x	x		x	x		0.667
Idea Generation	x	x	x	x	x	x		1
Unit Team Discussion	x	x	x	x				0.333
Research, Proposal	x	x	x	x	x	x		1
Management Approval / CEO	x		x	x	x	x		0.667
Board Paper	x	x	x		x	x		0.667
Sub Committee Buy-in	x	x	x	x	x			0.667
Board Approval	x	x		x	x	x		1
Funding	x	x	x	x	x	x		1
CVR(Critical) for a panel size (N) of 6 is 1.							CVI	0.667

Items found to have CVR value of less than 0.66 were removed from the process making the final CVI of 0.834. These steps were used to form the SACCO ideation process flow.

Tools	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6		CVR
Problem / Issue / Challenge	x	x	x		x	x		0.667
Idea Generation	x	x	x	x	x	x		1
Research, Proposal	x	x	x	x	x	x		1
Management Approval / CEO	x		x	x	x	x		0.667
Board Paper	x	x	x		x	x		0.667
Sub Committee Buy-in	x	x	x	x	x			0.667
Board Approval/AGM Approval	x	x		x	x	x		1
Funding	x	x	x	x	x	x		1
CVR(Critical) for a panel size (N) of 6 is 1.							CVI	0.834

Tables 31 : Ideation process content validity ration

The remaining Items with CVR value of above 0.66 were used to formulate the SACCO's ideation to project approval and funding process flow with the results below.

Ideation to Funding Process

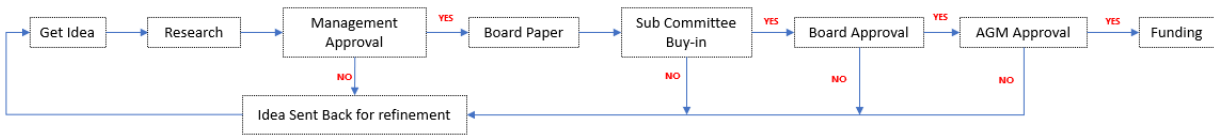


Figure 19: Ideation to realisation process

Ideation to Funding Process

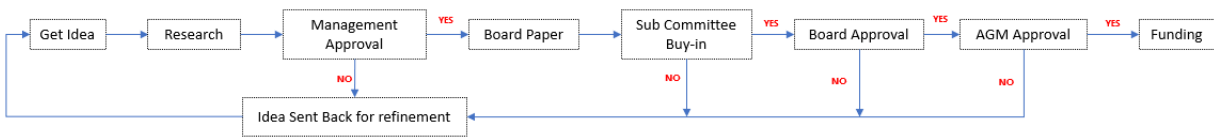


Figure 20: Ideation to initiative funding process

Respondents were able to further highlight the specific activities undertaken within the ideation process.

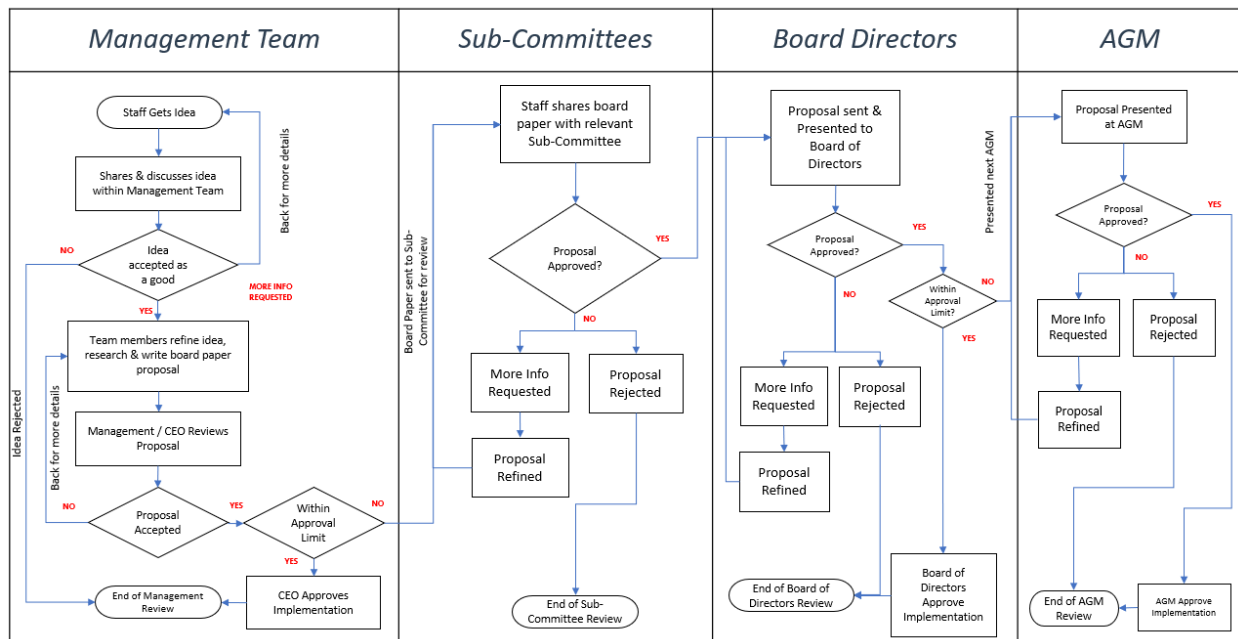


Figure 21: Consultations, justification, advocacy to approval process

A process of thorough justification is undertaken to ensure that ideas are approved for implementation. Respondent mentioned the ability to do thorough research, outline the costs versus gains for the business, indication of how it was working somewhere else successfully as

sure means of attaining sub-committee buy in. Once the sub-committee was convinced, it was almost likely that the board would approve the idea for funding and implementation. Ideas that needed a substantial funding or required a radical change of the business had to be approved by the AGM.

Actualisation of the Innovation

Respondents were further asked to describe how they undertook the actual innovation process after attaining approval and funding to proceed. This aided in further review and analysis of the process involved in actualising the approved ideas with the results outlined below.

Q: How was the innovation process undertaken?

Q: How did you organize yourself and communicate within the team and stakeholders?

Q: How long did the innovation process take? How did you keep track of the process?

	Process / Action Taken	INT1	INT2	INT3	INT4	INT5	INT6
1	ID Head of Dept most responsible	x	x	x	x	x	x
2	ID collaborating HOD Units (teams)	x	x	x			
3	HODs Prepare requirements	x	x	x	x	x	x
4	Requirements refined with Team			x	x		
5	CEO approves requirements	x		x	x		
6	Requirements to ICT (if ICT related)		x	x	x	x	x
7	ICT forwards to Vendor		x	x	x	x	x
8	Vendor agrees project plan with SACCO team		x		x	x	x
9	Development & Implementation Commences	x	x	x	x	x	x
10	Testing & training		x		x		x
11	Project supervised by PMs. ICT and Vendors	x	x	x		x	x

Table 32: Steps towards actualisation of an innovative idea

The elicited process was reviewed for content validity with the following results:

Part A

Tools	INT1	INT2	INT3	INT4	INT5	INT6	CVR
ID Head of Dept most responsible	x	x	x	x	x	x	1
ID collaborating HOD Units (teams)	x	x	x				0
HODs Prepare requirements	x	x	x	x	x	x	1
Requirements refined with Team			x	x			-0.333
CEO approves requirements	x		x	x			0
Requirements to ICT (if ICT related)		x	x	x	x	x	0.667
ICT forwards to Vendor		x	x	x	x	x	0.667
Vendor agrees project plan with SACCO team		x		x	x	x	0.333
Development & Implementation Commences	x	x	x	x	x	x	1
Testing & training		x		x		x	0
Project supervised by PMs. ICT and Vendors	x	x	x		x	x	0.667
CVR(Critical) for a panel size (N) of 6 is 1.						CVI	0.5

Part B

	Tools	INT1	INT2	INT3	INT4	INT5	INT6	CVR
1	ID Head of Dept most responsible	x	x	x	x	x	x	1
2	HODs Prepare requirements	x	x	x	x	x	x	1
3	Requirements to ICT (if ICT related)		x	x	x	x	x	0.667
4	ICT forwards to Vendor		x	x	x	x	x	0.667
5	Vendor agrees project plan with SACCO team		x		x	x	x	0.333
6	Development & Implementation Commences	x	x	x	x	x	x	1
7	Project supervised by PMs. ICT and Vendors	x	x	x		x	x	0.667
	CVR(Critical) for a panel size (N) of 6 is 1.						CVI	0.8

Table 33: From approval of idea to implementation and actualisation of idea

Items with CVR values of less than 0.33 were removed from the process as any item which is perceived to be “important” by more than half of the respondents, has some degree of content validity.

Based on the data analysed, the study elicited the following process of actualising ideas

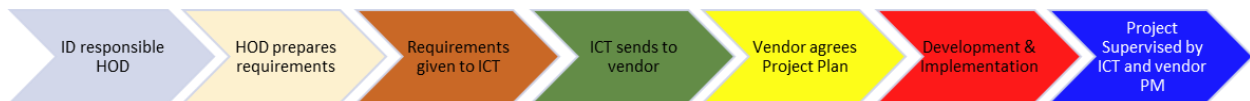
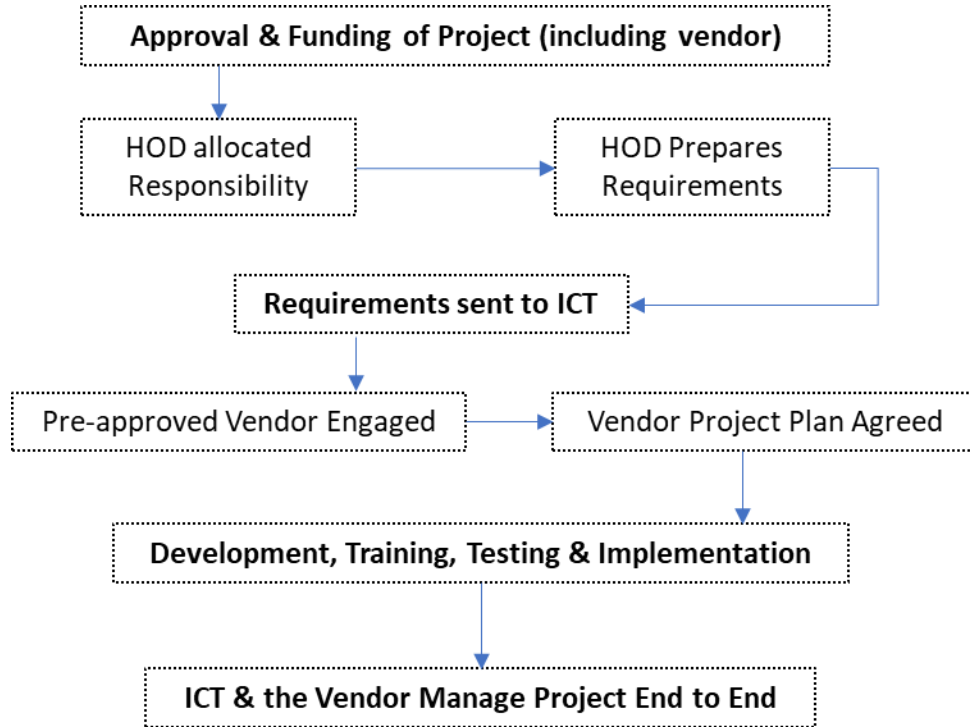


Figure 22: Idea implementation process

Length of Implementations

Respondents were asked how long it took to have innovation ideas approved.

Ideation Approval	INT1	INT2	INT3	INT4	INT5	INT6
Less or equal to 1 month		x	x	x	x	x
2 months	x					
Conclusion	It takes mostly one month for an idea to be approved					

Table 48: Ideation Approval

Respondent noted the reliance on the ICTs to maintain communication and progress throughout the process favouring tools such as email, PowerPoint and excel for reporting. Open door face to face communication was also favoured

Tools	CVR
Daily/Weekly team meetings	0.667
Daily Open door, Verbal, on the Floor, In person	1
Email	1
Reports	1
Mobile, Whatapp	0.667
CVR(Critical) for a panel size (N) of 6 is 1.	0.9

Table 34: Operational reliance of ICTs

Respondents were asked how long it took on to implement innovations.

Innovation Implementation	INT1	INT2	INT3	INT4	INT5	INT6
Depends on innovation	x	x	x	x	x	
Less than 3 months		x	x	x	x	x
1 year big ones		x				

Table 35: Innovation implementation timelines

Respondents agreed that it took less than one month to have most ideas approved. Implementations however depended on level of complexity. However, many were completed within three months. This would be indicative of incremental innovations that are also not very new i.e. have been implemented elsewhere hence easy to rollout. Heavy reliance on vendors for

project direction and implementation was noted. Reliance on ICT tools for communication was also noted.

Influence of Innovation on the SACCO

Respondents were queried on influence that the innovations implemented had on their operations. Respondents found that innovations had impacted both their revenues and customer service satisfaction by 20%. Innovations were also found to have impacted efficiency by 16%

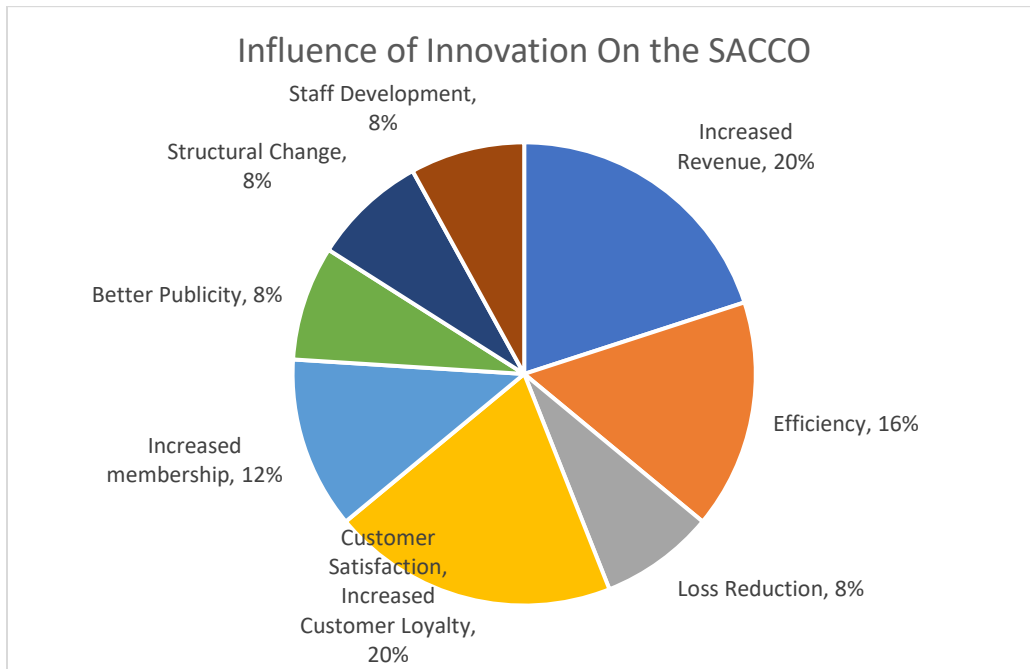


Figure 23: Influence of innovation on the SACCO

Impact	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6	CVR
Increased Revenue	x	x	x	x	x		0.667
Efficiency	x	x		x		x	0.667
Loss Reduction	x			x			-0.333
Customer Satisfaction, Increased Customer Loyalty	x	x	x		x	x	0.667
Increased membership			x	x	x		0
Better Publicity				x	x		-0.333
Structural Change	x	x					-0.333
Staff Development	x				x		-0.333
CVR(Critical) for a panel size (N) of 6 is 1.						CVI	0.084

Table 50: Impact of Innovation

Top benefits gained after implementation of innovations were noted as below:

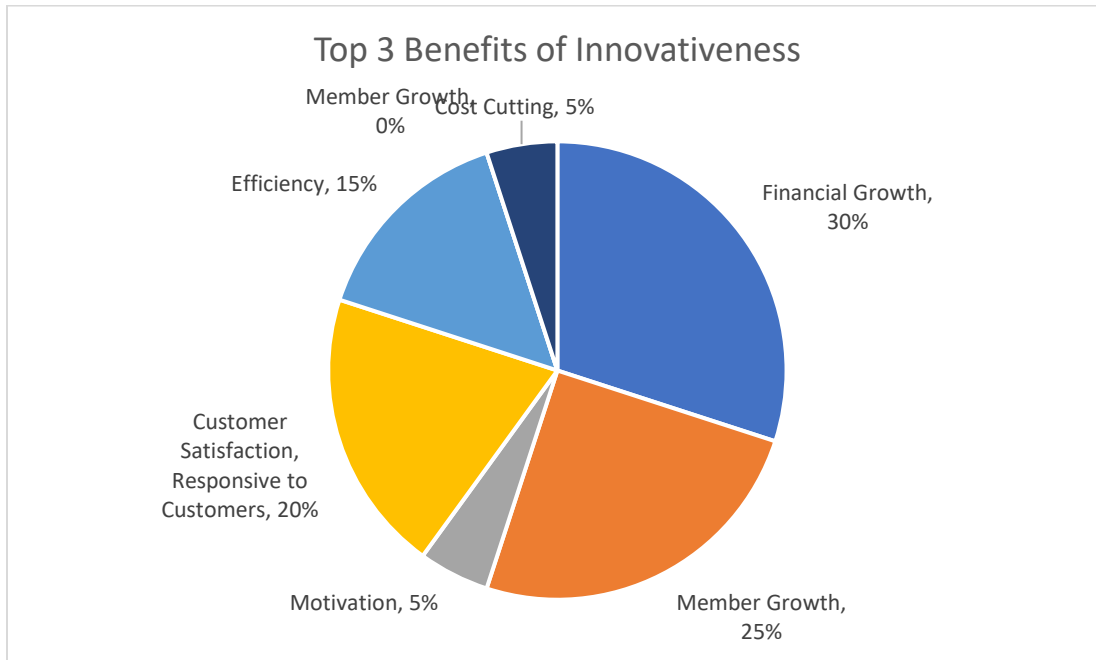


Figure 24: Top 3 Benefits of Innovativeness

Benefits	RESP1	RESP2	RESP3	RESP4	RESP5	RESP6	CVR
Financial Growth	x	x	x	x	x	x	1
Member Growth	x	x	x	x		x	0.667
Motivation	x						-0.667
Customer Satisfaction, Responsive to Customers	x	x			x	x	0.333
Efficiency		x			x	x	0
Member Growth							-1
Cost Cutting						x	-0.667
CVR(Critical) for a panel size (N) of 6 is 1.							-0.048

Table 36: Perceived benefits of innovation

Respondent were in perfect agreement that innovations had benefited the SACCO financially.

Members also agreed on the impact of innovation on member growth followed closely by customer satisfaction.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

This research aimed at identifying the process of innovativeness and innovations in SACCOs and the influence of ICTs on the process in an effort to help SACCOs improve their innovation processes. There are a few studies in Kenya, if any, that have endeavoured to show the influence of the use of ICTs on innovativeness and innovation, delving into the innovative process of SACCOs and the impact it has on the overall performance of the SACCO. This study will therefore form a springboard for other studies because it will provide information that is specific to SACCOs in Kenya.

Based on this research it is concluded that the use of ICTs is a critical facilitator in innovativeness. The significant outcome and effects that were obtained from respondents allow us to infer that technology greatly aid SACCOs to improve their level of innovation and thus improve upon their overall business performance.

While most innovations at the SACCO were found to have been triggered by competition (31%) and need for financial performance enhancement (20%), the study found that these innovations (71%) were fully reliant on the use of ICTs for actualisation. Innovations that ushered in efficiencies, with the automation of previously manual processes more products and services, cost operational costs and eventually improved financial performance were implemented on the backbone of the ICT infrastructure.

Technology is enabling the smaller size SACCO to compete at the same space as the bigger SACCOs and other financial institutions. The smaller and lean SACCO operate at a fraction of the costs of the bigger institutions hence giving the smaller SACCOs a competitive edge. Nation SACCO has less than 50 employees and posted a higher growth rate than larger SACCOs in 2019-2020 financial year.

SACCO	No. Staff		
WANANDEGE SACCO	<50		50%
UNAITAS SACCO	>100		30%
WAUMINI SACCO	50-100		20%

MAGEREZA SACCO	50-100		
NATION SACCO	<50		
MAISHA BORA SACCO	<50		
KENPIPE SACCO	<50		
HAZINA SACCO	<50		
STIMA SACCO	>100		
MWALIMU NATIONAL SACCO	>100		

Table 37: SACCO staff resources

Furthermore, the small size of the SACCO, open door policy and lack of major formalities means the SACCO is able to turnaround ideas for innovation relatively quickly, hence taking advantage of opportunities faster. Out of the top 10 high performing SACCOs that participated in the ICT survey questionnaire (see table 11), 50% had less than 50 staff versus 30% who had over 100 staff and 20% with over 50 but less than 100 staff. Smaller SACCO are able to be just as competitive as the larger SACCOs, offering similar or competitive technology-based products and services.

Thus, the outcome of this study indicate that the use of ICTs is a critical factor that improve innovativeness in SACCOs and their capacity to innovate, which in turn leads to better performance, growth and competitiveness in the market. This assertion is agreement with findings from several scholars ((Ileri & Idowu, 2017); (Mang’ana, et al., 2015); (Momanyi Mochere, et al., 2014); (Wachira, Muturi and Sirma, 2014;)) who looked at the influence of information technology innovation and the operational performance of financial institutions, confirming their positive corelation. Others also sought to find out extent to which SACCOs have invested in IT to achieve sustainable competitive advantage over their rivals and the effect of ICTs on the operations such as (Ileri and Idowu, 2017; Momanyi Mochere, Osoro, Nyagol and Odoyo, 2014; Wachira, Muturi and Sirma, 2014).

Contribution to Theory and Practice

Very few researches have combined the concepts of ideation, innovativeness, drivers, barriers and the innovation process. This study contributes to theory by providing an in depth qualitative study of innovativeness and the process of innovation in SACCOs, covering all these areas of innovation and innovativeness literature. Moreover, this research contributes to theory by elaborating on the process of innovation in SACCOs in Nairobi. Most literature on the process of innovation are developed mostly for developed countries in Europe and America. Similar

literature for third world countries is fragmented with scanty information. This research focuses on SACCOs while helping to identify attributes of innovation regardless of size of organisations. The innovation process outlined can help managers in SACCOs to better understand how to establish innovation models in their organisations. Finally, the study contributes to theory by identifying innovation process similarities and differences in large and small financial institutions. This could help policy makers when making decisions targeting a specific category of financial institutions.

A model for the innovation process from ideation to implementation was presented. Drivers of innovativeness were explored along with the barriers that make the innovation activities either succeed or fail. Factors indicating “innovativeness” were also explored. Providing this information will aid SACCOs in knowing what to nurture and what pitfalls to avoid in the innovation process.

Recommendations for future study

Research in measuring innovations in SACCOs in Kenya has been rather fragmented. This is probably due to the fact that innovation is a relatively new area of research whose process is a difficult concept to measure. Efforts should be made to promote guidelines and build a framework with metrics that allows for the measurement of SACCOs innovativeness.

Future studies could utilise the process mapping provided in this study to develop a tool for monitoring and accessing innovativeness and innovations in SACCOs. Such a tool could be utilised by the SACCOs to rate themselves and aid in making the relevant timely adjustments that would aid in nurturing innovativeness. This would enable SACCOs to get timely accurate feedback on the effectiveness on innovation activities, be more relatable to performance, and hence encourage more innovativeness in the sector.

Limitations and further research

The major limitation of the research is that the study used only one SACCO as a case study due to COVID-19 restrictions encountered during the study. Issues of lockdowns, social distancing and work from home restrictions experienced during the study made it difficult to arrange for interviews and meetings. Lack of availability of respondents due to illness either directly or their dependents contributed significantly to minimising opportunities for further case study.

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APPENDICES

A1. APPENDIX 1 – Research Permit

 REPUBLIC OF KENYA National Commission for Science, Technology and Innovation	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 367634	Date of Issue: 15/February/2021
RESEARCH LICENSE	
	
This is to Certify that Ms. Agnes Mumbi Gichuki of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: The effect of ICT implementation and use on SACCO Innovativeness and performance: Case of SACCOS in Nairobi County, Kenya. for the period ending :15/February/2022.	
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A2. APPENDIX 2 – SASRA Research Secondary Data



SASRA%20Data%20
Correlations%20and%
SASRA Secondary Data

A3. APPENDIX 3 – SASRA Research Secondary Data

A: Background Information

This section collects background information on your SACCO (Please tick appropriately or fill additional information in the space provided).

1 Please provide the name of your SACCO in the section below:

Please write your answer here:

2 Kindly Select Your Gender *

Please choose only one of the following:

- Female
- Male

3 Please select your HIGHEST education level fully completed and certified *

Choose one of the following answers

Please choose only one of the following:

- Primary
- Secondary
- College Graduate
- University Graduate
- Masters Graduate
- Doctorate
- Other

4 What department are you working in? *

Choose one of the following answers

Please choose only one of the following:

- Top Management
- Administration
- Audit / Compliance
- Human Resources
- Finance
- ICT
- FOSA
- BOSA
- Sales / Marketing / Business Development
- Others: Please enter comments in the top right comment box above.

Make a comment on your choice here:

5 How long have you been working at your current SACCO? *

Choose one of the following answers

Please choose only one of the following:

- Less than 2 years
- 2 - 5 years
- 5 - 8 years
- 9 - 13 years
- Over 14 years

6 For how long has your SACCO been in existence? *

Choose one of the following answers

Please choose only one of the following:

- 0 - 5 Years
- 6 - 10 Years
- 11 -15 Years
- 16 - 20 Years
- 20 Years and Above

7 How many members does your SACCO have? *

Choose one of the following answers

Please choose only one of the following:

- Below 5000 Members
- 5001 - 10000 Members
- 10001 - 20000 Members
- 20001 - 50000 Members
- 50001 Members and above

8 How many employees are there in your organisation? *

Choose one of the following answers

Please choose only one of the following:

- Less than 50
- 50 - 99
- 100 - 499
- 500 - 999
- Over 1000

9 Has your SACCO re-branded in the past? *

Choose one of the following answers

Please choose only one of the following:

- Yes
- No
- Currently Rebranding
- Planning to Rebrand

Make a comment on your choice here:

10 Please tick the ownership category that best describes your SACCO *

Check all that apply

Please choose all that apply:

- Government employees
- Teacher based
- Farmers based
- Private Sector employees
- Others (Please specify):

B: ICT Adoption & Frequency of Use

The questions in this group relate to the level of ICT Adoption as well as the frequency of usage of ICT technology in the SACCO.

11 Our SACCO has been engaged in the following activities in the last 0-6 years. Select the one that applies: *

Please choose the appropriate response for each item:

	1 Not at all	2 Little Extent	3 Moderate Extent	4 Large Extent	5 Very Large Extent
Has undertaken Automation in the Back Office Service Activity Operations					
Has undertaken Automation in the Front Office Service Activity Operations					
Has undertaken Other Operational Process Automation					
Have undertaken Automation of ICT Security, Backup & Recovery					
Has undertaken some ICT process Automation					

12 The following Management Information Systems are currently in use at our SACCO? Select all that apply. *

Please choose the appropriate response for each item:

	1 Not at all	2 Little Extent	3 Moderate Extent	4 Large Extent	5 Very Large Extent
Integrated SACCO Management Software / ERP (having all SACCO modules FOSA, BOSA, HRM, Procurement etc)					
FOSA SACCO Management System					
BOSA SACCO Management System					
Online Banking System					
Mobile Banking System					
Loans Management System					
SACCO Accounting System					
CRM Management					

13 Our SACCO uses the following Payment Systems. (Select the one that applies) *

Please choose the appropriate response for each item:

	1 Not at all	2 A few Exceptions Only	3 <u>Occasionally</u>	4 Moderately	5 Frequent to High Usage
ATM					
Debit Cards					
Credit Cards					
Bank to Mobile Payment					
Mobile to Bank Payment					
Internet Payment					
POS Payment Systems					
RTGS					
Electronic Funds Transfer					

14 Our SACCO utilises the following ICT Business Tools in our day-to-day operations. (Select the most appropriate answer) *

Please choose the appropriate response for each item:

	1 Not at all	2 A few Exceptions Only	3 <u>Occasionally</u>	4 Moderately	5 Frequent to High Usage
AML System					
Cyber Security System					
Market research and Market intelligence Systems					
Bulk SMS					
Call Centre Management Solution					
Interactive Voice Response (IVR) phone system					
On-line Website Chatbot					
Business Intelligence, Data Analytics & Predictive Reporting Tools					
Application Programming Interfaces (APIs)					

15 Our SACCO relies on the following ICT resources to undertake its daily operations. (Select the one that applies) *

Please choose the appropriate response for each item:

	1 Not at all	2 Little Extent	3 Moderate Extent	4 Large Extent	5 Very Large Extent
Internet					
Mobile Network					
Corporate Intranet					
Corporate Email System					
Wide Area Network					
Local Area Network					
USSD Codes					
Website					
Social Media - Twitter, Facebook, Linkedin etc					

C: Intensity of ICT Use

The questions in this group relate to the usage of ICT technology in SACCOs and seeks to understand how ICTs have influence SACCO operations.

16 Of the innovations listed below, which one does your SACCO consider as key to success in service delivery and improved financial performance? Ranked 1 for least important to 5 for most important. * Please choose the appropriate response for each item:

	1 Not Important	2 Slightly Important	3 Somewhat Important	4 Important	5 Very Important
Integrated SACCO Management Software / ERP (having all SACCO modules FOSA, BOSA, HRM, Procurement etc)					
FOSA SACCO Management System					
BOSA SACCO Management System					
Online Banking System					
Mobile Banking System					
Loans Management System					
SACCO Accounting System					
CRM Management					
Electronic Document Management System (EDMS)					
Payroll Management System					
HRM Management System					

17 Of the innovations listed below, which one does your SACCO consider in the realisation of high revenue turnover in the SACCO? Ranked 1 for the least important to 5 for the most important. *
Please choose the appropriate response for each item:

	1 Not Important	2 Slightly Important	3 Somewhat Important	4 Important	5 Very Important
Electronic Funds Transfer					
Internet Banking					
ATM deposits and withdrawals					
Office process automation					
Others					

18 Select the most appropriate answer below that matches your SACCO's ICT Operational Usage: *
Please choose the appropriate response for each item:

	1 Not at all	2 Little Extent	3 Moderate Extent	4 Large Extent	5 Very Large Extent
Our SACCO uses Social Media (Facebook, Twitter, Youtube, Instagram) to communicate with our clients					
The process of Account Opening is automated					
The process of Loan Application is automated					
The process of Loan Credit Scoring & Approval is automated					
Our SACCO places orders for goods or services via SACCO's Procurement System (e.g. ERP, purchasing systems)					
Our SACCO places orders for goods or services via the internet (online purchases)					
Our SACCO sell products and services digitally e.g. Loans (via the Internet or mobile)					
Compared to five years ago, the amount of capital investment in ICT is higher					
Compared to five years ago, the amount of ICT related operational costs is higher					

19 To what extent have the following products & services sales benefited from the use of ICTs: 1 being the least useful to 5 being the most useful.

* Please choose the appropriate response for each item:

	1 Not useful at all	2 Slightly useful	3 Somewhat useful	4 Moderately useful	5 Very Very Useful
Customer Service Channels					
Membership Statistics					
FOSA Savings Products					
FOSA Loan Products					
BOSA Savings Products					
BOSA loan Products					
Salary Processing					
Account Withdrawals					
Electronic Funds Transfer (EFT& RTGS)					
Debit Card issuance & management					
Standing Orders					
Bankers Cheques management					

20 To what extent has the use of ICT influenced and been beneficial to the following processes? 1 being the least useful to 5 being the most useful

* Please choose the appropriate response for each item:

	1 Not useful at all	2 Slightly useful	3 Somewhat useful	4 Moderately useful	5 Very Very Useful
Meeting regulatory requirements					
Improved Public confidence					
Managing credit risk					
Increased lending capacity					
Increased capital					
Provides a base for future Growth of SACCO					
Increasing membership base					
Diversifying product base					
Decreased writing off Nonperforming loans					
Defining and calculation of ratios					
Recruitment of new members					
Reduced <u>member</u> pay outs					
Restricted avenues for investment					
Reduced lending capacity					

D: Proficiency of ICT Use

The questions in this group relate to the proficiency and advanced ICT technology usage in SACCOs processes.

21 To what extent do you agree or disagree with the statements below on impact of ICTs on Operational Processes? *

Please choose the appropriate response for each item:

	5 Strongly Agree	4 Agree	3 Not Sure	2 Do Not Agree	1 Strongly Disagree
Automation: Automation of SACCO operations has enhanced efficiency of operations					
Cashless: Cashless services has reduced operation costs Paperless: Adoption of paperless services has reduced cost of offering services.					
Paperless: Adoption of paperless services has reduced cost of offering services.					
Mobile banking: Mobile banking has had a positive effect of increasing commission fee-based income					
ICT implementations have Improved the process of Opening of New Accounts					
ICT implementations have Improved the process Loan Application & Approval Process					
ICT implementations have contributed to the Increase in volume of loans lent					
ICT implementations have improvement credit sharing information					
ICT implementations have greatly enabled making of investment decisions					
ICT implementations have largely contributed to minimising loan defaulting rate					
ICT implementations have Improved credit registry reports					

22 To what extent does the following statement accurately describe your SACCO's development of employee capacity and/or acquisition of knowledge? *

Please choose the appropriate response for each item:

	5 Strongly Agree	4 Agree	3 Not Sure	2 Do Not Agree	1 Strongly Disagree
We have a well structured and annually resourced training programme for management staff					
We have a well structured and annually resourced training programme for non-management staff					
We have a well structured and annually resourced training programme for ICT staff					
We have a well structured and annually resourced training programme for R&D / Marketing / Business Development staff					
We have invested in research and development (R&D) activities that create specific innovations for our SACCO					

23 To what extent does the following statement accurately describe your SACCO's status of automation? *

Please choose the appropriate response for each item:

	5 Strongly Agree	4 Agree	3 Not Sure	2 Do Not Agree	1 Strongly Disagree
Our SACCO ICT backup and restoration procedure is fully automated					
Our MIS Security Systems provide proactive and real-time Fraud Detection and Blacklisting of transactional activities					
Data Analytics is used in governance and predictive analytics					
Our SACCO management information systems are fully integrated.					
All client/customer data can be found on one system					
It is easy to report and provide dashboard reports with consolidated customer information					
Our SACCO MIS sends notification alerts to customers of any activities in their accounts					
Our SACCO Banking system allows for customer-controlled cash-in/cash-out, peer-to-peer transfers, electronic top-ups, and bill payments activities					
Our Online Banking System utilises two factor authentication technology					

24 How Crucial is it for staff to have access to the following ICT resources in order to undertake their day to day work? Select the option that best describes your SACCO's employees reliance on ICTs to perform their work. * Please choose the appropriate response for each item:

	1 Not Important	2 Slightly Important	3 Somewhat Important	4 Important	5 Very Important
ICT infrastructure for staff e.g. desktops, laptops					
Use of Internet					
Use of Application Software e.g., Microsoft Office Word, Excel, PowerPoint					
Use of Corporate Intranet					
Use of Corporate Email					
Access to Shared Databases					
Access to Communication Networks (Phone; Mobile/Landlines)					
Access to BOSA					
Access to FOSA					
Access to Financial System					
Access to Supply Chain Management System (Procurement, Inventory etc)					
Access to the SACCO Network					

25 In your own words, please describe the top 3 main barriers or challenges to ICT adoption and Use in SACCOs. *

Please write your answer here:

Thank You Note

Thank you for taking the time to complete this Survey!

The fact that you are reading this message indicates that you have completed our Questionnaire, and that we owe you a debt of thanks.

We are very appreciative of the time you have taken to assist in our analysis, and commit to utilizing the information gained to provide worthwhile insights that will aid in your SACCO improvements. We will share these results with you through SASRA and KUSCCO whom we also thank for their generous participation and guidance in this process.

Once again, we are extremely grateful for your contributing your valuable time, your honest information, and your thoughtful suggestions.

Submit your survey.

Thank you for completing this survey.

A4. APPENDIX 4 - Case Study Interview Guide

Semi-Structured Interview Guide (Qualitative)

DISCUSSION ON THE PROCESS OF INNOVATION AT NATION SACCO.: 7th June 2021

Part 1:

Study Background & Description

- **i** • *This study is about the process of innovation in SACCOs, looking closely at the general process of organizational innovations and its possible reliance on ICT tools for actualization.*

Study Scope

- **i** • *The study seeks to answer the following research questions. How does innovativeness and innovation in deposit taking SACCOs in Nairobi County happen? Does the level of ICT investment and usage influence the innovativeness, innovations, and performance in SACCOs?*

Definition of main terms to be used in the Study.

- **i** • **INNOVATION**

An **innovation** is an idea that has been transformed into practical reality. For a business, this is a product, process, or business concept, or combinations that have been activated in the marketplace and produce new profits and growth for the organization.

- **i** • *Definition of resources, environment, and tools required for innovation to take place*

- Lack of these resources would have made innovation process slower.
- Lack of these resources would have made innovation process impossible.
- Presence of these resources enabled the innovation to be actualized.

Examples of Resources, environment, and tools required for innovation to take places: board members, management team, budget, email, mobile network, ERP, FOSA system, BOSA system, core banking system, video conferencing, MS Excel, MS Word, process controls, monitoring tools, internet, telephone system, WAN, LAN etc.

Participant Bio Data

of Participant	
Designation / Job Title	
Level of Education	
Number of years at Nation SACCO	
Total number of years' experience working in SACCOs	
Tools individual uses in day-to-day course of work	
Ranking of the tools: Most important to least important	1) 2) 3) 4) 5) ...

Part 2: semi-structured questionnaire for discussion

What are examples of innovations you have had or been involved in the recent past.

- **i** • What was the innovation(s)?
- How do you rate the innovation in terms of impact on your business? Impact could be High impact and cause a major change in how you did business, or it can be an improvement to how you were doing business.

What triggered the innovation(s) ideas?

- **i** • What triggered it? How did you come up with the idea? What stimulated you to promote this idea?

How do you rate the innovation on degree of change it brought to the SACCO?

- **i** • Was it a radical change to how you do business or an improvement or an adjustment to your processes / products / services / organization?

How did you go about it promoting it and making it an actual process?

- **i** • Tell me about your experiences in innovating. How did you go about getting support for the innovation idea? Who were the key players in making this idea work or be accepted?

Who collaborated or what teams worked on this idea?

- **i** • Who were the Key players who aided in setting up and managing the innovation to fruition?

How was the innovation process itself?

- **i** • What was the process in creating the innovation? How did you start? What came first, what followed that? How did you decide who participated?

How did you organize yourself and communicate within the team and stakeholders?

- **i** • How did you organize yourself? How did you communicate within the team, with stakeholders (board members) and the SACCO members?

How long did the innovation process take? How did you keep track of the process?

- **i** • Describe the high-level timeline it took to complete the innovation process and how you kept track of the process.

What resources, environment and tools were a must to have in order for the innovation to work?

- **i** • Describe the tools, resources, environment that was necessary for the innovation to come to fruition. Without these, the innovation would not have been possible.

What hardships did you experience in the process of innovation?

- **i** • Describe the hardships, barriers that you had to overcome in bring the innovation(s) into fruition.

What was supportive in the process of innovation?

- **i** • Describe factors that were supportive to the innovation process

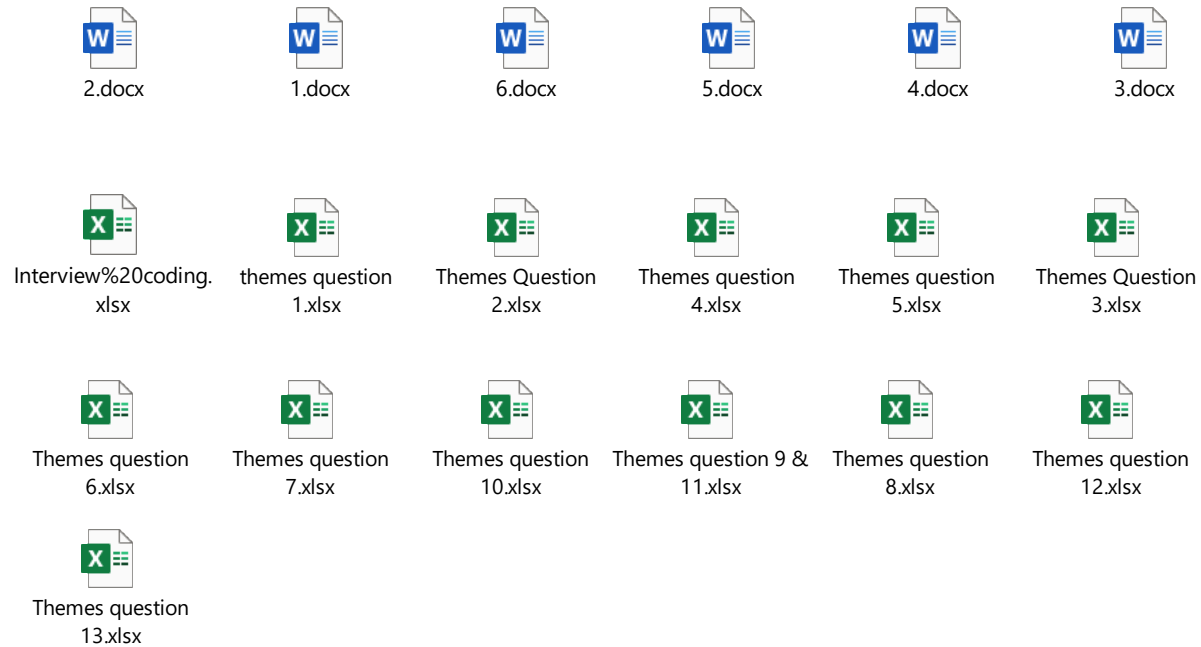
Describe the impact of the innovation on the SACCO.

- **i** • Impact can be a process improvement or something that enhances some aspect of the SACCO

What were the top 3 benefits gained after the implementation of the innovation(s)?

- **i** • Describe the impact of the innovation on the SACCO. (Impact can be financial or process improvement or something that enhances some aspect of the SACCO such as reputation, transparency, etc.)

A5. APPENDIX 5 - Audio files and Transcribed Interviews



Sample Transcribed Interviews - Coded Themes

What triggered the innovation(s) ideas?

Respondents	Activity	Theme
INT 1	one thing that makes you to think is abit of monotony or the numbers have flatted or the third thing is competition. we also have an incentive policy. an incentive policy for ideas.	Financial Performance
INT 2	Then also there was the demand in terms of our income, we wanted to grow our income, our revenue base, so we had to look for ways to make money, that was when we went for the mobile engineering the products and all.	Financial Performance
INT 3	I need to sell loans,we need to increase our membership, and how do we increase our membership? visibility must be top notch for members to came and join us	Financial Performance
INT 6	business needs, and what drives business needs is what customers are looking for	Financial Performance
INT 1	I: Yes, but I could not stomach that (manual bookkeeping). I come from an audit background, so of course I was a bit exposed in terms of what people were able to do.	Technology
INT 1	Everybody would get checkout information with the cards, it was chaotic. We used to work on Saturdays and Sundays, it was,oh the filing-- sometimes the worst thing was when we weren't able to identify your money deposit.	Technology

INT 4	So basically, we were doing everything manually, and it would take a lot of time and a lot of personnel. It took time, we had to meet the needs of the members.	Technology
INT 6	because of the issue of the delays,	Technology
INT 1	We had started seeing all the things with the media (?), and the numbers had started shrinking.	Financial Performance
INT 1	Everybody would get checkout information with the cards, it was chaotic. We used to work on Saturdays and Sundays, it was,oh the filing-- sometimes the worst thing was when we weren't able to identify your money deposit.	Financial Performance
INT 1	So with the process that was a lot of faking.. but it was stopped.	Financial Performance
INT 1	So our shrinking numbers have made us a bit... uncomfortable.	Financial Performance
INT 5	SACCO was losing revenue, customers and reputation	Financial Performance
INT 1	I: Yes, but I could not stomach that (manual bookkeeping). I come from an audit background, so of course I was a bit exposed in terms of what people were able to do.	Staff Knowledge
INT 3	So we do brainstorming with the other SACCOs, we see what people are not doing,	Staff Knowledge
INT 3	where do I think I can add some strength,	Staff Knowledge
INT 4	if someone is in loaning, they bring their ideas on what to do and we put all ideas together then come up with proposal	Staff Knowledge
INT 4	It (idea) was a general consensus throughout the management team.	Staff Knowledge
INT 6	so I came up with that when I was in audit (?),it's something that you just check and ask, why can't we automate this process?	Staff Knowledge
INT 6	... able to identify some bottlenecks, and how you can dissolve that one	Staff Knowledge
INT 1	even our members, people may think we dont listen...but i just call a few guys and raise your (customer) issue, if it justifies, then we change our policies that we have been using before	Customer Demands
INT 2	Then there was the need, because from the feedback that we had got form the customers, they wanted to access their money 24-7, not necessarily during working hours. So that is when we came up with the mobile.	Customer Demands
INT 3	We look at members, because the market dynamics keep on changing, so members need new products all the time, every now and then. because the market dynamics keep on changing	Customer Demands
INT 3	and also get member feedback.	Customer Demands
INT 3	So basically we have member feedback as well, and through those surveys we get what the members want	Customer Demands
INT 4	To try to satisfy the customer needs.	Customer Demands
INT 5	major push is customer, feedback from customers	Customer Demands
INT 6	business needs, and what drives business needs is what customers are looking for	Customer Demands
INT 5	Regulations - legal requirements from regulators on systems and reporting standards	Regulatory Requirements

INT 1	I was meant to move, so we moved. So we needed some time to adjust it all into the system. And that was during our transition from excel into the system. The reason I've talked about the system is because now that's where we start interacting with the changing tides.	Technology
INT 2	Technology-wise, in terms of now the world is more technical. People are going the technical way. So instead of us doing like for example advances instead of us doing the manual, and we could be able to rely on the existing systems, so that is why we decided to do that.	Technology
INT 4	This time the competition is live, if you don't move to where technology is, customers may go to other providers, so that's a threat in terms of competition	Technology
INT 5	To improve services; there were frequent downtimes	Technology
INT 1	one thing that makes you to think is abit of monotony or the numbers have flatted or the third thing is competition. we also have an incentive policy. an incentive policy for ideas.	Competition
INT 1	because the good thing with the market now, it's a bit more open, you are likely to know whats happening, i'll give you an example of kenya police SACCO...the moment you hear they are giving mobile loans, we would like to know why they are giving mobile loans,	Competition
INT 1	but now we can not rule out competition,	Competition
INT 1	I would do a survey, I would request the committee that looking at what is happening in the financial sector and we need to begin to differentiate our products and we need to differentiate our transaction services. The board says, what is your justification? I answer: there has been a complaint, maybe the market, like the time we had a loan law capping at loans 10%.	Competition
INT 2	I: First the market, that is the way the market was going. For example, the mobile. Most of the banks who are our main competitors and SACCOs, most of them were mobile. So for us to satisfy our customers, then we had to go in that direction.	Competition
INT 2	Technology-wise, in terms of now the world is more technical. People are going the technical way. So instead of us doing like for example advances instead of us doing the manual, and we could be able to rely on the existing systems, so that is why we decided to do that.	Competition
INT 2	Before we do a board paper, we normally do a survey, sometimes we walk to other SACCOs to gather all the information, we want to try this or this, how are you doing it?	Competition
INT 3	We look at members, because the market dynamics keep on changing, so members need new products all the time, every now and then. because the market dynamics keep on changing	Competition
INT 4	This time the competition is live, if you don't move to where technology is, customers may go to other providers, so that's a threat in terms of competition	Competition

INT 4	we do our own thing but we are also conscious of what the other saccos are doing. It also depends on what it is, because we like to research and see how the other saccos are adapting as well.	Competition
INT 1	anything touching on ICT, product, basic member improvement, we have same network of SACCOs, for example we firstly look at Central bank report, then i go to another SACCO and ask the manger, once you have that information, you just go to the committee and say i think we have an opportunity to grow the business here, and give example of the people who are doing,	Competition
INT 2	I: yes training is there and especially when you meet with members from other SACCO's you are able to get new ideas from them. its normally organised by cooperative bank, and it more based on departments , so during those meetings we are able to buy ideas from them	Competition
INT 3	We look at how the SACCO is known outside, and we look at how we can enhance our visibility to people so that they know Nations SACCO exists	Competition
INT 1	We had started seeing all the things with the media (?), and the numbers had started shrinking.	Competition