Effect Of Process And Product Innovation On Financial Performance Of Savings And Credit Societies In Rwanda: A Case Study Of Umwalimu Sacco.

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DOI: 10.29322/IJSRP.10.09.2020.p10540
http://dx.doi.org/10.29322/IJSRP.10.09.2020.p10540

Abstract- Financial innovation consists in the design, development, and implementation of innovative financial products, processes and services, and the adoption of innovative alternatives to address issues in finance. The purpose of this study was to establish the effect of product and process innovation on financial performance of Umwalimu SACCO in Rwanda. A census using a closed ended structure questionnaire to obtain both qualitative and quantitative data was conducted on 30 branch managers of Umwalimu SACCO across the country. The data thereof obtained was processed and analyzed for descriptive and inferential statistics by use of SPSS version 23. Correlation tests were run to determine the relationship between innovations and financial performance while, T-test was done to measure the significance of relationship. Findings of the study revealed that from 2013 to 2019, 5 loan products and 3 saving products were developed and introduced in Umwalimu SACCO. There was an increase of 91% and 87.5% in loan products and saving products respectively. Technology was also adopted, mainly mobile banking to make financial services more available, accessible and affordable to customers. 80% of respondents reported that withdrawal services were always provided to customers using internet banking. Regarding financial performance, a notable difference was observed in financial performance before and after innovations, that is by the year 2013 and 2019. The average number of customers increased from 1576.9 to 2458.9, uptake of financial services from 3701.8 to 11468.4, savings from the average of 841728960.9 to 1192124429.6, amount of loans provided from the average of 114506229.3 to 2104889250, and net profit from the average of 46670809 to 153758539.7. Correlation coefficients were strongly positive (.952) and P values (.000) allowed to reject null hypothesis and conclude that there was a significant relationship between innovations and financial performance. T-Tests (11.5) that are greater than the observed T value (1.645) and P value (.000) allowed to reject the null hypothesis and conclude that there was a significant different between financial performance of SACCO before and after the innovations.

Index Terms- Financial performance, innovation, product innovation, process innovation.

I. Introduction

Financial innovation which consists in creation of new types of financial firms, introduction of new products or significant improvement on the existing products and introduction of new of technology or improvement of production method; is generally regarded as a major determinant of performance and helps the firm to remain competitive while satisfying customers' dynamic demands. Specifically, moving to new markets, system readjustments, introducing new management techniques, new technologies like mobile telephone banking, internet banking, Automated Teller Machines (ATM) among others are achievements that depict financial innovation and help the organization enhance financial performance (Rouse, 2019).

The importance of innovation and devising new alternative answers that utilize data and digital technologies is of greater importance to SACCOs in taking action to address customer demands and maintain a competitive position in the dynamic market environment. Great focus is always put on digitizing important processes, introducing new products and improving the existing ones and reexamining institutional structures and internal talent to be better prepared for the future of the organization. (Marous, 2018). A Firms' financial performance is of great importance for any organization. For this reason, most companies are always reviewing their strategies on how they offer their products or services in order to keep up with demand and the competitive environment. Many firms especially in the financial institutions make use of financial innovation strategies to keep pace with changing environments (Arthur, 2017).

Innovation

The term innovation generally means a new way of doing something. It can be an idea, practice or object that is perceived as new by a unit of adoption (David G, 2011). This definition covers the diffusion of innovations as well as their initial creation and application. Innovation is usually understood to be distinct from invention. While invention is the first occurrence of an idea for a new product or process, innovation is the first attempt to carry it through into practice (David G, 2011). In increasingly integrated financial systems facing higher volatilities, more competition and wide varieties of risks, financial innovation has become an essence to provide new products and strategies to better suit different time

& market circumstances and to meet different requirements of participants in financial system.

Financial innovations arise due to several reasons. These include need to raise the number of customers, reduction in failure costs, mobilizing more savings and deposits, growing loan portfolio, increase profits, reduced managing costs, transparency and customization. A highly unstable environment leads to the best innovation which creates a unique competitive position and competitive advantage and leads to a high performance. (Hausman , Johnston , 2014).

Product and process innovations

According to Rouse (2019), process innovation is introduced in an organization to solve a problem or run a business in a completely different way to produce benefits to those who are carrying out the process or to the customers or both. The importance of process and product from financial innovation is observed by Merton (2011) as a method transforming to a competitive advantage, superior financial growth and consequently growth of a company. Despite the implication of financial innovation in elucidating performance in financial institutions, the impact of innovation on growth is misinterpreted in two ways; insufficient comprehension about the innovation triggers and poor testing of innovations' impact on development (Mabrouk & Mamoghli, 2010). Process innovation and product innovations are the main factors that have helped financial institutions to withstand aggressive competition in Kenya. Uptake of financial services by citizens has declined owing to issues of declining membership. SACCOs had to embrace process and product innovations to be able to compete with other competitors (Ngure,2017).

Innovation and Financial performance of SACCOs

Financial performance refers to choices and practices both long and short-term which serve the same objective leading to a firm's growth by means of making sure that return on capital surpasses cost of capital, without minimizing expensive financial risks. Determinants of financial performance include return increasing membership, uptake of financial services, mobilization of more savings, growth of the loan portfolio, net profit, among others. This means that SACCOs whose financial performance is good make remarkable increments in numbers of members, mobilize more savings from members to finance loan provision, have increasing uptake of financial services by customers, experience growing loan portfolio, and increasing net profit. (Esokomi and Mutua,2018).

In the present vibrant and competitive business environment, firms have to constantly develop products and introduce changes in order to meet the continuously varying needs and wants of client in order to exhaust the possibilities of achieving the expected objectives in terms volume of sales, market share, and profit. Product and process innovation that lead to quality and fast service, flexibility and high efficiency contribute to the firm's better financial performance. Product and process innovations offer a potential protection to a firm from market threats and competitors. A study conducted in Canada, ascertained that innovations had positive and significant link with financial performance of Credit and Savings Cooperatives. Therefore, it a conclusion was drawn that innovations aimed at strengthening of operations are a key determinant of financial performance and gives additional discernment of the indirect effect of the specific elements of innovations on performance of SACCO (Coromel, 2016). Based on the findings of the study on innovations and financial performance in Kenya, Ngure (2017) recommended that SACCOs adopt innovations that include product innovations, process innovations and institutional innovations in order to improve financial performance.

SACCOs in Rwanda

SACCOs are the most important driver of rural economy in Rwanda because in most rural areas are the sole accessible financial institutions. The government of Rwanda created SACCOs, mainly Umurenge SACCO, a community based Savings and Credit Cooperative in order to attain a notable level of financial inclusion to contribute to the attainment of national sustainable economic development. in 2008, 416 Umurenge SACCO were created distributed over 416 administrative sectors to facilitate rural community members and low income people in general to have easy access to finance. Umwalimu SACCO was established in 2009 with 30 branches distributed over 30 districts across the country to facilitate access to finance to teachers and improve their welfare. In general SACCO were expected to promote accessibility, affordability and uptake of financial services in Rwanda. Saccos contributed to financial inclusion in Rwanda by making basic financial products/services including transaction banking, savings, credits, payments and remittances and other services proximate to people who may even be previously not served due to being located in a remote area. (Hategekimana, et al, 2019).

II. STATEMENT OF THE PROBLEM

Performance objectives for SACCOs in Rwanda include growing membership, mobilizing more savings, growing the loan portfolio, increasing uptake of financial services, and net profit among others. Performance of SACCO in general ever since they started has been poor and below expectation (BNR (2011) According to Munyaneza (2017) Saccos were advised to adopt financial innovations to withstand aggressive competition and attract more customers. It is in this regard, that Umwalimu Sacco resolved to embrace process and product innovations starting from 2013 to enhance service quality in order to attract more customers. Ever since, the efforts of innovation were implemented, no empirical evidence existed to indicate how the innovations were adopted and how process and product innovation this could be linked with financial performance of the Sacco. Therefore this study seeks to bridge that gap by investigating the innovations adopted in Umwalimu Sacco and measuring the link between innovations and financial performance, hence justification for this study.

Empirical review

A study by Gunday, Ulusoy, Kilic & Alpkan (2011) on the effects of innovations on firm's performance, attempt to find the effect of the organizational, process, product and marketing innovations on the different aspects of firm's performance including innovative, production, market and financial

performances, based on an empirical study covering 184 manufacturing firms in Turkey. The results displayed positive effects of innovations on firm performance in manufacturing industries. An empirical study by Lin (2013) on SMEs in Taiwan exposed that the business and marketing performance of the firm is determined by its innovation ability and ultimately influence on financial performance. Tabas & Beranova (2012) tried to find possible effect of product innovations on the financial performance of small and medium sized enterprises in the Czech Republic. The results showed that continuous innovations are needed according to their pilot study of statistical sample of 100 companies.

An exploratory research on 43 commercial banks in Kenya by Frame, Scott, and Lawrence J. White, (2012) on the effects and the determinants of financial innovation on bank performance confirmed that a strong competition and technology are the major drivers of financial innovation. Njeri (2013), on her study on the effects of financial innovation on the financial performance of deposit taking SACCOs in Kenya, found that there is a positive relationship between financial innovation and financial performance. Findings of Ngure (2017) on financial innovations and performance of Sacco's correspond to the findings of Njeri (2013) and based on the findings he recommended that SACCOs adopt innovations that include product innovations, process innovations and institutional innovations in order to enhance operations and improve financial performance.

A study conducted by Muyitz (2013) and Tuma, (2016) on process innovation on SACCOs in Thailand and Bangladesh respectively in revealed successful SACCOs adopted new and novel technologies in order to improve delivery of services to their clients. Such technologies included ATM (Automated Teller Machine), Internet banking and mobile phone banking. The studies concurred that adoption of the technologies together with improvements made in the provision of services contributed to a greater extent to financial performance of the SACCOs and thus confirmed a positive significant association between adoption of innovations and financial performance of Saccos. A study conducted in Canada by Colomel, (2016) ascertained that innovations had positive and significant link with financial performance of Credit and Savings Cooperatives and concluded that innovations aimed at strengthening of operations are a key determinant of financial performance.

III. METHODOLOGY

A census using a closed ended structure questionnaire to obtain both qualitative and quantitative data was conducted on 30 branch managers of Umwalimu SACCO across the country. The data thereof obtained was processed and analyzed for descriptive and inferential statistics by use of SPSS version 23. Correlation tests were run to determine the relationship between innovations and financial performance while, T-test was done to measure the significance of relationship

IV. RESULTS AND FINDINGS

Socio-demographic information of respondents

Social demographic information as indicated in Table1, include age, gender, education, marital status, and experience of the respondents. This study revealed that age ranges between 25-35 years for majority 60% of the respondents, while a minority 40%, were aged between 36 and 45 years. The results suggest that that most respondents are still young and energetic. Further, 60% of the respondents were males with a majority 80% having attained a bachelor's degree. This gives an impression that all respondents were qualified to carry out their responsibilities. The results further reveal that 67% of the employees had a working experience of 5 to 7 years while 33% had served for 8 and more years. The foregoing results imply that a majority of the UMWALIMU SACCO employees had a lot of experience and hence, knowledgeable enough to offer reliable and valid information required for the current study.

Table 1: Socio-demographic information of respondents

Variable	Frequency	Percentage
Age [Average:33.5]		
25-35	18	60
36-45	12	40
Gender		
Male	18	60
Female	12	40
Education		
Bachelor's	24	80
Master	6	2
Marital status		
Married	26	65.7
Single	4	13.3
Work experience in years [average:6.96]		
5-7	20	66.7
8-9	10	33.3

Source: Primary data

Process innovation

The study sought to identify process innovations that were adopted in Umwalimu Sacco. Specifically, the study sought to know the how modern technology was adopted and identify process improvements that were introduced to make financial services more available, accessible and affordable to enhance financial performance of the institution.

a) Ownership of computer and access to internet

The study sought to understand if respondents had a computer at work and if they used internet in provision of financial services to the members of Umwalimu Sacco. Findings revealed that all respondents had a computer in their offices, and had access to internet connection. Access to electronic device and internet connection is a primary requirement to improve on the process of provision of financial services

Table 2: Ownership of computer and access to internet

Variable	Frequency	Percentage
Owning a computer	30	100
Internet connection in provision of services	30	100

Source: Primary data

b) Connectivity and use of technology in provision of services to customers

Results in table 3, presents information on how respondents rated their connectivity to internet and how they used technology in provision of various financial services to the members. As regards connection, a majority 57% of the respondents confirmed that they were connected to internet most times, whereas 43% reported that they were always connected to internet. 90% of respondents reported that they always used internet in provision of deposit transactions services. 83.3 % reported that internet is used in providing withdrawal services to the members. All branches always use internet to access CRB (Credit Reference bureau) information on every member of SACCO, use internet to make money transfers, and to access any customer's account details for different purposes.

Table 3: Connectivity and use of IT-technology in Service Delivery.

Variable	Frequency	Percentage
Always connected	13	43.3
Most times connected	17	56.7
Use of connection in deposit transactions		
Always	27	90
Most times	3	10
Use of connection in withdrawal transactions		
Always	25	83.3
Most times	5	16.7
Use of internet connection access CRB info		
Always	30	100
Use of internet connection to make transfer		
Always	30	100
Access to customers details		
Always	26	86.6%
Most times	4	13.3

c) Use of ATM and Internet Banking

The study sought to understand how these technology (Automated Teller Machine and Internet Banking) were adopted in Umwalimu SACCO. These are technologies that makes access to financial services more accessible at the customers' convenience be it in terms of time, location, etc. the study revealed that ATM and Internet Banking had not yet been adopted by Umwalimu SACCO.

i) Mobile banking

Results in table 4; indicate that a 80% majority of the respondents reported that withdrawal services are provided to customers using mobile banking. Implying that members of the Umwalimu SACCO could access cash without going to the branch offices for the same service. Further, the same level of members revealed that they could conduct cash transfers using mobile money. The results further revealed that an overwhelming 73% of the respondents applied and received loans through mobile banking.

Table 4: Mobile banking

Variable	Frequency	Percentage
deposit services provided using mobile banking		
Not at all	30	100
Withdrawal services provided using mobile banking		
Always	24	80
Most times	4	13.3
Sometimes	2	6.7
Money transfer services provided through mobile banking		
Sometimes	24	80
Rarely	6	20
Checking loan status service		
Most times	23	76.7
Sometimes	7	23.3
Check account balance service		
Always	30	100
Bank statement requests through mobile banking		
Sometimes	20	66.7
Rarely	9	30
Most times	1	3.3
Loan requests (overdraft)		
Most times	22	73.3
Sometimes	8	26.7
Alerts, SMS to members		
Always	30	100

D) Product innovation

The study sought to identify all loan and savings new products and improvements on the products that existed by the year 2013 and by 2019.

i) Loan products by 2013 and by 2019

This study found out that by the year 2013, there were 6 loan products available to Umwalimu Sacco customers including mortgage loan, emergency loan, salary advance, business loan, overdraft loan and one laptop per teacher loan product, whereas by the year 2019 11 loan products were available to customers. Five new loan products were developed and introduced in Umwalimu SACCO. The number of products increased represent 91% increase which is a remarkable step in loan product innovation. These new loan products are school fees loan, medical loan, home furniture, agriculture and livestock, and vehicle and asset loan.

Table 5: Loan products developed between the years 2013 and by 2019

SN	Loan products by 2013	Loan products by 2019
1	Mortgage loan	Mortgage loan
2	Emergency loan	Emergency loan
3	Salary advance	Salary advance
4	Business loan	Business loan
5	Overdraft loan	Overdraft loan
6	One laptop per teacher	One laptop per teacher
7		School fees loan
8		Medical loan
9		Home furniture
10		Agriculture and livestock
11		Vehicle and asset loan

Source: Umwalimu SACCO

ii) Loan products offered to customers by 2013 and 2019 in the 30 branches

Results in table 6; Indicate that a majority 83% reported that customers accessed all the 6 loan products that existed by 2013 while, 87% reported that the members of SACCO accessed all eleven loan products by the year 2019. Having a good number of loan products indicates that the SACCO has designed products that suits the demands of the members, which in turn may positively affect uptake of financial services and eventually lead better financial performance.

Table 6: Loan products that were offered

Period	Number of loan products	Frequency	Percent
By 2013[average: 5.83]	5	5	16.7
	6	25	83.3
By 2019 [average: 10.83]	9-10	4	13.3
	11	26	86.7

Improvements on loan services

Results in table 7; show that the average number of months it took to provide mortgage loan by 2013 was 6.67, whereas the average months it took by the year 2019 was 1.2. This is a very remarkable decrease in the period it takes to provide mortgage loans. 86.7% of respondents reported that by 2013, providing mortgage loan took 5 to 7 months, whereas 80% of respondents reported that they could only take one month to provide mortgage loan to the members. All respondents reported a decreasing number of requirements for getting a mortgage loan from 8 to 5 requirements. The decrease obviously means that access to mortgage loan was made easier to the members than before. For emergency loan, the average number of days it took to get the loan was 2.76 by 2013, which declined to 1 day by 2019. This study further revealed that salary advance loan could take averagely 12.3 days by 2013, which decreased to 2.5. the number of requirements to get a salary advance loan reduced from 7 to 4days. The average number of months it took to get a business loan by 2013 was 3.2, and this reduced to 1months by the year 2019. The number of requirements decreased from 6 by 2013 to 4 by 2019. The average number of hours to get overdraft loan by 2013 was 28.6 days, which decreased to 1.4hours by 2019.

Table 7: Improvements on loan services

Value	Frequency	Percent
Months takes to provide mortgage loan by 2013 [average:6.63]		
5-7	26	86.7
8-9	4	13.3
Months takes to provide mortgage loan by 2019 [average:1.2]		
1	24	80
2	6	20
Number of requirements for mortgage by2013		
8	30	100
Number of requirements for mortgage by2019		
5	30	100
Days emergency loan by 2013 [average: 2.76]		
2	9	30
3-4	21	70
Days emergency loan by2019		
1	30	100
Number of requirements emergency by 2013		
4	30	100
Number of requirements emergency by 2013		
2	30	100
Days to provide salary advanceloan2013 [average:12.3]		
8-12	15	50
13-15	15	50
Days to provide salary advance loan 2019 [average:2.5]		
1-2	16	53.3
3-4	14	46.6
Number of requirements salary advance2013		
7	30	100
Number of requirements salary advance2019		
4	30	100
Months for business loan 2013 [average:3.2]		
3	22	73.3
4	8	26.7
Months for business loan 2019 [average:1]		
1	30	100
Requirements businessloan2013		
6	30	100
Requirements businesslaon2019		
4	30	100
Hours to provide overdraft laon2013 [average28.6]		
12-24	13	43.3
25-48	17	57.7
Hours to provide overdraft laon2019 [average:1.4]		
1	18	60
2	12	40

Savings products by 2013 and by 2019

Variable	Frequency	Percent
Number of members2013 [1576.9]		
1100-1500	11	36.7
1501-2350	19	63.3
Number of members2019 [2458.9]		
2100-2500	19	63.3
2501-3250	11	36.7

Results in table 8; revealed that by the year 2013, there were 4 saving products including free saving, permanent savings, school fees saving, and funeral solidarity fund. The number

Variable	Frequency	Percent
Uptake 2013 [average:3701.8]		
2990-3500	12	40
3500-4560	18	60
Uptake 2019 [average: 11468.4]		
8000-12000	14	46.7
12001-14500	16	53.3

increased to 7 saving products by 2019. 3 saving products were introduced including home furniture saving, fixed-deposit and children's saving products. The number of increment of saving products represent a percentage of 87.5 which is a notable effort to customize savings services.3

Table 8: Savings products by 2013 and by 2019

SN	Savings products by 2013	Savings products by 2019
1	Free saving	Free saving
2	Permanent saving	Permanent saving
3	School fees saving	School fees saving
4	Funeral solidarity fund	Funeral solidarity fund
5		Home furniture saving
6		Fixed deposit
7		Children's savings account

Source: Umwalimu SACCO website

Financial performance

This study sought to determine financial performance of Umwalimu SACCO by 2013 and by 2019. A number of variables were measured to indicate performance.

Members of Umwalimu SACCO

One of the key indications of performance is a growing membership of a SACCO. It is a primary condition for a Savings and Credit Cooperative for financial performance. The table below presents information on members of Umwalimu SACCO by 2013 and by 2019. It was revealed that the average number of members was 1576 by the year 2013 and 2459 by 2019. As observed, there exists a notable difference between the average number of members by 2013 and the average number of customers by 2019. For 19 branches representing 63.3%, the number of members ranged between 1501 and 2350, whereas it ranged between 2100 and 2500 for majority of branches by the year 2019.

Table 9: Members of Umwalimu SACCO
Source: UMWALIMU SASCCO 2019

Uptake of financial services (loans)

Apart from withdrawal, cash deposits services, uptake of loans by customers is a key indication of uptake of financial services by customers. The table below presents information on uptake of loans which represents the general uptake of financial services by members of Umwalimu SACCO. The study reveals that the average uptake of loans was 3701.8 by 2013 whereas the uptake raised to 11468.4 by the year 2019. Majority of respondents representing 60%, reported that loan uptake by customers ranged between 3500-4560 by 2013, whereas 53.5 % of respondents reported that the loan uptake ranged between 12001 and 14500. This indicates that there is a big difference between loan uptake by 2013 and loan uptake by the year 2019. This could be a result of innovations made on loan products, new products introduced and adoption of technology to improve service provision.

Table 10: Uptake of financial services

Savings by 2013 and savings by 2019

Results in table 11; presents information on savings by 2013 and by 2019. The average savings per each branch was RWF 841728960.9 by the year 2013 which increased to RWF 1192124429.6 by 2019. Comparing the two means we see a very notable increase in the amounts of savings. By 2013, for majority of Umwalimu SACCO branches which represents 60% savings ranged between 410000001- 500000000. It was further revealed that for majority of respondents which represents 50%, savings by 2019 ranged between 1029392922 and 1329292880.

Table 11: Savings by 2013 and 2019

Variable	Frequency	Percent
Savings by 2013 [average:841728960.9]		
324502020-350000000	7	.3
350000001-410000000	5	16.5
410000001-500000000	18	60
Savings by2019 [average:1192124429.6]		
769979287-1019103830	9	30
1029392922-1329292880	15	50
1423392202-1762838383	6	20

Loans provided

This study sought to find found out the amount of loans were provided to the members by 2013 and by 2019. It was found out that the average loans provided by 2013 was 1145062294.3 which increased to the average loan amount of 2104889250 by the year 2019. 19 respondents representing 63.3% reported that their

amount of loan provided by 2013ranged between 587873738 and 989498722, whereas for 2019, 80% reported that the amount of loans provided ranged between 200000000001 and 26000000000.

Table 12: Loans provided

Variable	Frequency	Percentage
Loans provided by 2013 [average: 1145062294.3]		
587873738-989498722	19	63.3
1034202002-1984947400	11	36.7
Loans provided by 2019 [average: 2104889250]		
1019103900-2000000000	6	20
200000000001-26000000000	24	80

Net profit by 2013 and 2019

This table presents information on net profit by 2013 and 2019. Findings revealed that the average amount of net profit was 46670809 by 2013 and 153758539.7 by 2019. For majority of respondents, which is 16 representing 53.4 the net profit ranged between 40987367 and 44985764 by the year 2013; whereas it ranged between 163820900 and 199873720 for 53.3% of respondents by 2019.

Table 13: Net profit by 2013 and 2019

Variable	Frequency	Percent
Net profit by 2013 [46670809]		
38729980-41200000	7	23.3
40987367-44985764	16	53.4
45209879-52000000	7	23.3
Net profit by 2019 [153758539.7]		
90270800-149829300	14	46.7
163820900-199873720	16	53.3

Inferential Statistics

Inferential analysis was used to produce correlation and T and Critical values to measure the relationship between independent and dependent variables and significance of the difference when comparing two situations: financial performance by the year 2013, and by the year by 2019.

Relationship between process innovation and financial performance

Correlation results indicated that the correlation coefficient was .952** and P value .000 which is less than the significance level of .05. Therefore, a conclusion was made that there existed a significant relationship between process innovation and financial performance in Umwalimu SACCO and a decision to reject the null hypothesis was made.

Table 14: Relationship between process innovation and financial performance

		Process innovation	Financial Performance
Process innovation	Spearman correlation	1	.952**
	Sig. (2-tailed)		.000
	N	30	
Financial performance	Spearman Correlation	.952**	1
	Sig. (2-tailed)	.000	30

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

Relationship between product innovation and financial performance

Correlation results indicated that the correlation coefficient was .747** and P value .000 which is less than the significance level of .05. Therefore, a conclusion was made that there existed a significant relationship between product innovation and financial performance in Umwalimu SACCO and a decision to reject the null hypothesis was made.

Table 15: Relationship between product innovation and financial performance

		Process innovation	Financial Performance
Process innovation	Pearson correlation	1	.747**
	Sig. (2-tailed)		.000
	N	30	
Financial performance	Pearson Correlation	.747**	1
	Sig. (2-tailed)	.000	30

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

Significance of the difference in terms of performance between two periods (T-test Analysis)

Table 16; presents the results of T-test analysis to measure if there existed a significant difference between performance of 2013 and performance of 2019 as a result of process and product innovation.

Members and uptake of financial services by 2013 and by 2019

Results in 16; presents the results of t-test on the significance of the difference between the members of sacco and uptake of financial services by 2013 and by 2019. The results indicate that the P values (.000, .000) for both variables were less than the level of significance (.05) and the calculated T values (11.05,28.8) which were greater than the observed T-values

(1.64). Therefore, a conclusion was made that there existed a significant difference between members of sacco by the year 2013 and members of sacco by the year 2019, and there existed a significant difference between uptake of financial services by 2013 and uptake of financial services by 2019.

Table 16: Difference between members and financial uptake before 2013 and in 2019.

Independent Samples Test							
						95% confidence Interval of the difference	
		F	Sig	T	Df	Sig (2-tailed)	Mean difference
Members 2013 and 2019	Equal Variances Assumed	.94	.760	11.050	58	.000	882.00000
	Equal Variances assured	47.126		11.050	56.802	.000	882.00000
Uptake of financial by2013	Equal Variances Assumed	20.307		28.8	58	.000	72291.14
	Equal Variances assured			28.7	37.7	.000	7222.6

Savings, loans provided and net profit

As shown in table 17; the P values (.000, .000, .000) for both variables which were less than the 0.05 level of significance (.05) and the calculated T values (17.20,21.3, 23.19) which were greater than the observed T-values. Therefore, a conclusion was made that there existed a significant difference between Savings of sacco by the year 2013 and savings of sacco by the year 2019, and there existed a significant difference between loans provided by 2013 and loans provided by 2019.

Table 17: Savings, loans provided and net profit

Independent Samples Test							
						95% confidence Interval of the difference	
		F	Sig	T	Df	Sig (2-tailed)	Mean difference
Savings2013 2019	Equal Variances Assumed	.84	.82	17.20	58	.000	350395
	Equal Variances assured	49.567		17.20	56.802	.000	
Loansprovided20132019	Equal Variances Assumed	.87	.980	21.3	58	.000	959826E
Net profit	Equal Variances	.96	.897	23.19	58	.000	107091E

V. Discussion of the Findings

The current study confirmed a significant relationship between process and financial performance of Umwalimu SACCO. The results concur with Gunday, Ulusoy, Kilic & Alpkan (2011), Lin (2013) and Tabas & Beranova (2012) who posited that the business and marketing performance of the firm is determined by its innovation ability and ultimately influence on financial performance. This study found out that ATM and internet banking had been adopted and used in Umwalimu SACCO with significant improvements in delivery of services to the clients. Similar studies by Muyitz (2013) and Tuma, (2016) in Thailand and Bangladesh respectively confirmed a positive significant association between

adoption of innovations and financial performance of Saccos. Thus, support the current findings.

VI. Conclusions and Recommendations

This study revealed that process and product innovations were adopted in Umwalimu SACCO. Technology that included mobile banking, computerization of the system, and reducing the period it takes to get a loan, reducing the number of requirements for loan applicants, were some of the changes made to improve service provision. Based on the correlation analysis results, it was concluded that there exists a strong significant relationship between process and product innovation and financial performance. Based on T-Statistics, a conclusion was made that there is a significant difference between financial performance by 2013 and financial performance by 2019.

VII. Recommendations

Based on the key findings the study recommends that all SACCOs in Rwanda sensitize members on using mobile banking for different services in order to reduce the number of people queuing on banking halls for services. Moreover, the SACCOs are advised to improve mobile banking services so that members can deposit money on their account using their mobile phone. This will reduce the time and cost incurred when members travel to the SACCO for depositing money. It is imperative that SACCOs conduct a needs assessment to gauge the demand for ATM and internet banking for purposes of enhancing uptake of the same.

References

[1] Arthur (2017) Innovation strategies and coping up with the Dynamic Market Environment. BNR (2011) Annual report.

[2] Coromel, M. (2016) Innovations and performance of Savings and credit cooperatives in the Northern Region of Canada.

[3] David, G. (2011) Financial Innovations and Customization of services.

[4] Esokomi, Emily; Mutua, Dr. Mbithi. (2018) Determinants of financial performance among savings and credit co-operative societies in kakamega county kenya. International journal of finance and accounting, Vol 3 no 1.

[5] Frame, Scott and Lawrence (2012) Determinants of Financial Innovation and Performance of Banks in Kenya.

[6] Gunday, et, al. (2011) Effects of Innovation on Firm's Performance.

[7] Hategekimana, et al, (2019) Financial Inclusion in Rwanda: Achievements, challenges and prospectives Evidence from Umurenge SACCOs, ICBMECONF, Vienna, Austria.

[8] Hausaman and Johnston (2014) Strong Reasons Why Innovations Arise in Organizations.

[9] Lin, G. (2013) Innovation and Financial Performance of Small and Medium Enterprises in Taiwan.

[10] Mabrouk, A. et Mamoghli C. (2010) Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry. International Research Journal of Finance and Economics, Vol. 51, pp. 17-3.

[11] Marous, J. (2018) The Effect Institutional Innovations on Performance of Financial Institutions.

[12] Merton (2011) Process Innovation: A Pre-condition for Business Excellence.

[13] Munyaneza, E. (2017) Effectiveness of Bank Innovations on Financial Performance of Bank of Kigali Ltd in Rwanda (2009-2017).

[14] Muyitz, K. (2013) Determinants of Innovation Adoption and Performance of SACCOs in Thailand.

[15] Ngure, F. (2017) Financial Innovations and Performance of Savings and Credit Cooperative Societies in Kirinyaga County, Kenya. Master of Business Administration, Project Report. The University Of Embu, Kenya

[16] Njeri J. O (2013). Effects of financial innovation on the financial performance of deposit taking Saccos. A case of Nairobi County. MBA project UoN, Kenya.

[17] Rouse, E. (2019) Financial Innovations and Organizational Performance of Business Firms.

[18] Tabas, J., Beranová, M., Polák, J., (2012). Evaluation of approaches to definition of innovations. Acta Universitatis agriculturae et silviculturae Mendelianae Brunensis, 58, 6, pp. 563–570. ISSN 1211-8516

[19] Tuma, D. (2016) Innovation Strategy and Financial Performance of Microfinance Institutions in Bangladesh: An empirical study.

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