

PROCESS EFFECTIVENESS AND LABOR PRODUCTIVITY

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DECLARATION

I declare that this is my original work and has not been presented in any other University or College for Examination or Academic purposes.

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This project has been submitted for examination with my approval as the university supervisor.

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I acknowledge my wife Evangeline, without whose love and support, I would not have completed this project.

My sincere gratitude goes to my three children Clarice, Abraham and Jamin, who are a precious gift to me and are the main drivers of my life. Special thanks go to Dr. Owino Okwiri, who constantly encouraged me to go on even when I was almost giving up on the project. I feel privileged to have been part of University of Nairobi and giving me the opportunity to pursue my Master's education.

Finally, I would like to thank the Almighty God who has brought me this far.

DEDICATION

I dedicate this project to my 4 family members who died in a tragic road accident along Mombasa Nairobi high way in August. Fare thee well till we meet again.

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CHAPTER ONE: INTRODUCTION

1.1: Background of the study

Productivity is considered one of the most critical measures of an organizations performance. A lot of time is spent on strategic planning meetings with the single purpose of improving the bottom line. However, most work on productivity is on manufacturing sector rather than service sector. This may be attributed to mass production concept associated with manufacturing setup (Johnstone & Jones, 2004).

Few studies have been reported in relation to the service sector, specifically the Cooperative sector. This is mainly due to the unique characteristics associated with services. Some of the characteristics are unforgiving nature of services, service being rendered in customer presence and heterogeneity of services (Fitzsimmons & Fitzsimmons, 1994). It is these unique characteristics that make measurement of productivity in services difficult. Every year organizations set up targets which are to be achieved. Some organizations will meet their targets and may even surpass them while others won't. Many studies have attempted to find reasons behind such failure but neglected to find the role effective process design may have on success or failure of target achievement.

1.1.1 Labor productivity

Productivity is the ratio of inputs to outputs (Johnston & Jones, 2004). It is a measure of how organizations convert inputs into outputs of greater value. Labor productivity is the ratio between output and labor input. Input is the number of hours worked while output is the end result. There are many types of productivity measures. These are partial, multifactor and total productivity measures. Partial productivity measures

output divided by single input, which could be labor, material or capital. Multifactor productivity on the other hand, measures output divided by multiple inputs, which could be labor plus machine, capital or material. Total productivity measures output divided by total inputs. The choice of a particular measure depends on availability of data and purpose of measurement (OECD, 2001).

A number of reasons have been given as to why productivity needs to be measured. Productivity helps in calculation of standards of living through per capita income and assessing effect of technological changes on productivity. Labor productivity measurement helps organizations to calculate labor requirements per unit of output. It is how a firm manages how to achieve low cost in inputs while maintaining the level of its outputs that leads to higher productivity (Kamauff, 2010) and hence operational performance. Labor productivity, therefore, is a partial measure of productivity using labor only.

1.1.2 Productivity as an outcome of Effective Processes

A process is an order of activities with a beginning and an end with clear inputs and outputs (Scheer, 2002). Inputs are what the organization employs during production process such as labor, materials, and capital while outputs are products, services, and satisfaction. Productivity implies effectiveness and efficiency in individual and organizational performance. Effectiveness is doing the right things while efficiency is doing things right first time and always (Drucker, 2001). The basic drivers of effectiveness and efficiency in operations are project management, planning and control and process design.

A project is a set of activities with a defined start point and a defined end state which pursue a defined goal using defined set of resources. The institute of project

management defines project management as: “the application of knowledge, skills, tools and techniques to project activities to meet project requirements”. According to Harold Koontz (1984), Planning is an intellectual process, conscious determination of course of action while control is the measurement and correction of performance in order to make sure that a firm’s objectives and plans devised to attain them are accomplished. Process design is analyzing business processes in order to find starting points for optimization. It involves process analysis, looking for interference factors, determination of potentials, devising target processes, testing feasibility and determination of cost benefit. Certain processes are routine in nature while others are non-routine. These processes can also be classified as value adding and non-value adding processes.

Most studies have focused on productivity in manufacturing setups as opposed to service sector (Filiatrault, Harvey, & Chebat, 1996). This is because of the concept of mass production associated with manufacturing. Few studies have been reported on service sector, specifically, cooperative societies on impact of processes on productivity. This is partially because of peculiar characteristics of service sectors such as intangibility, inseparability of production and consumption and perishability (Fitzsimmons & Fitzsimmons, 1994). It is how a business has aligned its processes that value to the customer is created or destroyed (Scheer, 2002).

1.1.3: Cooperative Societies in Kenya

The Cooperative movement operates in the financial sector. The Key goal of this sector is to provide alternative source of credit to the unbanked. There are a total of 15,000 registered cooperatives with a combined membership total of 12 million members in 2013 (Sacco star magazine).An Act of parliament of 2010 governs

operations of Saccos. The Act prohibits unlicensed Saccos from taking deposits and extending loans to members. Members of cooperative societies get various services in form of loans. These loans can be further categorized as development, education, emergency, asset finance, and personal, insurance premium and top up loans. Other services are savings and fixed deposit accounts.

Membership to cooperatives is open and voluntary. A member should not belong to more than one Sacco at any one particular time. This is to safeguard the interest of the Sacco where the member belongs. An unsatisfied member may give notice to its Sacco over his intention to cease membership. Various reasons may lead to withdrawal. These could be as a result of low dividends, poor customer service, failure to meet customer expectations and cumbersome loan processes. Once the notice period is served, all share contributions and savings are refunded to the member. Once membership withdrawal is done, members are free to join other cooperatives.

The buyers in this sector are the members while the sellers are the cooperatives. The services being provided by Saccos may also be provided by banks. Members often demand high dividend returns while at the same time getting cheap loans. This is in conflict since for Saccos to give high returns then they need to give expensive loans since it is from loans given that interest is earned to be declared to members. Cooperative members are cost sensitive. They need high quality service at the least cost. This creates problems for managers on how they can offer quality services, remain flexible in their dealings, and maintain the dynamism in the market in terms of product development while at the same time lowering cost. To address speed and flexibility, Saccos have improved on their turnaround times and developed new

products. They have also developed products and services which conform to member requirements at affordable rates.

Since the services being provided by Cooperatives are the same ones being provided by Banks, the former do not have monopoly over customers. Members are free to join any financial organization that can meet their needs. The determinant factor on how well these needs are met lies in how well these needs have been met. Customer needs such as access to cheap credit and high dividend returns can be achieved through process designs that are effective and efficient.

1.2: Research Problem

The information in the background affirms the relationship between process effectiveness and productivity. Process effectiveness has a direct link to technical efficiency and the extent of alignment of processes drive process effectiveness. This in turn, results in higher output for the same amount of inputs. Technical efficiency has a direct link to cost, quality and speed. (OECD, 2001).

There are conflicting demands in cost, quality, flexibility and speed. Customers often demand quality products at the least cost possible. This poses a challenge to managers as to how they can produce high quality at lower cost, while at the same time remaining profitable. Customers require quality products or services but at high speed of delivery (Slack et al, 2007). Customers will often demand faster deliveries and on time delivery. They will require flexibility in terms of customization of products or services, variety and volume. There is always conflict between speed and flexibility. To address such conflicting demands, a balance such as charging a premium for customers who require faster delivery and customized products is usually implemented.

Studies on issues relating to productivity have been reported. Geum et al, (2011) focused on service productivity improvement. The study was done in Korea. A similar study was done in Kenya but concentrated on total factor productivity (Onjala, 2002). Few studies have been reported relating to labor productivity and process effectiveness in Kenyan context. Even internationally no study has been reported in the context that Cooperatives operate in. A study was done focusing on Business process management (Aris value engineering, 2002). Another study was done on productivity measurement (Gupta, 2006). Limited studies have been reported in Kenya focusing specifically on process effectiveness and productivity performance in cooperatives.

The study sought to fill the gap by investigating process effectiveness and labor productivity in cooperatives. It sought to answer the question: how can organizations improve their processes while at the same time remains technically efficient? Another question to get answer for was: What current sector practices influence productivity?

1.3: Research Objectives

To obtain answers to the above research questions, the study was to achieve the following specific objectives:

- (i) Determine labor productivity of Cooperatives in Kenya.
- (ii) Determine the effectiveness of work processes in Cooperatives in Kenya.
- (iii) Determine relationship between process effectiveness and labor productivity.

1.4: Value of the study

The result of this study will be useful to people who are interested in improving their processes and productivity. It will help in analyzing all processes in an organization and categorizing them into value and non-value adding processes. It is the value adding processes that affect an organization's productivity.

This study will help Cooperatives in improving their operational processes. Processes which are geared towards satisfying customer requirements need to be considered. It will help researchers to understand the relationship between processes and productivity in organizations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, literature was reviewed along three themes. First, literature on productivity and its measurement was presented. Secondly, literature on process effectiveness followed by literature examining process and productivity relationship. Finally this literature was summarized and gaps identified. If the set objectives are specific, measurable, achievable, results based and time bound, then the processes must be effective and efficient for these goals to be achieved. Processes that are ineffective and unclear, seldom achieve organizational goals hence may lead to low productivity.

2.2 Productivity and its measurement

Literature on service productivity measurement fell into two streams. One stream focused on productivity of a service system as distinct from that of service workers (Gupta, 2005). Another stream focused on service worker productivity (Sahay, 2005). In this section literature on these streams were reviewed.

A study by Gupta, (2005) was to model productivity in a service operation. The researcher found that skill level of employees (inputs) affects the service quality of an organization (outputs). The study used case method. The model had quality and value perception as output which was explained by the level of input in terms of skill of employees. It concluded that static measures of productivity may not be appropriate.

The study was conducted in USA which is different from the socio-economic context of Kenya. These findings are consistent with those of Sahay (2005) but only partly. In

Sahay (2005) static and development factors were identified to be influencing productivity.

Another study by Sahay, (2005) was done to model multi factor productivity in a service organization. A case study was used with data from one organization. It found that different categories of static, dynamic and development factors influence productivity. This model can be represented as $Y=K+BdXd+BsXs+BdevXdev+error$ where K is a constant, BdXd is dynamic, BsXs is static and BdevXdev is development factors. Each factor of static, dynamic and development affect productivity differently. Sahay (2005) concluded that productivity measurement is based on the type of service.

Productivity, therefore, can be achieved by following two routes. These are process efficiency and process effectiveness. Process efficiency and effectiveness can be achieved by eliminating all processes which do not add value during the input stage. Any process that may lead in error or re-work, need to be eliminated at the input stage since it will have an effect in the final output. The theory of constraints by E. Goldratt states that organizations have limited resources. There will be at least one constraint that would limit productivity. These constraints must be identified and eliminated in order to achieve a given level of productivity.

2.3 Process Effectiveness

Various reasons have been given as to why effective business processes are important (Islam et al, 2012; Scheer, 2002; Gullledge et al, 2002). These were reviewed in this section. A statistical study by Islam et al, (2012) investigated effectiveness and efficiency as an outcome of process design. The objective of the study was to develop a model for efficient and effective process design. A case study of a bank was used.

During the research the researchers found that efficient and effective processes reduce service cycle time and improve customer satisfaction. The study was done in Bangladesh and used SWOT analysis. The use of SWOT analysis is static and seldom leads to development of distinct alternatives based on it. It concluded that productivity improvement was as a result of efficient and effective process designs.

A study by Scheer, (2002) used conceptual study to model process design .To achieve process effectiveness, it proposed six steps. These are process analysis, interference factors, determine potential for improvement, devise target processes, feasibility testing and determine return on investment. A limitation of the study was that it assumed that following the six steps during process design will automatically lead to process effectiveness. Other aspects such as culture need also to be considered. The study was done in Germany. Scheer (2002) concluded that process design was the link between effectiveness and efficiency.

Another study by Gullledge et al, (2002) was to model how information system integrates with process in order to improve efficiency and effectiveness. The researchers used concept study in a public service organization. It was found that efficiency and effectiveness of a process was derived from restructuring organizations through cross sectional process. The study concluded that success of any process depends on radical change on an organizations structure. These findings are consistent with those of Islam et al, (2012) on customer satisfaction through effective processes. The limitation of this study lied in the fact that the investigation were on non-commercial organization. Additionally, this study was done in USA which may not apply in socio-economic context of Kenya.

2.4 Process Effectiveness and Productivity

Literature review on process effectiveness was examined under two themes. Armistead et al, (2008) and Barrachina et al, (2008) agreed that process design has direct relationship with productivity.

A case study by Armistead et al, (2008) investigated how service productivity management was influenced by process design. The study was done in the context of mail services in the UK. The study categorized processes into four. These were strategic, operational, supporting and managerial processes. Strategic processes set the direction of the firm, operational processes defined how work was done, and support processes enabled other processes while managerial processes dealt with decision making and communication. Armistead et al, (2008) found that improvement in productivity can only be achieved by adopting whole process view as opposed to single process view.

A study by Barrachina et al, (2008) in Spain investigated effect of process innovation on a firm's total productivity. The study used survey method as a primary data collection method. Barachina et al, (2008) findings confirmed that firms which adopt process innovation enjoy higher productivity than those not implementing them. Conclusions from this study were consistent with the findings of Armistead et al, (2008) on process influence on productivity. Whereas Armistead et al, (2008) found process design to be a major factor in productivity, Barrachina et al (2008) found that process innovation influenced productivity which was influenced by size of the firm. The limitation of the study was that both total factor productivity and process innovation were not defined.

The above studies agreed that cross sectional process view rather than single process view should be used when measuring productivity. These studies showed that effective processes are key determinants of a firm's productivity.

2.5 Summary of literature review

Table 2.1: Summary of studies			
Study and type	Issues examined	Findings	Gap and how proposed study will fill the gap
Sahay (2005), case study	Concept of productivity and measurement productivity	Productivity measurement is multidimensional productivity	The study was done in India and may not apply in cultural and socioeconomic context of Kenya Proposed study is to examine issues within Kenyan context.
Gupta (2005), case study	Productivity in a service system	Employee skill influences service quality hence productivity	The study was done in the USA on healthcare environment. Proposed study is to be done in Kenya on cooperative unions.
Islam et al (2012), case study	Effectiveness and efficiency is an outcome of process design	Effective and efficient processes lead to customer satisfaction	The study used SWOT analysis which is usually static. It was done in India on a bank The proposed study will be done in Kenya on cooperative unions
Scheer (2002), case study	Link between process design and corporate strategy outcome.	Customer satisfaction, improved productivity and competitiveness are the result of effective and efficient processes	The study was done in the USA on manufacturing firms. The proposed study will be done in Kenya on service sector specifically the cooperative unions
Gulledge and Sommer (2002), case study	Effectiveness and efficiency in public sector organizations	Effective and Efficient processes lead to value creation to the customer	The study was done in the USA on a non-commercial public sector organization. The proposed study will be done in

			Kenya based on the cooperative sector.
Armistead and Machin (2008), case study	Service productivity and effective process design	Productivity is a result of process innovation	The study was done in the UK and may not apply in the cultural and socio economic environment of Kenya. The proposed study will be done within the Kenyan context.
Barrachina et al (2008), statistical study	Process innovation and productivity relationship	Firms which implement process innovation are more productive than those that don't	The study was done in Spain and may not apply within the Kenyan context. The proposed study will be done within the Kenyan context.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Chapter Overview

Actions that lead to achievement of research objectives are set out in this chapter. The procedures followed in carrying out the study are described. It describes mode of data collection, target population, sampling procedures, data collection and analysis.

3.2 Research design

To achieve the research objectives, empirical type of research was used. Investigation of actual situation was required. Time was a constraint and therefore cross sectional study was used. Case study was used to provide in depth analysis on process effectiveness and its impact on productivity (Okwiri, 2012).

Case organizations were medium sized cooperatives with employees more than 50. The organizations were incorporated and licensed by Sacco Society Regulator operating in Kenya. The setting of the study was in credit section which deals with credit applications. The credit application process was chosen because credit interest was the main source of cooperative income. To gain an in depth analysis, a total of 12 organizations were chosen randomly. The organizations were chosen because of ease of access by the researcher and willingness to share data. Each of the organizations have developed and documented their own credit processes. These organizations provided a rare opportunity for analyzing credit process and challenging any theoretical assumptions on effectiveness of the credit application process.

3.3 Data collection

Data was obtained from a Manager or an appointed facilitator within credit department. Work step analysis as per table 2 was used to obtain information on credit

application process. The table described action to be done regarding time taken recorded in minutes for each form and what change was made on work object. Each step was evaluated and entry made on type of work step column as per process analysis in Appendix A1 per table 2. The type of work step had repeat, inspection, transport, operation or waiting.

Repeat step constituted information that has already been entered in earlier step such as names, identification, reference and amounts. Inspection step was where work involved confirmation that an entry had been done earlier was correct and valid and was by way of checks and signature but did not add any new information. Transport was a step whereby the form or information carrying record was moved from one location to another such as when work was moved from reception to an officer, a Manager, Supervisor or a different office located in a different area.

Operation was when information on applicant requirement or any other information, can be an input to another section, was added to the form. A step was considered as waiting when work object was waiting availability of resources to work on it such as officers in tray or awaiting posting or even availability of someone to transmit it to the next step.

A total of 12 work objects were used and a mean time to complete the process determined in minutes. The mean of 12 work objects represented the step time taken. The variable of productivity was obtained from total credit income in the annual accounts and total human resource cost in credit department. Productivity variable was calculated using annual labor hours available less leave day's entitlement per person multiplied by number of people in the credit department as shown in table 3.1.

Table 3.1: Work step analysis

Step	Action	Time taken(mi nutes)	Information added	Type of work step
1	Application sent by courier from branches	20	Receiving and sending to Head Office	Transport
2	Application form received from Branches	5	Receive and date stamp at Head Office	Repeat
3	Send forms from Admin to Credit	15	Cross check for completeness	Transport
4	Sort forms by received date	10	Forms received after deadline wait for subsequent period	Waiting
5	Data input	25	Check for completeness	Repeat
6	Application appraisal	60	Scrutiny and send back	Inspection
7	Appraised application received Credit Manager	30	Signing	Inspection
8	Application forwarded to Credit Committee	120	Signing	Inspection
9	Credit Committee	30	Decline, approve or	operation

	decision update		pending loan form	
10	Disburse the loan	28	Change status from approved to disbursed	Operation
11	Archive loan forms and reports	30	Loan form filed in member file	Operation
12	Retrieve source documents when required	45	Review complaints and compliments	Repeat

3.4 Data Analysis

The information collected was analyzed to identify the following work steps. All steps classified as repeat, inspection, transport and waiting were reclassified as non-value adding steps while those classified as operation were classified as value adding steps and presented as table 3.2.

Table 3.2: Step category

Organization	Number of value add steps	Number of Non-value add steps	Total steps	Effectiveness=Value add steps/Non Value add steps	Productivity per labor hour
1	2	10	12	20	2185
2	4	12	16	33	2039
3	2	10	12	20	1526
4	6	14	20	42	1806
5	2	10	12	20	2333
6	3	6	9	50	476
7	2	10	12	20	2590
8	3	16	19	18	1298
9	2	10	12	20	737
10	2	8	10	25	292
11	3	15	18	20	3610
12	3	6	9	50	625

A similar analysis was done but based on time as per table 3.3.

Table 3.3: Time category

Organization	Time used in value add steps	Time used in Non-value add steps	Total time	Effectiveness= Value add time used/Non Value add time used	Productivity per labor hour
1	25	250	275	10	2185
2	12	84	96	14	2039
3	19	209	228	9	1526
4	20	112	132	18	1806
5	27	297	324	9	2333
6	132	660	792	20	476
7	32	352	384	9	2590
8	117	1371	1488	9	1298
9	31	341	372	9	737
10	34	350	384	10	292
11	33	363	396	9	3610
12	106	530	636	20	625

To achieve research objectives, the following techniques were used, as summarized in table 3.4:

Table 3.4: Analysis of data

No.	Objective	Statistical test	Interpretation
1	Determine labor productivity	Descriptive statistics: Interest Income/Number of employees X Number of hours worked per year (less leave days)	Productivity per employee per hour will be compared with industry standard. Range will be calculated from highest score, X_H and Lowest X_L
2	Determine process effectiveness	Descriptive statistics: Total value add steps/Total steps X100 Total value add time/Total time X100	A comparison will be made as a percentage based on steps and time spent on activities which are value add and those that are non-value add. Range will be calculated from highest score, X_H and Lowest X_L

3	Determine relationship between process effectiveness and productivity	Descriptive statistics using what if analysis by considering process steps that are value add only and the time and cost	The results from effectiveness and productivity per hour will be plotted using a curve estimator.
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CHAPTER FOUR

DATA ANALYSIS, RESULT AND DISCUSSIONS

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. Data was gathered exclusively from a work step analysis form as the research instrument. The form was designed in line with the objectives of the study.

4.2 Process effectiveness

The time taken from the time of applying for a loan up to the time of disbursement differed from one organization to another. The highest time taken to process a loan was 1488 minutes while the lowest was 96 minutes. The mean loan processing time was 461 minutes. These are shown in table 4.1.

Table 4.1: Mean time computation

Organization	Time taken (Minutes)	Cumulative time (Minutes)
1	300	300
2	96	396
3	228	624
4	132	756
5	324	1080
6	792	1872
7	384	2256
8	1488	3744
9	372	4116
10	384	4500
11	396	4896
12	636	5532
MEAN		461

There were two organizations with a high of 50% effectiveness in process steps while the lowest had 18%. Two organizations scored a high of 20% in process effectiveness based on time while five organizations scored 9%. There were a total of 34 value adding steps and 127 non value adding steps. In the category of value adding steps, there was a high of 6 and a low of 2 while that one of non-value adding steps there was a high of 16 and a low of 6. This is illustrated in table 4.2.

Table 4.2: Value add and non-value add steps

Organization	Value add steps	Non value add steps
1	2	10
2	4	12
3	2	10
4	6	14
5	2	10
6	3	6
7	2	10
8	3	16
9	2	10
10	2	8
11	3	15
12	3	6

The table above illustrates how organizations are spending a lot of their resources in processes that are not adding value to the customer. Out of a combined total of 161 steps, 127 are non-value add. This is an equivalent of 79%. This means that only a mere 21% of the steps are geared towards value addition to the customer.

4.3 Labor productivity

Labor hours worked per year was arrived at by multiplying the number of days worked by 8hours. This totaled to 1848 labor hours per employee per year. This is summarized as below:

Number of days in a year	365
Less Weekends not worked in a year	104
Less Leave entitlement per year	30
Total days worked in a year	231

Labor productivity is calculated by dividing credit income earned per year by the number of hours worked times the number of employees as shown in table 4.3a and 4.3b.

Table 4.3a: Step category as a percentage

Organization	Value add steps (%)	Non value add steps (%)	Labor productivity
1	17	83	2185
2	25	75	2039
3	17	83	1526
4	30	70	1806
5	17	83	2333
6	33	67	476

7	17	83	2590
8	16	84	1299
9	17	83	737
10	20	80	292
11	17	83	3610
12	33	67	625

There were organizations with a high of 33% and a low of 17% in terms of value add steps while non-value add steps had a high of 83% with a low of 67%. This means that a lot of resources are spent on non-value add processes as opposed to value creating processes. The same is also true of the amount of time spent on value adding processes. Only two organizations were spending 17% of their time on value adding processes while eight organizations spent 92% of their time on non-value adding processes as shown below.

Table 4.3b: Time category as a percentage

Organization	Value add time (%)	Non value add time (%)	Labor productivity
1	8	92	2185
2	13	87	2039
3	15	85	1526
4	8	92	1806
5	17	83	2333
6	8	92	476
7	8	92	2590
8	8	92	1299
9	8	92	737
10	8	92	292
11	8	92	3610
12	17	83	625

The highest labor productivity was 3610 shillings per year while the lowest was 625 shillings per year. Only 17% of value add activities contributed to 3610 shillings for the highest productivity while 33% of value add steps contributed to 625 shillings for the lowest productivity. A labor productivity of 3610 shillings was generated from only 8% of value add time which was the highest while a low of 625 shillings was generated from 17% of value add time.

4.4 Process effectiveness and labor productivity

Labor productivity equation can be represented in the form of $Y=b+mx$, where m is the constant while Y represents productivity while X represents effectiveness. To determine if there is any correlation between productivity and effectiveness, the values for productivity and effectiveness were calculated using regression analysis in excel. This brought the following values:

R square was 0.17 which means that 17% of the points fall on regression line. This means that 17% of variation in productivity (Y) values around the mean are explained by X (effectiveness) values. Multiple R was 0.41 which signifies there is a relationship between productivity and effectiveness. The Y intercept value was 2935. Therefore our productivity equation is Y (productivity) =2935-61 X . Rejecting the P value of 0.019 is to conclude that there is relationship between productivity and effectiveness.

4.5 Discussion of the Findings

From the findings, the results show that process effectiveness has a relationship with labor productivity. The number of steps and time spent on non-value activities had an influence on productivity. From the study it was evident that Saccos are spending most of their resources on non-value add activities which neither add value to the

customer nor increase productivity. Barachina et al, (2008) findings confirm that firms which adopt process innovation enjoy higher productivity than those not implementing them.

This study is also in collaboration with Gullledge et al, (2002) whose research was to model how information system integrates with process in order to improve efficiency and effectiveness. The researchers used concept study in a public service organization. It was found that efficiency and effectiveness of a process is derived from restructuring organizations through cross sectional process. The study concluded that success of any process depends on radical change on an organizations structure.

Labor productivity in cooperatives is influenced by time and steps spent in value add activities. From the study, 83% and 92% were spent on non-value add steps and non-value add time respectively. This explains the mediocre productivity of Kenya shillings 625 per employee per year. From the time a customer applies for a credit facility up to the time of disbursement, it takes an average of 461 minutes. The time taken to process a loan is largely influenced by the number of non-value add steps which stood at a high of 79% of the total steps. Non-value add steps affects the mean credit processing time. By plotting labor productivity on the Y-axis and process effectiveness on the X-axis, multiple R of 0.41 is arrived at. This shows there is a positive relationship between labor productivity and process effectiveness.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is a review of the findings of this research. It presents an overview of the findings and conclusions, and presents a suggested way forward in expanding the knowledge whose foundation has been laid by this research

5.2 Summary of the findings

The study sought to establish importance of effective processes and relationship with labor productivity. It was found that organizations which have effective processes also had high labor productivity. Organizations need to analyze their processes and categorize them into repeat, inspection, waiting, operation and transport. This will help in identifying which activities are value adding to the customer and which one are non-value adding.

Business processes which are not adding value and consume valuable productive need to be re-assessed and replaced with value creating activities geared towards increasing productivity. Some organizations did not have a well document credit application procedure. This may create problems in delivering results and accountability issues.

5.3 Conclusion

From the study, it was concluded that effective loan processes increase labor productivity in terms of credit income which is a main source of income for cooperatives. This was as a result of the positive correlation between productivity and effective processes. Processes which do not add any value during the loan processing

need to be eliminated. They act as constraints which limit increased or improved productivity. It was concluded that labor productivity in cooperatives is low due to ineffective processes.

Secondly, non-value add activities consume a lot of an organization's time and contribute very little to increasing the bottom line. From the study, up to 83% of all the loan application processes were non-value add. This means that organizations are channeling their resources such as labor, time and money in activities which are not beneficial to the customer and the organization. A customer applying for an emergency loan would take as long as 461 minutes before receiving the loan. This could mean that the customer looks elsewhere for the loan or is kept waiting. In this way the loan ceases from being an emergency due to the duration of time taken. Effective work processes which are efficient and effective lead to improved productivity.

Finally, the ability of an organization to generate more in credit income depends on how well it has designed its processes by reducing the non-value add processes and concentrating on value add activities geared towards value creation to the customer. In some organizations, productivity was as low as Kenya shillings 625 in a year. This partly explains why third world countries are still under developed due to low productivity. The low productivity affects any country's Gross Domestic product (GDP).

5.4 Recommendations

On the basis of the results of this study, it is recommended that cooperatives need to put greater emphasis on improving their loan processes in order to improve their productivity. Processes which do not add any value to the customer should be

eliminated gradually and replaced with those that create value. These processes must be aligned to the organizations core objectives in order to achieve the desired results. A systematic procedure is required to guide on the steps to be followed from the time of loan application up to disbursement with clear time frames. All loan processes must be well documented.

5.5 Limitations of the study

The study did not include all employees in the Saccos who also contribute to credit income generation. Process effectiveness was concentrated mainly on emergency loans and did not take into other loans since some loans take more than one month to process. Some organizations were not willing to disclose number of staff and wages for those working in credit department. This was occasioned by the fear that the information supplied to the researcher may be misused and land in competitor's hands. There was insufficient interaction between the researcher and business staff since the research period coincided with that of year end procedures.

5.6 Suggestions for future research

The study was done in 12 Saccos in Nairobi. It concentrated mainly on loan process. The study could have been extended to other Saccos in Kenya. Other processes need also to be studied since they also influence productivity. A further study needs to be carried out on why some firms had productivity levels much higher than the projected industry average.

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APPENDIXES

APPENDIX I: Activity completion Analysis Form/Data Collection Form

A1-Work steps for XYZ Cooperative Society Limited (name disguised for confidentiality)

Step	Action	Time taken in minutes	Information added	Type of work step
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

A2-Process step Analysis

Purpose of activity	Category if “yes”
Could what it is adding be done at earlier stage?	Repeat
Could information have been done by earlier stage, or has been done in another format at earlier stage?	Repeat
Does it involve inspection, or changing if earlier stage was done correctly?	Inspection
Does it involve moving work object?	Transport
Is it adding new information?	Operation
Does it wait for someone to be available to act?	Waiting
Could it be done better?	Yes/No

A3- Work step Analysis (summary)

	How Many	Total time (Minutes)
Total steps categorized as "Operations"		
Total steps categorized as "Repeat"		
Total steps categorized as "Inspection"		
Total steps categorized as "Transport"		
Total steps categorized as "Waiting"		
TOTAL		

**APPENDIX II: LIST OF REGISTERED DEPOSIT TAKING SACCOS
WITHIN NAIROBI COUNTY**

NO.	NAME OF SOCIETY	POSTAL ADDRESS
1.	AFYA SACCO SOCIETY LTD	P.O.BOX 11607 – 00400, NAIROBI.
2.	AIRPORTS SACCO SOCIETY LTD	P.O.BOX 19001 – 00501, NAIROBI.
3.	ASILI SACCO SOCIETY LTD	P.O.BOX 49064 – 00100, NAIROBI.
4.	CHAI SACCO SOCIETY LTD	P.O.BOX 278 – 00200, NAIROBI.
5.	CHUNA SACCO SOCIETY LTD	P.O.BOX 30197 – 00100, NAIROBI.
6.	COMOCO SACCO SOCIETY LTD	P.O.BOX 30135 – 00100, NAIROBI.
7.	FUNDILIMA SACCO SOCIETY LTD	P.O.BOX 62000 – 00200, NAIROBI.
8.	HARAMBEE SACCO SOCIETY LTD	P.O.BOX 47815 – 00100, NAIROBI.

9.	HAZINA SACCO SOCIETY LTD	P.O.BOX 59877 – 00200, NAIROBI.
10.	JAMII SACCO SOCIETY LTD	P.O.BOX 57929 – 00200, NAIROBI.
11.	KENPIPE SACCO SOCIETY LTD	P.O.BOX 314 – 00507, NAIROBI.
12.	KENVERSITY SACCO SOCIETY LTD	P.O.BOX 10263 – 00100, NAIROBI.
13.	KENYA BANKERS SACCO SOCIETY LTD	P.O.BOX 73236 – 00200, NAIROBI.
14.	KENYA POLICE STAFF SACCO SOCIETY LTD	P.O.BOX 51042 – 00200, NAIROBI.
15.	KINGDOM SACCO SOCIETY LTD	P.O.BOX 8017 – 00300, NAIROBI.
16.	MAGEREZA SACCO SOCIETY LTD	P.O.BOX 53131 – 00200, NAIROBI.
17.	MAISHA BORA SACCO SOCIETY LTD	P.O.BOX 30062 – 00100, NAIROBI.
18.	MILIKI SACCO SOCIETY LTD	P.O.BOX 43582-00100, NAIROBI

19.	MWALIMU NATIONAL SACCO SOCIETY LTD	P.O.BOX 62641 – 00200, NAIROBI.
20.	MWITO SACCO SOCIETY LTD	P.O.BOX 56763 – 00200, NAIROBI.
21.	NACICO SACCO SOCIETY LTD	P.O.BOX 34525 – 00100, NAIROBI.
22.	NAFAKA SACCO SOCIETY LTD	P.O.BOX 30586 – 00100, NAIROBI.
23.	NAKU SACCO SOCIETY LTD	P.O.BOX 78355 – 00507, NAIROBI.
24.	NASSEFU SACCO SOCIETY LTD	P.O.BOX 43338 – 00100, NAROBI.
25.	NATION SACCO SOCIETY LTD	P.O.BOX 22022 – 00400, NAIROBI.
26.	SAFARICOM SACCO SOCIETY LTD	P.O.BOX 66827 – 00800, NAIROBI.
27.	SHERIA SACCO SOCIETY LTD	P.O.BOX 34390 – 00100, NAIROBI.
28.	STIMA SACCO SOCIETY LTD	P.O.BOX 75629 – 00100, NAIROBI.
29.	UFANISI SACCO SOCIETY	P.O BOX 2973-00200, NAIROBI.

	LTD	
30.	UKRISTO NA UFANISI SACCO SOCIETY LTD	P.O BOX 872-00605, NAIROBI.
31.	UKULIMA SACCO SOCIETY LTD	P.O.BOX 44071 – 00100, NAIROBI.
32.	UNITED NATIONS SACCO SOCIETY LTD	P.O.BOX 30552 – 00100, NAIROBI.
33.	WANAANGA SACCO SOCIETY LTD	P.O.BOX 34680 – 00501, NAIROBI.
34.	WANANDEGE SACCO SOCIETY LTD	P.O.BOX 19074 -00501, NAIROBI.
35.	WAUMINI SACCO SOCIETY LTD	P.O.BOX 66121 – 00800, NAIROBI.