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Opportunities and Challenges of Business Process Management Systems (BPMS)

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Abstract

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Studies have shown that there are rapid changes in the business environment in which organizations and companies are operating. The environment forces them to cope with these changes in order to maintain and gain competitive advantage. As a result some organizations or companies opt for Business Process Management Systems (BPMS). BPMS are systems that help organizations to improve their performance and make them capable for organizational change and continuous management of business processes. Apart from the system benefits, organizations are complaining that it has its own problems. Thus, this thesis work is interested to find out the impacts of business process management systems in the business processes as well as in the organization at large. For a detailed data collection the authors used qualitative research method and did interviews with three different companies. The research findings indicate that in spite of the business activities of organizations there are some common impacts of the BPMS. The business process management system is giving wide opportunities such as flexibility, integration and speeding up of business processes. But, the system is also challenging in some aspects.

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Abbreviations

BP	Business Process
BPM	Business Process Management
BPMS	Business Process Management Systems
BPR	Business Process Re-engineering
CMSA	Capital Markets and Securities Authority
ICT	Information Communication Technology
ISP	Internet Service Provider
IT	Information Technology
RMC	Rational Method Composer
TQM	Total Quality Management
TPTC	Tanzania Post and Telecom Corporation
TTCL	Tanzania Telecommunications Company Limited

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1. Introduction

This is the chapter where we give the highlights of the research. We present our research question and purpose based on the problem space that we want to address. To find out the real problem and interactions of the study area with other related works we present a general background as well. Finally we explain about the delimitations and the structural framework of the thesis.

1.1 Background

Today the business environment in which organizations are operating is in a continuous change (Harmon & Davenport, 2007) and to be competitive in the market companies need to be flexible and respond to the changes (Egan, 1995). These changes have had two major effects to the business organizations:

“First, they have eliminated the old model that assumed information is expensive; second, they have dramatically increased the level of competition among organizations.” (Albrecht & Sack, 2000, p. 6)

In response to this rapidly changing business environment different concepts were applied through time and make organizations capable to accommodate the changes (Chang, 2006). As a result information technology (IT) got a broad acceptance across organizations, that is companies started to use the technology in order to upgrade their way of data processing and managing the business changes especially of the customer’s need (Chang, 2006).

Organizations which function under these situations should always develop ways to cope up with all the dynamics. To improve the way they do business, companies are argued to develop an effective management activity for the business processes (Cichocki, et al., 1998). This also applies to the non-profit making organizations which are concerned with the mechanism so as to achieve their goals effectively (Katsioloudes, 2006). Due to this *“BPM has evolved into a management practice that provides for governance of a business process environment towards the goal of improving agility and operational performance” (Marjanovic, 2010, p. 3).*

Then companies were actively using business process management not only to improve their services or production but also to win the market competition (Michael & Danny, 2006). But nowadays the business situation has been changed again and requires a lot of automated activities to get in to the competition in terms of at least time and cost. This actually signifies a more up to date tool to manage the business processes.

Business affects the society directly through various ways (Bright et al., 2006) therefore those business activities which are operational requires a system that makes them flexible and quick responding as a result BPM system introduced to manage all the business operations and overcome problems of the previous business tools used by business organizations. According to Rod (2004) the introduction of business process management systems basically changes the way companies do business and signify the use of information technology.

“One of the major improvements of BPMS over traditional IT enabled business processes improvement efforts is it brings IT closer to the business problem owners”(Chang, 2006, p. 50) and fastened way of business enables companies to give the required services to customers at the right time with a reduced cost (Tan, et. al., 2008). However, still there are criticisms on the system that it does not fulfil the interests of the organizations.

1.2 Problem Area

New forms of application systems like business process management systems are developing to satisfy the need of organizations and improve their performance in doing business by using information technology (Kardan & Alaeddini, 2009). Among the different kinds of application systems like workflow management systems and customer relationship management systems, business companies and organizations are now using business process management systems which incorporate the usage of information technology towards business processes. Due to the development of information technology and globalized way of market trend business processes require business process management systems (BPMS) to be flexible and control processes continuously (Yaxiong et al., 2008).

Once the business process management system is implemented by business organizations there could be different outcomes resulted from the system. As a new technology approach, organizations from the business process perspectives may evaluate the system based on its

new results. For example as Yaxiong et al. (2008) explained in their article that business process management systems can regulate all forms of business and can well manage processes.

Business Process Management Systems (BPMS) gives opportunities for business organizations by improving the speed of business operations as well as the quality of doing business processes (Manoilov & Deliiska, 2008). Even though business organizations implement and use BPMS in order to improve their decision making, service provision and in general increase their efficiency in operating business processes, there are also some challenges that they face.

Business Process Management (BPM) systems lead organizations for instance, the challenge of involving business users, who acquire good knowledge of the business process but lack technical skills towards operating with the new technology (Stoitsev & Scheidl, 2008). These two extreme points often are major areas that companies are debating in the use and not use of application systems, BPMS in this case. Therefore, there are organizations which still do not use BPMS in spite of the opportunities the system can bring to the organization.

1.3 Research Question

BPMS as a field of study can be viewed and evaluated from two major angles. These are the Information Technology (IT) and management perspectives. The former refers to the technical perspective that tells assisting business processes by computer systems where as the later represents the managerial approaches towards business that is managing, controlling, and evaluating business processes. After getting an overview of BPMS from these two perspectives we finally come up with the research question below.

RQ: What are the perceived impacts of BPMS in an organization?

In order to answer the research question we classify the impacts of business process management systems in organizations into two as opportunities and challenges. The system can have broad impacts in different organizations and as an advanced technology is has got many opportunities that it can provide to the organizations in relation to the business processes. Since BPMS is a process driven tool it affects the business processes and make them up to date and fit to the organization needs so that organizations become resistant to the

environmental changes and improve their performance at all. But an application of business process management systems can have some challenges for organizations. The organizations that use BPM systems are facing a new way of managing business processes and controlling their activities. This might be challenging from the users point of view to get them involved in the system and capable of using it. Thus, in this research the above stated research question is handled by considering the opportunities and challenges of business process management systems in organizations.

1.4 Research Purpose

The introduction of new technology into an organization normally aims at improving things like the way organizations provide services, store their data, and the way they do businesses in general (Mirvis et al., 1992). But there are also some problems that business organizations are facing in association with the technology. Similarly, businesses process management systems are new technology results which can have both kinds of effects to business organizations. Therefore the purpose of this research study is to understand the opportunities and challenges of BPM system. In reaching to this purpose we also focus on the major advantages and problems in using of BPMS in terms of productivity, cost, quality of services, and flexibility.

1.5 Delimitations

While BPM is often considered as an organizational strategy, it has a continuous relationship with IT to support the management activities (Idorn, 2008) and therefore the combination of BPM and BPMS gives a wide choice of issues that can be researched and discussed in relation to what they promote towards the organization. This thesis does not focus on the technical aspects of BPM systems and its implementation mechanisms that are the concepts of technology architecture, system and data integration technology. In this thesis work we rather focus on the impacts of these systems (BPMS) in terms of productivity, quality of service, operating costs and processing time, as well as the organization ability to adopt changes in the business area.

1.6 Thesis Structure

This thesis work is organized in an interrelation and has got six major parts. The first section is the introduction part where the research work is introduced and describe the research question together with the research purpose. This part of the thesis also includes the delimitations of the research. The introduction part is followed by the literature review so as to get a solid background about the study area which is business process management systems. This is the chapter where we base our research on the theoretical findings so that concepts and theories regarding the BPMS are discussed and explained. In addition the chapter highlights other business approaches in relation to BPMS. The concepts are also used to conclude the overall work of the thesis.

Research methods is the third chapter of the thesis where descriptions on how the research is conducted. The methods here are presented after describing the theoretical background of the research area and the selection is done based on the criteria that is suitable to practically find out answers for the research question. Further more, the chapter gives explanations on the data collection and data analysis methods which suits for the research. Then results are presented from the empirical analysis.

There after results are discussed in details in the discussion chapter of the thesis. The fifth chapter, Discussion, is done by cross referencing the practical results with the theoretical findings. Finally the thesis ends up after giving conclusions for the whole research. This is actually done by getting ideas not only from the practical discussions but also from the theoretical findings.

2. Theoretical Framework

This chapter presents the theoretical background on business process management and business process management systems. The main discussion area is about the need, types, and different impacts, benefits and challenges, which BPMS can cause in organizations based on literatures. But the first four sub chapters give a highlight for understanding of business processes and the way the processes be managed, general concepts and principles of BPM, and BPM life cycle respectively. In addition to the above the fifth sub chapter will emphasize on the comparison between BPM and BPR. Finally the chapter ends up after it gives detailed explanations on needs, capabilities, and drawbacks of the BPMS in general.

2.1 The Meaning of Business Process

Before discussing business processes in general it will be good to talk a little bit about what exactly a process mean. Actually different scholars give various definitions at different times, but we prefer to use the following definition in our research.

“A process is a specific group of activities and subordinate tasks which result in the performance of a service that is of value.”(McCormack & Johnson, 2001, p. 5)

A process might consist of more than one activity which can be handled with and depends on each other. They further explain *“processes must be able to be tracked as well, using cost, time, output quality, and satisfaction measurement.” (McCormack & Johnson, 2001, p.5)*. On the other hand business is an activity which has value for the society that can determine economic associations of the people (Williamson, 1985). This will let the business organizations to become competent and in general help them to achieve their organizational goal.

In a company, there could be more than one business process involved to accomplish its tasks. The processes are different to one another in many aspects like the duration, rate of involvement in the whole activity and so on. Due to this some business processes can be considered as major for the total out put of the company comparing with others. Those

business processes that are carried out many times at different intervals and determine the overall output of the business activity of the organization are considered as major business processes (Harrington et al., 1997).

In order to achieve the organization goal and make the company well competent in the business environment the different sub parts of the organization need to work together. It means that a company can achieve its both short term and long term goals if it is able to integrate and allow the different resources to work together which can be facilitated and well coordinated by the business processes (Weske, 2007). He also highlighted that business processes are important means and can be used to evaluate the different activities and operations of an organization. In addition to that Reijers (2003) considered business processes as activities which are used to serve customers by the value they can provide.

All business organizations have business processes regardless of the type, scope, and area of business as a result processes are taking place over the inputs in order to give the desired output at the end. But the properties of the business processes might differ from organization to organization.

2.2 Business Process Properties and Models

As explained in the previous section, business processes are activities in an organization which actually have different properties according to the type of business they are involved. Business processes have common properties (sparraxsystems.com) like:

- having particular goals
- having specific inputs and outputs
- perform activities in sequence and
- making use of resources

The properties have shown that business processes are worked out together in some order so that they direct organizations to their goals. In order to explain the properties of business processes and understand complex systems, models are widely used for simplicity and better understanding of things. The value of models is a lot in almost in every aspect of science. Similarly to show the interrelationship between business processes and describing their

properties business process models are widely used (Weske, 2007). The business models can show the details of the process by breaking down the complex process in to smaller and simpler sub processes (Weske, 2007). It is very easy to check and evaluate the inputs and outputs of each and every process and also create a suitable situation to control and maintain business processes. Since the models are representatives of the actual processes they also show how the processes being done.

The modelling technique which is applied for business processes should show all the relationship among the business processes and to work out this in a proper way they can be represented by flowcharts pictorially (Dombrowski & Hennersdorf, 2009). The flow chart is one type of modelling technique which is not only used to show relationship among business processes but also enables to address all the details of it. As a result it would be very simple to identify each process whether it is working well or not. In this regard models play great roles in such a way that they clearly show the different activities that involve in the business and interactions with each other. It is also very simple to modify a part of a business separately which will actually make the business more flexible.

2.3 Business Process Management

The main source of competition among business organizations is to get an advantage over the limited resources. To obtain the most out of these limited resources organizations are applying the concepts of management which can be implemented at different levels. These concepts of management are used to plan, manage, and control the available resources so as to get the desired out put. In addition, the business environment in which companies function becomes highly dynamic so that organizations should have a certain mechanism to manage their business processes and be flexible accordingly. Due to these, competition and dynamic business environment, companies have got no other option other than using of management approaches to every aspect of business processes. In this section we discuss the meaning of process management, concepts, principles, and practices of business process management.

2.3.1 What is Process Management?

The term process management is constructed from two separate terms (process and management) that should be well known in the science of business process management.

Process management is explained as:

“Process management, based on a view of an organization as a system of interlinked processes, involves concerned efforts to map, improve, and adhere organizational processes.” (Chang, 2006, p.3)

The explanation implies that in order to manage a process tasks need to be assigned to different points of evaluation at different levels. This let the company to have a close follow up towards business processes so that it can be able to know which processes should be maintained and which need improvement. Thus, managing business processes is an activity that can determine the general output of the organization.

2.3.2 Concepts of Business Process Management

Business Process Management is a way business organizations use to improve their business activities which could be production or service provision (Chang, 2006). To improve the business processes each and every process needs to be tracked and the changes that occur in the business environment need to be managed. This approach of BPM is further emphasized by Weske (2007) where the different techniques can be applied to suit these needs of management over business processes. As companies vary in the way they do business and in their operations; the usage of technological tools can be highly helpful to manage processes.

Actually, before BPM there were other business improvement tools and programs like TQM (Total Quality Management) and BPR (Business Process Reengineering) which were widely used by different companies. As Chang (2006) described those tools failed and faced different challenges especially towards improving business processes. This is because they did not help organizations react to the business changes continuously (Chang, 2006). As a result BPM concepts and practices are gaining the focus of business people especially in modern business to over come the problems of the previous programs and helping organizations to resist the changes.

Organizations can now analyse the business processes that they run through the techniques of BPM so that they can improve the processes according to their needs (wants) and also have a continuous access to control all the activities of the business. Business process management is sharing ideas from both business and technology fields (Weske, 2007). This implies that the approach can enable organizations to evaluate their function from both technical as well as business aspects. Since BPM is all about improving the performance of the business processes through a managerial approach it will help companies which are using of it to concentrate on the results that are given out as a service or product to the customers. To put the concepts of BPM into practice organizations develop their own principles.

2.3.3 Business Process Management Principles and Practices

Business processes are governed and managed through the organization's principles and practices. The business principles determine what need to be done at each phase of the processes and also make them ready to be practiced (Armistead, 1996). Since businesses differ from one another through multiple ways it would be difficult to use similar business principles across companies. However there are business organizations or business areas that have common interests in their practices so that they use more or less similar principles in the market.

Armistead (1996) identified ten business process management principles which address the managerial, user, and business related issues. The principles are designed to make an organization more competitive in its business area and create more business understandings. These include:

- designate a process champion
- Measure the process
- Manage careers
- Build specialist expertise
- Improve the process
- Train within the process
- Know the process
- Understand the linkages
- Work on the trade-offs
- Teach others about the process

But Chang (2006) has stated only four business principles which are most often practiced in organizations as explained in the following table.

Table 2.1 Business process principles and practices. (Chang, 2006, p. 31)

Goal	Improve products and services through structured approach to performance improvement that centres on systematic design and management of a company’s business processes.
Principles	<ol style="list-style-type: none"> 1. Business processes are organizational assets that are central to creating value for customers 2. By measuring, monitoring, controlling, and analysing business processes, a company can deliver consistent value to customers and has a basis for process improvement. 3. Business processes should be continuously improved 4. Information technology is an essential enabler to BPM
Practices	<ol style="list-style-type: none"> 1.Strive for process oriented organizational structure 2.Appoint process owners 3. Senior management needs to commit and derive BPM and execution of BPM process should take a bottom up approach. 4. Put in place information technology systems to monitor, control, analyse, and improve processes. 5. Work collaboratively with business partners on cross organizational business processes. 6. Continuously train the work force and continuously improve business processes. 7. Align employee bonuses and rewards to business process performance. 8. Utilize both incremental (e.g. Six Sigma) and more radical (e.g. BPR) methodologies to implement process improvement.

From the table above the principles of BPM in general help to improve the business processes continuously, so as to serve the customers well. In addition information systems also become a need of organizations in the business process management approach in order to provide effective service or product by integrating system with people and focusing on process oriented business structure.

2.4 Business Process (Management) Life Cycle

A business process management has got its own life cycle where all the phases are clearly visualized. It is not a new phenomenon in the business area as well as in the information systems to have a life cycle for the development of a product or to provide services. Such kind of approach has been used because it helps to create a clear vision of all the phases that involve in processing of a business and also directs what comes after the other. The phases involved in the lifecycle can guide to keep and meet the criteria's that are required for the final out put of the organization. Weske (2007) described a four step business process lifecycle which are, as he explained, organized in a circular fashion to show what each phase does and its interaction(s) with the other phase(s) as illustrated in the figure below (Fig 2.1).

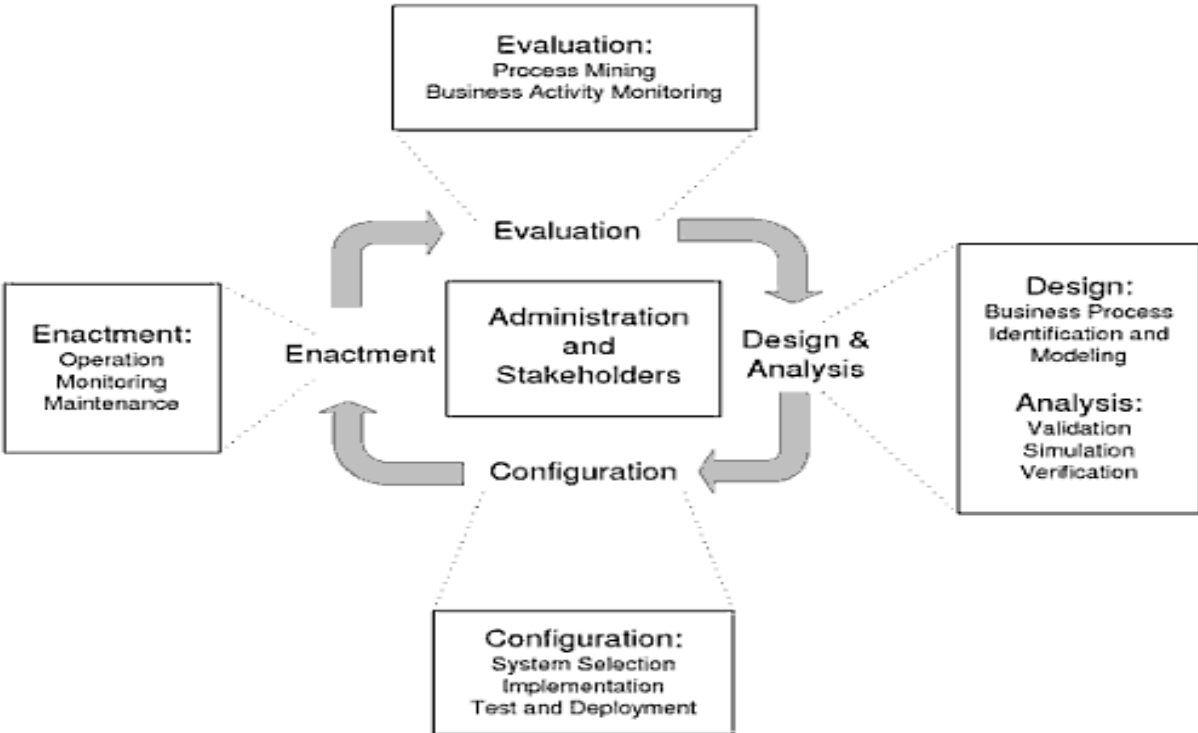


Figure 2.1 Business process life cycle (Weske, 2007, p.12)

The business process life cycle, shown above, represents how business processes can be managed for a better service. It involves four core components (design and analysis, configuration, enactment, and evaluation) where each of them has their own tasks. As the arrows indicate they are arranged sequentially following one after the other. The diagram also refers that it is the administration or the stakeholders that follow and control the correct flow of business processes at each phase in the life cycle. Below is the detailed explanation of each phase of the business process life cycle.

2.4.1 Design and Analysis

Since business process management lifecycle has a kind of circular structure, it has no fixed starting point for the process, but it is often common to start from analysing the business processes. Analysis and design is one of the steps out of the four phases (Fig. 2.1). In this particular phase business process identification and modelling is the initial task to be done. Business process identification and prioritizing is not an easy task to be done because the business administrators of the company do not properly relate the organizations' business operations with the processes that involve in doing so (Lewis & Slack, 2003).

“Business process modelling is the core technical sub phase during process design. Based on the survey and the findings of the business process improvement an activity, the informal business process description is formalized using a particular business process modelling notation.”

(Weske, 2007, p. 12)

In addition to the above activities done in the design part, the business process analysis is highly concerned with validation, simulation, and verification of processes which are identified during design. According to Weske (2007) business processes need to be validated at this phase and among various methods of validation workshops are getting more focus where by people can get together and discuss on each and every process to classify them as valid or invalid. It also gives them a chance to state their own reasons why a particular process is valid or invalid. Simulation is another technique which can be used to validate a process in certain kinds of business processes (Weske, 2007).

2.4.2 Configuration

The business processes which are once referred to as valid and get approval from the administrators will then be implemented to enhance the performance of the company. This is supported by the configuration phase of the business process life cycle. The configuration phase specifically includes tasks like system selection, implementation, testing and deployment. (Fig. 2.1)

To implement a business process successfully first of all a system needs to be selected that is compatible with the process. Different criteria can be used to select a system. For instance the implementation process can directly involve people which further be abide by the organization's working procedures or general principles (Weske, 2007). The implementation process then allows introducing new business processes or start using of a modified processes. Chang (2006) suggests while implementing business processes, the whole business activities in the organization need to be assessed with special focus to the major activities that mainly influence business changes. Implementation is not the end of a business process by itself rather there should be certain kinds of mechanisms to test the already implemented business processes which can be performed by either testing the performance of each process or the sum total of all processes.

2.4.3 Enactment

The next phase in the life cycle of business process management is enactment. As indicated in Fig 2.1 above, this phase includes sub-activities like operation, monitoring, and maintenance. The process enactment phase is the main component in the business process life cycle (Weske, 2007), where the implemented process is controlled while it is involved in actual tasks. Furthermore business process failures will be maintained at this phase if they happen to present. While observing the processes when they are engaged in actual activities process monitoring is a good method into addressing and providing information about the activities (Weske, 2007).

2.4.4 Evaluation

As the name refers this phase of the business process management life cycle is concerned with evaluating the business processes while they are passing through all the previous phases. The evaluation process is quit important since the stakeholders are looking for an improved business process. As a result of this, business processes need to be evaluated through time while they are performing the given tasks. The evaluation can be performed through process mining techniques that involve retrieving of data from the system in the previous activities and may compare it with the actual results of the current business processes (Kim et al., 2010).

In each of the above four phases of the business process lifecycle different managerial activities will be taken in to consideration in order to check and control the business activities. The management can be done by the concerned group of people of each and every activity which might include process analyst, process designer, and developers.

As it is explained previously, organizations have been trying to solve their business problems through technical tools. Thus in addition to the BPM procedures, organizations were using the concepts of business process reengineering in their business activities.

2.5 The concept of Business Process Re-engineering

Business process reengineering which is often abbreviated as BPR is a recent concept in the business arena especially in the 1990's (Grover & Kettinger, 1998) and was widely used by business organizations after its introduction. One of the reasons for its popularity was that companies were looking for a change towards their business operations through the introduction and the usage of information technology in their day to day activities. Due to these and other factors of both internal and external business environments, companies were directed to redesign and improve their business activities so that they can accommodate the desired changes. According to Grover and Kettinger (1998) information technology is the main tool in implementing business process reengineering. BPR then refers to the overall business process redesign to increase the performance of an organization by considering issues like cost and quality of services (Hammer & Champy, 1993).

It is a known fact that the introduction of a new business approach affects the business processes, thus the implementation of BPR also has impacts to the business processes and in turn to the organization. This is because the concepts of reengineering perhaps affects all business processes and brings radical change in the general performance of the organization (Grover, et al., 1993). As an out come companies might improve the quality of their products and services.

Furthermore Grover, et al. (1993) have identified the following four features of BPR which characterizes the concept of reengineering. These are:

- BPR involves changing of the whole business activities in the organization radically which refers that everything is reengineered as a new business process
- BPR's implementation often applied for performance improvement therefore it is using information technology as a main tool
- BPR is a means that is used to achieve the goals of the organization and
- BPR is involved in each and every business operation

Even though BPR is widely used by business companies it was successful only with few organizations towards improving their performance and gives the appropriate services and products to their customers. There are many reasons that are mentioned for its failure. As Mansar, et al. (2008) explain in their article that those companies that make use of BPR have got a lot of expenses because of the costly nature of the tool and also the implementation process is time taking so that it might not bring the desired changes in time. Due to these two major problems BPR could not fulfill the interests of the company in this highly changing business environment. In general “*BPR is a complex and difficult task and has a high-failure rate.*” (Abdolvand, et al., 2008, p. 498)

After entertaining the above mentioned problems that were raised in relation to BPR, organizations started to change the situation and got a choice of using business process management approach. In using the BPM approach companies became capable of managing, and evaluating their activities continuously (Ramesh, et al., 2005).

The following table summarizes the major differences between Business Process Reengineering and Business Process Management.

Table 2.2 Comparison between BPR and BPM

BPR	BPM
Brings radical change in the business activities of organization.	Allows partial changes in the business activities of organizations.
Is a onetime activity	Is a continuous activity
More costly	Relatively less costly
Is complex	Relatively simple

The need to manage and control business processes in an effective way, enforced organizations to shift their interest to business process management and now towards Business Process Management Systems (BPMS). This helps to improve the performance of the organization by making them capable in their activities (Chang, 2006).

2.6 Business Process Management Systems (BPMS)

Organizations have interests to change the way they do business and manage their business processes according to the changes in the business environment. To manage these changes and to become competent they have been using different tools and techniques and tried to achieve their goals. They were using techniques like BPR and BPM, but could not help them through out their operations. Nowadays organizations have a chance to use a better system called business process management system.

2.6.1 The need of BPMS

Organizations can have different reasons for their need to use BPM systems but all require the system to assist in their business activities.

“The ability of organizations to successfully deploy appropriate business processes relies heavily upon the effectiveness of systems that support the management of constantly evolving business processes that support the current set of business needs, and the ability of process participants to understand and reason about the constantly evolving business processes.”

(Ramesh, et al., 2005, p. 223)

As a result, unlike the business process management, organizations are intended to have a system that helps them to be more flexible, and gives a continuous and effective managerial support over the business processes. This becomes possible through the introduction of business process management systems. BPM systems actually not only let the organization to have a continuous control access over business processes but also can give a possibility to redesign business processes according to the business needs (Chang, 2006).

2.6.2 Understanding of BPMS

As discussed earlier, in order to improve the performance of business operations, organizations have been applied and using information technology for years. For instance companies were using information technology tools for office automation in cases of documentations, work flows, and communication. But from the literature the concept of BPMS is explained as an information technology approach which solves business problems by focusing on business processes (Chang, 2006).

Obviously the BPM systems use information technology as a technique of managerial problem solving. When a system is developed in a process centric way, it will help the organization to easily integrate the system with the people and also with the data which are used in the business processes. In other words, the management activities are done with a focus on business processes. Furthermore, the tool assists managers to control business processes and direct them towards their business goals (Reijers, 2006).

In general “A BPMS is typically described as a piece of generic software that supports activities such as the modelling, analysis and enactment of business processes.”(Reijers, 2006, p. 390)

This refers that BPM systems are not only the means to control business processes but also evaluate processes by taking their end results in to considerations. The systems can also be used to manage, and evaluate the whole organization. As a result through the applications and usage of information systems to the day to day business processes organizations can become more flexible and improve their efficiency.

Ramesh et al. (2005) concludes on the purpose and the importance of BPMS as; the system should support the organization in such a way

- to obtain a continuous control over business processes
- to keep the organization with all current available information and
- to integrate the different stakeholders that took part in business operations.

2.6.3 Benefits of BPMS

Literatures say that since its development, BPMS is intended to upgrade the performance of business organizations and designed to make them more capable in operating business process. On top of that the system has been used to overcome problems in relation to managing business processes. Chang (2006) has specifically identified the following five points as organizational capabilities due to the usage of BPMS:

- *Closer business involvement in designing IT- enabled business process solutions.*
- *Ability to integrate people and systems that participate in business processes.*
- *Ability to stimulate business processes to design the most optimal processes for implementation.*
- *Ability to monitor, to control, and improve business processes in real time.*
- *Ability to effect change on existing business processes in real time with out an elaborate process conversion effort.*

The above points tell us business process management systems are efficient software tools to improve the overall performance of business organizations. Basically the system uses information technology as a main means to handle business operations in a company. Once the system is implemented it can directly used for managing, controlling, and evaluate activities of business processes. The other core advantage of BPM systems is that they are highly used to integrate the different business components so that all sub parts can be directed towards a common goal.

But other literatures give details in the benefits of business process management systems. For example Cummins (2009) in his book raised BPMS's capabilities especially in relation to speeding up of business processes.

- *Active processes can be displayed in a form equivalent to the models developed at a business level for monitoring current activities.*
- *A specific process execution (for example, the process for a particular customer order) can be examined and modified for that order, online if necessary, to resolve a problem.*
- *Statistics on process execution can be captured for process monitoring and analyzed to identify delays, bottlenecks, and possible sources of defects.*
- *Limits can be set on the duration of specific processes or activities to raise alarms when individual process executions are delayed.*
- *Process execution can be simulated using statistics derived from actual operations and assigned parameters, to evaluate problems or alternative process designs.*
- *Complex decisions should be implemented as rules (for example, order editing or claims processing). These rules may be incorporated directly into the BPMS, or a rules engine product may be invoked at points in the process where such decisions are made.*

Now organizations have both internal and external pressures to upgrade the way they do businesses and manage the different components that takes part in the whole business process. The business activities are now in a great influence by the frequently changing market situations that include high customer requirements, high market competition, and the technological advancements (Teufel & Teufel, 1995).

In order to survive and remain competent the organizations have also changed their business style that is to resist the changes in the business environment companies should continuously bring new ideas (Ramesh et al., 2005). As a result BPMS are widely implemented and used especially by larger and complex business organizations just to overcome problems that organizations are facing because of the above sources of business change.

Due to the introduction of BPMS companies obtain a lot of advantages so that companies remain competent in the market. For instance Reijers (2006) mentioned the major benefits

- Less prone to error
- Fasten processes
- More flexible

All that refer organizations which govern their business processes by the use of BPM systems are capable to manage and evaluate their activities to improve their performance. This is because, Chang (2006) and Cummins (2009) both explain, the BPMS bring both the technology and business components together. As mentioned before the system is also capable of integrating data, people and system which can help the organization to operate in the desired way. Mahmoodzadeh, et al., (2009) notified that the application of business process management systems facilitates better interactions among people, systems and both. As many organizational and business problems are at least reduced in real time due to the use of BPMS, organizations can upgrade their general performance to give a standardized service or product to their customers.

2.6.4 Types of BPMS

BPMS is developed to solve organizational problems that are related to business process through the usage of information technology as a main means (Chang, 2006). Although BPMS softwares are built and designed to help organizations to manage and control business processes, there are various types of such applications which actually use different ways of process handling.

Business process management systems are classified in to different groups based on different criteria but Chang (2006) has explained three types of BPM processes which are basis for BPMS classification. Namely:

- System-to-System
- Person-to-Person
- Person-to-System

Cummins (2009) also raises an idea which supports the above way of BPMS classifications. He described, to successfully manage business activities, business processes can be specifically assigned to the applications and people that are directly involve in the operations of business processes.

a) System-to-System

System-to-System processes are one of the three types of business processes which as Chang (2006) describes, processes are mainly handled by applications and the data that are out puts for a particular application will be taken directly by another application system as an input. This means that data are managed and integrated by different applications. BPM systems that are designed on such type of processes will retrieve, transfer, and process data with out the direct involvement of a person. In other words many of the business activities are done through the already established systems and sub systems including managing business processes.

b) Person-to-Person

According to Chang (2006) person-to-person processes are those processes that are more similar with the manual or the traditional way of business processes. This is because many of the business processes allow human interference to operate data. As more and more people interfere to the business processes, operations will be delayed and become complex to manage or highly prone to error. The BPMS which use such process types usually not overcome many of the drawbacks that organizations used to face when they operate in the manual business processes.

c) Person-to-System

Unlike the first two, the third types of BPMS are built on person-to-system way of business processes interaction. As the name refers these types of processes involve both human and application systems for activating as well as accomplishing the business task (Chang, 2006). In this particular type of BPMS, business processes are proceeded one after the other by the designed systems but at some points humans are allowed to have a part in the process. This might create a closer supervision on business processes.

2.7 Shortcomings of BPMS

So far we found that BPMS is an important tool for the modern business in making the business organizations capable in many ways. But this does not proof that it suits with all organizations and make them perfect towards doing their business processes. According to Bowers, et al., (1995) implementation of systems like BPMS is a complex and time consuming effort. This is because transferring of business processes usually involves

identifying and sorting each and every process which is a complex as well as time taking task. It also needs continuous assessment that makes companies to invest a lot (Stoitsev & Scheidl, 2008). They specifically added that Business Process Management Systems (BPMS) face challenges in training business users and business operators with the advanced technical skills and to make them familiar and easily use the system. It implies there are additional costs that companies should incur.

2.8 Opportunities and Challenges of BPMS

Organizations which are involved in the business area were used different techniques and methods to control the business processes and their activities in general. Previously business process reengineering and business process management tools and techniques were applied but due their problems for instance implementation of BPR needs a radical change in the whole organizations which might lead organizations to extra expenses and non flexible according to the customers needs and wants. Due to these drawbacks organizations are looking for a better tool which can help them in their day to day business activities.

The business process management system is a new technique which is highly used by organizations to overcome the business problems in their business activities. BPM systems are modern and advanced technological outcomes that organizations are using to keep up to date with the environmental changes. The application of BPMS has got different opportunities. According to the reviewed literatures BPM systems are used to control business activities continuously and help to change a fragment of a business process without the need of affecting the whole organization. This makes organizations flexible to the environmental changes. In addition the system makes the organization activities process entered as a result it speeds up the general business activities. Speeding up of the business processes will in turn improves the decision making process so that customers satisfaction can increase. In general business process management systems improves the performance and efficiency of organizations towards business activities.

The implementation and using of business process management systems is some how challenging. It is challenging because it is a new business approach to the users so that organizations are required to persuade and train their employees in order to use the system in their day to day activities. This actually is a complex and time taking activity which also leads the organization to extra costs.

2.9 Summary

In this chapter different literatures have been reviewed on the wide area of business process management and particularly in areas of business process management systems. From the readings it is found that BPMS are now becoming a common trend in business organizations because of its business opportunities. Business process management systems help organizations to improve their performance continuously so that they handle the environmental changes and become flexible accordingly. The other opportunity of the system is integrating the internal components of the organization to one another which in turn increases the processing speed of business processes. In other words the system highly benefits organizations towards increasing the quality of services and achieving their goals. But, on the other hand the literatures also state that implementing and using of BPMS also has challenges for the business organizations because of the complexity and time taking nature of the system to make it functional. In general BPMS are good tools for an organization to improve its performance.

3. Research Methods

This part of the thesis gives an explanation on the methods of how this research is conducted. After having a theoretical framework we developed a research method that helps us to answer our research question. The chapter describes the research approach used and reason out why that is selected, explains the data collection and respondent selection techniques as well. It also tells how the data are analysed. Finally to provide valid information to the readers we give explanations on the research quality issues that include validity, reliability, bias, and research ethics.

3.1 Research Approach and Motivation

Due to the nature of the research study and the required information to be collected, analysed and presented, this research does not specifically fall into a single and specific research method out of classical qualitative research approaches. Creswell (1998) explained the research methods could be narrative research, phenomenology, grounded theory, ethnographic and case studies. But this research has been motivated by the case study methodology. A case study as a research method investigates a contemporary phenomenon in depth and within its real life context (Yin, 2009). Thus it gives us a chance to observe the real BPM system opportunities and challenges to answer the research question.

The research process goes into several stages. A research process starts from taking some philosophical assumptions and at the end interpreting theoretical findings with the practical ones (Creswell, 2007). Accordingly we base the research on the theoretical foundations so that we can keep the purpose of the research. Since the process involves collection of various data therefore the qualitative research method is used.

“Qualitative research is a situated activity that needs the researcher to take part in the actual research and become part of the world throughout the process.” (Creswell, 2007 p.36)

As a result the research method that we have chosen that is qualitative gives us to follow the research process properly. It means that whenever there exist points that need further

explanation we can easily ask the respondent for explanation or read other materials to clear our confusions. In addition it is also helpful to check the process with the theoretical backgrounds and allow us to interpret in our choice. Creswell (1998) described qualitative research approach is used for detailed analysis of a research. The qualitative approach is used in the research to assess various areas and can be stretched to get as much information as possible.

3.2 Data Collection

In this sub chapter we explain how we collect and organize the data. The discussion starts with the interview design and the data collection techniques which are later followed by interview question formulations. To avoid some bias the research also focuses on careful respondent selection. Once all the fore mentioned are done it is easy to conduct the interview. The following sections address each of the mentioned activities one by one.

3.2.1 Interview Design and Data Collection Technique

The data collection technique used in this study is mainly based on interviews. Kvale and Brinkmann (2009) stressed that interviewing is one of the methods of doing strong and valuable research. They further explain that interviewing can be a means for knowledge extractions and therefore we used this method so as to collect detailed information from respondents and answer the research question. The nature of the research needs detailed explanations about BPMS opportunities and challenges so that interviewing assist to get the right information. It also allows us to rephrase our question if the respondent feels some confusion concerning the theme of the question. Interviewing is a kind of data collection technique which helps to forward comments on the answers given by the respondent and seeks clarifications (Kvale & Brinkmann, 2009). Another reason for us to choose interviewing as a method of data collection is that it gives more advantage to collect data from respondents regardless of their physical distance.

The interview is designed in such a way to get the required information and targets the research purpose. The interview is conducted through telephone and internet (emails and Skype). The detailed procedure about the way the interview was conducted is discussed in section 3.2.4 below.

3.2.2 Formulating Interview Questions

Based on the knowledge extracted from the theoretical framework and with the focus to the research question, the interview guideline is formulated to be used throughout the interview process (Appendix B). The objective of having the interview guide is to control the process by collecting the relevant information and avoid biasness and minimize collection of un-useful information. The questions in the interview guide are organized in such a way to address the purpose of the research and divided into four groups (Appendix B). The first groups of questions are about the respondent's profile which is followed by general questions about the organization. Those questions concerning the BPMS are considered as specific questions throughout the research this is because these are the questions that directly reflects the theme of the study. The final groups of questions are kinds of conclusive to give a chance to the interviewee to discuss additional points that might not be addressed or overlooked during the interview. The following table shows the four groups of research questions.

Table 3.1 The major groups of interview questions.

<p>Introductory Questions</p>	<p>These groups of questions are used for introduction. That is we introduce ourselves and the research purpose to the subject. The respondent also does the same including things like his/her position in the company.</p> <p>For example: What is your name? What is your position in the company?</p>
<p>General Questions</p>	<p>These questions help us to get the general view of the organization and here we ask the respondent about the organization such as kind of business activity and the size of the organization.</p> <p>For example: What is the type of your Organization? What is the approximate size of the organization / company?</p>
<p>Specific Questions</p>	<p>These are the most important groups of questions which are used to get more specific information directly related with our research work. These include questions in relation to the business processes and the usage of BPMS.</p> <p>For example: From your understanding, how can you describe Business Process Management (BPM) and Business Process Management Systems (BPMS)? What was (were) the initial goal(s) of the company to use BPM Systems? What challenges did you face while you are using BPM systems?</p>
<p>Concluding Questions</p>	<p>These are kinds of questions that let the respondent to say something if there are things that he/she thinks to be mentioned and proposes as suggestions.</p>

3.2.3 Respondent Selection

After formulating the interview questions the next step respondent selection in order to collect data. Generally data collection is not a one time activity rather it requires step wise procedures to get valuable information (Creswell, 2007). In this research study data is collected from organizations which are selected based on their business activities, size, and rate of usage of information systems for managing business processes. The study bases on organizations with mixed of these criteria to avoid biasness. After deciding on the organization that we go for data collection the next issue is with whom we have to have an interview to collect all the appropriate information.

According to Creswell (2007) sampling is a critical thing that determines the results of the research. Thus, the correspondent person within an organization (interviewee) should be a person with the knowledge and skills in the organizations specifically regarding BPMS deployment, usage as well as IT facilities in the organization in general.

3.2.4 Conducting Interviews

In order to encourage the interviewee to be free and openly to describe his/her points regarding the questions we begin by introducing ourselves. This is done at the initial stage when we sent our request for interview. Kvale and Brinkmann (2009) urged that the introduction stage helps the interviewee to get to know the interviewer and the purpose of the interview. Similarly after introducing ourselves we give a brief explanation about the purpose of the research.

Once the interviewee agreed to participate in the research, we have maintained a good contact throughout the process by raising appropriate questions and curiously follow the responses given by the respondent. This is further achieved by actively listening to the main points and asking for clarifications whenever we need explanations. We did the interview by phone and email contacts. This is because of the physical distances and choices of the respondent.

3.3 Data Analysis

Conducting an interview by itself is not the end of research, to make it complete there are post interview activities that should follow. Data analysis is one of these post interview activities but transcription should be the first task before analyzing the data. Transcriptions are translations of oral language into written form (Kvale & Brinkmann, 2009). Even though the transcription methods and methodologies are too many, Kvale and Brinkmann (2009) argued that it is good to take choices among the alternatives.

To transcribe the recorded interview focus is given to the logic or theme of the interview results and rewrite it more than one time to understand it well and not even to miss a word. Once the results are refined and make transcriptions the next activity is analyzing the data. Data analysis is done by interpreting the meanings of the collected data and gets the real information out of the interview process. There are several approaches that can be used for analysis of interview texts and one of these approaches is conducting the analysis focusing on meaning where the process includes meaning coding (Kvale & Brinkmann, 2009). To make the interpretation process simple and understand the main idea, words are assigned to fragment statements. These words are not repeatable ones and can be easily distinguished. Therefore, the analysis process begins with distinguishing the major statements that strongly affects the research. One way of identifying these statements is by considering the statements' closeness with the research area. Then meaning condensation is worked out by combining similar statements or redundant ideas together which actually makes interpretation more specific and closer to the research question.

3.4 Chain of Evidence

The importance of good evidence in research is very high (Seale, 1999). He explained good evidences are measures of research understanding and are important for claims. Transparency is an activity that is considered through out the research work to meet the chain of evidences. During data collection, organizations as well as respondents are selected with criteria that fulfill the need of the research which is discussed in sections 3.2.1 and 3.2.2 above. For instance organizations are selected by taking the scope, business area, and rate of technology usage into considerations. And the respondents are chosen by the knowledge they have

concerning the research work. To be more transparent the organizations' as well as the respondents' profile are presented before analyzing and discussing the results.

Moreover, the necessary documents are attached with the research work and available for further referencing. All communications made with the respondents, which are either by phone or email, are properly managed for crosschecks. The transcribed interview results also attached at the end of the thesis in order to allow the reader to refer at any time. The evidences can increase the motivation of a reader to trust the findings of the research and also contributes to the quality of the research as well.

3.5 Research Quality

Quality really affects researches especially a qualitative research (Seale, 1999) and the quality of this study is ensured by following the recommended procedures such as careful choice of the case study, conducting an interview with a person who is a well experienced manager in the organization and who is also directly involving in managing and controlling various tasks relating to business process. On top of this the research quality is satisfied by reading books, papers, and research reports which did similar kind of research to learn from the mistakes and best practices.

According to Seale (1999) to keep the quality of a research there should also be a mechanism to obtain trust. This is because every research work should have some value or contribution to the world which needs to get trust among readers. To win the trust thing this research depend on the actual facts and figures that are given by the interviewee and base the analysis on the theoretical framework. The discussion of findings is also done based on the chain of evidence extracted during the research process and relating with the theoretical framework. The issue of research validity and reliability are applied to maintain the research quality and they are discussed below.

3.5.1 Validity

To keep the quality of the research, validity and reliability should always be maintained throughout the process. Accordingly our research should also be valid and reliable to be appropriately handled by the readers. Seale (1999) discussed the point of validity as a means of keeping the facts of the research to achieve the required quality. To ensure validity of this research study, constant reviews of the theoretical framework is conducted to check its coincidence with the research question and the general objective of the study. Validity has viewed from two perspectives, internal and external.

Internal validity concerns the findings of the research in a particular setting (Seale, 1999). It ensures the research to reflect the purpose and research question. In order to improve internal validity of our research we reviewed the research findings and the theoretical framework to ensure they coincide with the research question and the general objective of the study. During discussions and conclusions the practical research findings are compared with the theoretical findings.

Unlike internal validity, external validity is explained as concerns and activities to keep the facts of the research at different settings (Seale, 1999). Achieving external validity allows the research to give similar findings and hence increase the rate of generalization. To raise the external validity of this study explanations are given on the research methods used which includes how we collected data and analyzed. This leads to research discussion and conclusion.

3.5.1 Reliability

On the other hand, reliability implies the interpretations of given information in the same way by different people (Seale, 1999). To attain reliability in our research findings, the research process sticks on the proposed structure and construct critics and discussion based on the theoretical framework but focusing on the research question. The issue of transparency especially to the interviewee is also highly motivated. This approach encourages and improves the reliability of the findings. Thus words and expressions that confuse and can be interpreted in different forms are reduced as much as possible.

3.6 Research Ethics

The issue of ethics is another thing which should be addressed in researches. Israel and Hay (2006) explained that ethics can be used to obtain trust, to avoid causing suspicious works, and social conflicts. It means that ethics is a means where social values can be treated in researches and do what is morally right for the society. To enforce the quality of this research, ethical issues were considered from the beginning of the research and also being considered throughout the research process. For example research agreements are done at the beginning of the research between the authors about the research area. As outlined by Israel and Hay (2006) the agreement among researchers is the most important thing before starting a research. In addition to that before the interview process, respondents are informed about the objectives of the study and the purpose. The respondents are also informed that their participation is voluntary and they have a right to withdraw from the research at any time (Appendix A).

Confidentiality is another issue that should be considered in researches (Israel & Hay, 2006) and the approach they proposed to enforce confidentiality is limiting disclosure of sensitive information. The research is complying with this requirement by limiting the disclosure of information that may cause problem to a respondent. However we ask the permission from the respondent to use information that is discussed in this paper.

3.7 Bias in the study

To increase the quality of the research and obtain trust from readers, the research restricted to use biased data. Actually the task of making a research work free from bias is not easy (Ehrlinger, et al., 2005), but in this research biasness is reduced by interrelating the research findings with the theoretical framework and answer the research question. Hammersley and Gomm (1997) described in their article that biasness is highly associated with the concepts of truth. Therefore in order to reduce the bias, the research is base on facts. To keep the research in the right way and minimize some deviations that would result in to errors ,during the research every findings are evaluated including interview results from several perspectives like checking out with other works and relevance to the research area. In cases where some ideas really bias the research too much, then we deleted and stop using as source of evidence.

3.8 Summary

The research methods are the one where the actual research is relying on. This research is purely qualitative with a reason that it fits with the research area and allows detailed analysis. Out of the various methods of qualitative study such as questionnaires, observation, and interviewing this research is conducted through interviewing with taking the advantages to get a detailed explanation and clarifications on ideas raised during the interview. In this particular chapter, research quality issues are discussed by taking research validity and reliability in to considerations. Doing this might help to win trust from the readers and also easy to understand the theme of the thesis. The other point is the issue of ethics which actually lead to respect the norms of the society and do right things that have a resemblance with the research purpose.

4. Empirical Results and Analysis

This is the fourth chapter of the thesis where we present the empirical results together with analysis. First of all we give a short introduction about the organizations which is followed by the interviewees' profile in their order of responding to our request. After introducing the organizations and the interviewees, we present the results we get from the interviews. Finally the chapter gives a detailed presentation in the analysis of the collected information from each organization.

4.1 Organization A: Capital Markets and Securities Authority

4.1.1 Organization Overview

Capital Markets and Securities Authority which is abbreviated and called often as CMSA is one of the government owned organization in Tanzania. It is established to promote and regulate securities business in the country with the mission: *“To design and implement purposeful measures which will enable the creation and development of sustainable capital markets that are efficient, transparent, orderly, fair, and equitable to all.”* As the organization legislation indicates its establishment is based on the 1994's capital markets and securities act of the country.

The general structure of the organization is basically divided into three major directorate offices which all report to the Chief Executive Officer. These are director of legal affairs and enforcement, director of market supervision and development, and director of research policy and planning (Fig 4.1). In addition the organization has an information technology department where IT related tasks are performed. The department is responsible for all technology related issues in the organization and work under the supervision of the office of research policy and planning.

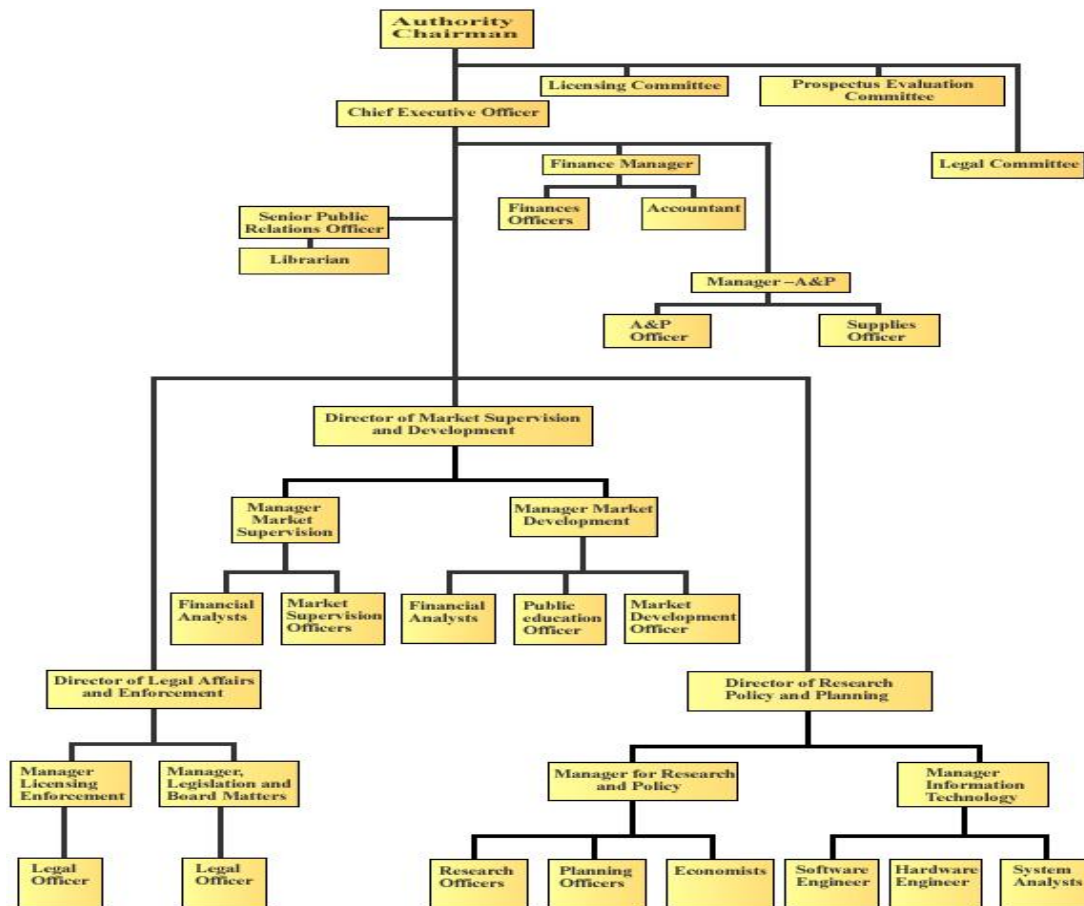


Figure 4.1 Organizational structure of CMSA

As shown in the figure above the information technology manager is one of the units at a lower level which in turn consists of software engineer, hardware engineer, and system analysts. But it is under the supervision of director of research policy and planning. In parallel with the IT manger, the director of research and policy also supervised the research and planning officers.

CMSA has a broad scope of participation in the national market but it mainly involves in licensing of market intermediaries, market development, and market supervision. In order to promote the market situation in Tanzania the authority is engaged in releasing new market products which can allow small and medium enterprises (SME) to participate in developing the capital market of the country. The capital market in which CMSA is concerned about is one type of financial market which refers to the long term, financial assets traded in the market in more than a year time. The organization is also engaged in the provision of license to market intermediaries that include investment advisors and stock brokers to facilitate the

business operation and supervise the market continuously to monitor that the intermediaries work according to the rules and regulation of the organization and the country at large.

To work on all these tasks the organization mainly uses Information Technology (IT) applications including Business Process Management Systems (BPMS) to provide effective and efficient services to its customers and possibly to have control over stakeholders of the market in the area of capital market.

4.1.2 Presenting respondent

The respondent for the interview from CMSA is Mr. Kelvin Kiritta who is a senior Systems Administrator in Capital Markets and Securities Authority. He worked for the organization in the mentioned position for almost three years. Since the organization in which, Mr. Kiritta is working with, is highly using Information Technology (IT) in its day to day activities he plays some roles in administering computer systems so that the organization applied and uses the system to make its services efficient and achieve its goals. Basically he has involved in handling of IT projects for developing capital markets in the organization, formulating and monitoring the MIS (Management of Information Systems) policy and business continuity plan. In addition Mr. Kiritta is the responsible person for providing support and administration of ICT systems in the organization (Appendix C, 5)

4.1.3 Results and Analysis

Capital Markets and Securities Authority is using Business Process Management Systems (BPMS) in its business operations. Our respondent has got an experience working with the system and has replied to our question for his understandings of BPM and BPMS by explaining them as:

“BPM are those management practices which are there to ensure that business processes are executed in a way that will bring competitive advantage or will bring effectiveness in organizations activities. While BPMS are those systems which will now actually help the decision maker or the management to execute those business processes. So what the BPMS does actually to automate business processes and to increase the organization’s efficiency.” (Appendix C, 11)

The initial goals for the organization to implement and use Business Process Management Systems include to automate business processes and to save the resources and optimizing costs (Appendix C, 14). On top of these Mr. Kiritta explained that the organization also aimed to use the system to facilitate and fasten the decision making processes in its business activities.

According to our respondent the major reason for having and using BPM Systems could be attributed to the fact that the business trends (the way capital markets and securities operates) is changing frequently, this calls for management to adjust the business activities to be able to cope with the said changes. In this regard, the management staff realized that there is a need for a system which provides for flexibility in terms of the way it can adjust and monitor business processes so as to attain efficiency and effectiveness to organization activities despite the external pressures and changes in business environment. Having these initial goals and needs CMSA implemented and use BPM systems.

After having the system and using it in the business operations the organization found it very important for its business activities and handling those changes in the business environment (Appendix C, 16). CMSA is applying BPM systems in activities like workflow management, Online filling, and online licensing which are controlled by workflow system, online filling system and online licensing portals respectively. As a result, they have got an improved information management in the organization which has a direct impact on the decision making activities. As information is well managed it can be used by the managerial personnel's of the organization to take the right decisions at the right time due to the availability of information. Furthermore, the system is applied towards giving efficient services in the filling and submission of financial statements directly to CMSA through its online services. This enhances information transfer and also keeps the data safe so that losing of data might not be a problem.

In response to our question about the benefits of the system Mr. Kiritta explained that the possession of BPM system in his organization really helps them to be flexible and handle changes that can occur in the business environment (Appendix C, 16). In addition to this, he further outlined that the system is used to fasten their decision making process and therefore the organization is using of its resources effectively with a reduced cost. In general the BPM

systems are successful in speeding up the business processes and decision making, save resources, and optimizing costs.

But unlike the benefits that they get from the system, we found there are some challenges in which CMSA is facing due to the usage of the BPM systems during the interview. In reply to our question addressing the challenges of BPMS, Mr. Kiritta explicitly stated that, they are facing two major challenges. These are systems adoption and change management (Appendix C, 20). The adoption of BPMS has been a problem to users that the staff could not be able to change their usage to manual system in daily execution of their activities. The other challenge related to BPMS is change management. The increasingly changing of business requirement attracts some development cost if the configuration of business process would require new development.

Therefore, the system is having different impacts to business operations of the organization. BPM systems enhance the performance of the organization in speeding up its business activities where it can provide an appropriate and quick service to its customers. In this case the old and manual system created unnecessary repetitions in the business activities and delays the execution of tasks. These systems' impact also contributes a lot in the decision making processes too. Decisions can be made easily and may be used to solve business problems in time and keep the business in operation or information would be available for making decisions. Moreover, due to these advantages the organization handles environmental changes and becomes competent and flexible. Competent in a sense that the organization keep on taking environmental changes in to considerations towards its day to day activities so that it can satisfy the need of the customers. But besides its positive impacts, the system might lead the organization into extra expense because it needs development as the business environment changes. In other words when ever one thing is added to the business the system also needs to be updated accordingly, which actually leads to additional expenses.

4.2 Organization B: Tanzania Telecommunications Company Limited

4.2.1 Company Overview

Tanzania Telecommunications Company Limited abbreviated TTCL is the telecommunications service provider in the country with the share partially owned by the government and foreign investors. The company is the largest and oldest telecommunication company in Tanzania and provides telecom services in all of the twenty five regions of the country (Appendix D, 7). The company traces its roots back in the late 1960s from then called East African Posts and Telecommunications Corporations (EAP & TC) and then Tanzania Posts and Telecom Corporation (TPTC). Finally it got its current name by Parliamentary Act of 1993 as Tanzania Telecommunications Company Limited (TTCL).

Following its privatization, the company has reviewed its structure in order to adapt the current business situations and become more responsive to the telecommunications business. The highest level comprises two categories, the Board of Directors which is the highest and the Chief Executive Officer (CEO). The board of directors is responsible in the general policy and guidelines of the company's activities. Besides there are Chief Marketing and Sales Officer, Chief Financial Officer, and Chief Technical Officer and under these the company has got twelve departments at a lower managerial level.

The company has broad business activities in the telecom industry. Some of its major areas of business include mobile and broadband telephone services, leased lines to cellular and ISPs, payphone services, other services including internet service provision (ISP), Interconnectivity to cellular and other licensed telecommunications operators in the country (Appendix D, 9). In doing the above tasks the company also engaged in other activities like purchasing of telecom equipments and taking contracts with other companies.

TTCL actually uses application soft wares in its day to day activities because the business area where the company functions requires a lot of technological advancements including computer systems. BPM system is one of the application systems that they use to run their business. The company is highly using business process management systems for some of its activities especially in supplies management areas in order to handle business operations and fulfil the desired need.

4.2.2 Presenting Respondent

Mr. Albert Joseph is our interviewee from the Tanzania Telecommunications Company Limited. He is working as a Database or Systems Administrator and an experienced professional in his area of specialization. He has been working in his current position since 2006 and participated in many ICT (Information Communication Technology) related tasks on behalf of the company. Mr. Joseph is the responsible person for all IT based systems but his major areas include system checking, developing and maintaining databases, and provide system support to the users. In addition he is familiar with Business Process Management Systems and performs some tasks in the form of support towards the system.

4.2.3 Results and Analysis

Business Process Management Systems are highly used to support the procurement process in Tanzania Telecommunications Company Limited. According to Mr. Joseph, our respondent from TTCL, the procurement process which is handled by the system includes requesting, status checking and approval of requests. As a system or database administrator Mr. Joseph is concerned with all activities related with BPM Systems and he defined business process management as an approach where an organization meets the needs of its clients by aligning all aspects of the organization which can improve performance in terms of productivity, effectiveness and efficiency. He further added that those systems that can be used to fulfil the above mentioned activities are called Business Process Management Systems.

TTCL is a large company which is engaged not only in telecommunication services but also in procurement related activities. Our respondent explained that the company is regularly buying materials like computer accessories and telecom equipments. These are activities where they intended to improve through the usage of application system, BPMS. Since the procurement process is the one which is very lengthy and repetitive the company's initial goals to have and use BPMS were to speed up logistics and improve asset or supply management (Appendix D, 14).

For the question addressing the need of the system for the company, Mr. Joseph said that the system is needed to speed up the procurement process including the logistic activities and increase the execution process with a strong integrity among the workers who involved in the

process (Appendix D, 15). Speeding up of processes also improves the way the data are stored so that data can be used for future reference and auditing purposes.

After they start using of business process management systems, they found the system so important and help them to solve some of the company's problems specifically in relation to supplies management (Appendix D, 18). Our respondent continued with his explanations about the business process management system, and said that the system is really giving them a lot of advantages in order to control their business activities towards buying of telecom equipments from suppliers. His response for our question related to the BPMS capabilities, he answered in association with their initial goals to have the system that is the system is helping them in speeding up the business processes and makes integrity very simple so that users can easily interact to one another.

Since procurement is a business activity which demands a lot of interactions among people, the importance of the system is very critical for the company through activating all the business interactions and associating the concerned body with the concerned task at the given time. This in turn saves the company's financial resources and creates a cost effective way of business operation. In other words, unnecessary business deals are avoided and use all the given resources properly which can lead to even if problems happen to present in the business, they could be resolved in time with out wasting extra resources.

In addition to the above opportunities the system also made the auditing process very easy as all the data are recorded and stored well in the system (Appendix D, 18). Auditing is one common business activity which is done based on the already performed business activities, thus the system keeps tracks of operational results and make them available for the mentioned activity. Because of all the benefits above especially in relation to the procurement process, the company found the system very important to do its business operations and achieve its business goals.

Like the previous company, TTCL is also facing some problems in relation with the system. Mr. Joseph stated one major challenge, which he described as; the system has no means of notifications for effects of business processes. This means that the system can perform the business processes but there is no way that people get information for the different effects of the system which could be either towards users or other business process fragments. This also

means that the system does not provide them with what it exactly doing with the business activity while it is operating. Thus it requires additional investigation to evaluate the performance of the system. The other problem that is mentioned by Mr. Joseph was that requests for proposal handlings are not well supported by the system. But, in general he said that the system is quit important to the company and really improves its business management.

TTCL has already applied BPMS in one of its business area and we have noticed different impacts of the system towards the business operations. First of all the system benefits the company at large so as to speed up its business activities in procurement processes that extends from sending requests to request approval including status checking. After each and every business activity the status of each business operation is evaluated so that an immediate response will be taken which will actually increase the effective usage of resources. Integration is another major advantage that the system gives to the company. The system is capable of associating the different sub parts of the business process and as a result all operation would be directed towards achieving the company's goals. Apart from this BPM systems are capable by their ability towards data storage. The data which are stored are end results of a certain business operation at a certain time and can be used for cross referencing and evaluation activities in later times. This means that based on the data the company can even design future business activities though it has some drawbacks as explained above.

4.3 Organisation C: Ericsson

4.3.1 Company Overview

Ericsson is the world's leading company in telecommunications equipment and related services to mobile and fixed network operators. It is the only company to offer systems for all major mobile communication standards, activity promoting standardization and open systems in the world.

The establishment of the company dates back to 1876 from the then parent company called Teleffonaktiebolaget LM Ericsson, but now famously known by the name Ericsson. The headquarters is located in Stockholm, Sweden but function around the globe. The major aims of the company are creating a sustainable growth for the society as well as for the industry

itself to make telecommunications more accessible and affordable for everyone and aim at improving the design of their products and solutions to be environmental friendly.

In addition to the fore mentioned business areas Ericsson supplies operators and services providers around the world with end to end solutions for all existing system in mobile and broad band internet. In general the major business areas of the company are Telecom networks, build design and implementation of multimedia and providing maintenance services. The company is also operating in a joint venture kind of business with Sony Ericsson and St. Ericsson in mobile communication business areas in order to give the appropriate services for its customers.

The structure of the company has hierarchical levels where decisions are made (Fig 4.2). It is administered by the Board of Directors which in turn has three sub committees. The committees are Audit Committee, Finance Committee, and Remuneration Committee where the audit committee monitors the scope and correctness of the financial statements. The Finance Committee is authorized to determine matters such as direct or indirect financing, provision of credits, granting of securities and guarantees and certain investments, divestments and financial commitments, where as the Remuneration Committee prepares matters regarding salary and other remuneration like pension benefits of the President and CEO for the Board of Directors. There are external auditors who are independent auditors elected by the shareholders at the Annual General Meeting for a period of four years. The auditors report to the shareholders at Shareholders' meetings regarding the planning, scope and content of the annual audit.

The Board of Directors consists of sixteen people who are responsible for the overall organization and the management of the operations. Out of the sixteen people, ten of them are elected by the shareholders in a general meeting which is organized once in a year. The other six people are assigned by the unions. The Board of Directors also elects a president and CEO for the company who is responsible for the general managerial activities in the company.



Fig 4.2 Governance structure of Ericsson

The company is functioning in a strong global platform and uses information technology facilities at a higher rate. All of the company's employees have access and use IT services on a daily basis. This happens because the business areas, mentioned above, in which Ericsson operates need a high usage of information technology services. Since the company has a got a wide business dimension it uses different application softwares like RMC in its business activities. Business process management system is one of the application systems that the company is using to secure internal efficiency and handovers between the functional units.

4.3.2 Presenting Respondent

Our respondent for the interview from Ericsson, Lund Sweden branch is Mr. Michael Andersson who is currently working as a team leader in the process framework of the company where he participates in establishing a common framework for all company wide processes. He is also the responsible person to secure both the definition and alignment to the framework throughout the company (Appendix E, 5). Previously Mr. Andersson was working with process management mainly with in the finance area where he gained knowledge about business process management. In the group assignment, where Mr. Andersson is involved, they cover process architectures as well as the document standards in relation to information models. To make their activity manageable they are using business process management systems as a main tool. This creates a convenient situation for our interviewee to see the system's opportunities and challenges in business processes.

4.3.3 Results and Analysis

Ericsson is a large company which is using of the business process management systems with the need to simplify and make the maintenance of business processes efficient and to enable a direct link with the information models (Appendix E, 15). Actually the need of the system varies across the different units of the company. For instance as our respondent replied some focus on the lead time, some on quality while other want to ensure a standardized way of work leading to cost reductions. This means that the system is needed to activate the business processes in order to give the required services to the customers, and keep the quality of services so that the company can satisfy its customers and get the competitive advantage in the market. The third need of the company to have BPMS relies on developing a common way to do business processes in a standardized way which in turn reduces the costs of the company.

Mr. Andersson considered business process management system as an approach to secure continuous improvements to their business operations, which actually as he said, add value to their customer (Appendix E, 11). He added that the company's initial goal to have and use BPMS is to secure internal efficiency and handovers between the functional units. The company's internal efficiency can be achieved by integrating the activities of its functional units and combine them for a common goal. With the above mentioned needs and the initial goal the company is now uses the system at its different functional units and mainly applied in the customer service, human resources, and IT processes. These units use BPMS to fasten their activities and give combined services. For instance the customer service uses the system not only to deliver services to the customer but also as a component describing interfaces and activities.

Our respondent strongly agrees that business process management systems are really important for business companies. He said that the system is “*extremely powerful tool when it comes to process design and development of the company*” (Appendix E, 19). After making use of the system the company or the functional units get system impacts in their business activities. Although the system improves the way they perform business processes and deliver system functionalities like standardized business process and save a cost over the activities, they also face some challenges with the system.

In response to the question that addresses the advantages of the system, Mr. Andersson explained that Ericsson has gained a common standard where it can operate its business activities (Appendix E, 18). This standardized way of business activity as he further explained, help them to improve their business processes continuously so that they can take the environmental changes in to considerations. The standardized ways of business activities can also indicate where the company faces repetitive business activities both in the internal as well as external relations. The other opportunity of the system is that it helps the company to define all its business activities in the respective functional units in a proper format so that they can clarify their activities. The BPM system makes activity measurement easy and delivers quick results after business operations.

As the system makes integration easy among the business units of the company the activities are enhanced and the business processes speed up. According to Mr. Andersson the other impact of BPMS here is, the system can help the company to make changes on some business areas without the need or affecting the whole business process. This also puts a significance effect in their resource management and cost reduction.

Mr. Andersson continued explaining the systems' impacts in the business activities of Ericsson and raised some challenges which the company or the units which actually using the system are facing. The most challenging thing is to shift the company from a functional structure to a process driven company (Appendix E, 20). This is because it is very time consuming to establish the processes and define all activities within. According to the respondent's response when both governance and target setting is done within each function the processes get the second priority. The other challenge for the company is system notification problem. This problem refers that the system does not support handovers between different functions before they are described in the process. In other words there is no way that the system lets the user to know the activities performed by the system.

In general, from the interview we found impacts of BPMS which affects the business processes both positively and negatively. BPMS can provide broad opportunities to the company and as Mr. Andersson described it is the most powerful tool for repetitive activities. One of its benefits is standardizing business activities which can allow the company to continuously improve its business processes that is as the business environment changes the company also become flexible to the changes by modifying only the important areas with out

affecting the entire organization. This standardized way of business activity also assists the company in cost reduction because as the business processes are operated with the already formulated way there is no need to build or design a new way where the processes be operated. The other benefit which is also mentioned in association with standardized way of business operation is provision of a quick service to customers. As it speeds up the business processes customer satisfaction also increases. The sum total of all the above system benefits help the company to maintain and even to increase the quality of services and gain the competitive advantage in the market. But along with the advantages the system brings some minor challenges especially to shift the business activities in to process driven business operations. It is the nature of the system that makes business more of process oriented. In addition the system has no performance notification for the activities handled by the system which actually let users to interfere in the business process and also push the company to incur extra expense to find a solution. If a problem occurs the system does not tell how it happens but just tell its existence. In general we found BPM System quite useful for the company in order to improve the business processes according to the environment requirements.

4.3 General Analysis

This section discusses the results that are collected from the three companies' relation to the research question "*What are the perceived impacts of Business Process Management Systems in an organization?*" The respondents from CMSA, TTCL, and Ericsson described the different impacts of BPM systems that they come across with their respective companies. They explained the system is quite important for their business operations with a lot of opportunities but all raised some challenges with the system where they face while they are using it. The following tables give a kind of summary from the interviews conducted with the CMSA, TTCL, and Ericsson (Lund Branch) respectively.

Table 4.1 Summary of opportunities and challenges of BPMS in CMSA

Company Name	Business Process Management Systems	
Capital Markets and securities Authority	Opportunities	Challenges
	<ul style="list-style-type: none"> -Improved information management -Decision making -Flexibility -Speed up BP -Save resources and optimize costs 	<ul style="list-style-type: none"> -Development cost -Resistance from users

The above table represents the different results concerning the impacts of BPMS in CMSA’s business activities. Here the system affects the organization both positively as well as negatively. But many of its impacts give opportunities to the organization in areas of decision making and information management. Basically the system speeds up the business processes including operations and transactions therefore it definitely enhances the flow of data or information from process to process which really activates the decision making activity too. This is because all data required for decision will be available. On the other hand the organization is benefited from the system in its information management activities. As information is properly managed by the system the organization saves resources used for the business processes. Moreover, since the business environment is highly dynamic it is the BPM system that makes the organization to be flexible according to the business changes. This is relevant for the company to give all the appropriate and up to date services to its customers so that it gains the competitive advantage.

The table above (Table 4.1) indicates CMSA has got two challenges in relation to the system. One of the challenges is highly associated with the changing business environment. Although BPM systems help the organization to manage the business changes, the system requires modifications according to the highly frequent market situation, which actually incurs cost for

systems upgrading in order to fit changes with the system. This also leads to other expenses in training of users all the time the system upgraded.

Table 4.2 Summary of opportunities and challenges of BPMS in TTCL

Company Name	Business Process Management Systems	
Tanzania Telecommunication Company Limited	Opportunities	Challenges
	<ul style="list-style-type: none"> -Speed up BP -Integration -Data storage 	<ul style="list-style-type: none"> -No system performance notification

The information we get from the table 4.2 also reveals that BPMS is quit important for the organization though it has got some challenges. Like the previous company speeding up of business processes is one of the major benefits that TTCL gets from BPMS. The company also gets some positive impacts towards integrations. Integration can be expressed in terms of data or systems integrity where data with data, system with system or system with data are associated to execute business process in the right way. Further more as indicated in the table above (Table 4.2) the system makes data storage very simple. There fore the company can use any sorts of data for future reference or performance evaluation. But there is one major challenge TTCL is facing which is the system by itself can not generate notifications on its performance. This refers BPM system executes business processes but there are no ways that the system notify all the procedures followed to perform a task. This might result in extra cost in search of error points

Table 4.3 Summary of opportunities and challenges of BPMS in Ericsson, Lund branch

Company Name	Business Process Management System	
	Opportunities	Challenges
Ericsson Lund, Sweden	<ul style="list-style-type: none"> - standardized business process - speed up - Integration - Flexible 	<ul style="list-style-type: none"> - No system notification - complexity

From the interview, we found that like the previous two companies Ericsson has experienced impacts of BPMS. Many of the system impacts are used to improve the performance of the company in its business activities. Initially the company aimed at working out business processes in a standardized way by applying BPMS which is the major advantage for the company even after system application. This standardized way of doing business processes is associated with other positive impacts of the system like speeding up the business operations so that the company can give the required services at the right time and can win the appropriate market share. As it is explained in the table above (Table 4.3) flexibility is another opportunity of BPMS. The flexibility nature of the system can help the company or its functional units to maintain the business processes according to the environmental changes. This is also possible because the system allows business changes on the business fragments without affecting the whole company. We also investigated from the interview that BPM systems assist the company to integrate the different business components which again calls back to speeding up the business processes and unite all to achieve the overall goals of company. From the interview that we did with Mr. Andersson we found that BPM system has given challenge in the process of transferring business processes to the new system and the system do not have any means to notify about the processes it handles.

4.4 Summary

Applications of business process management systems in business organizations have got different impacts. Mostly organizations are benefited from the system so that they can improve their performance in terms of production, and efficiency. From the analysis we observed that BPM systems really give organizations with opportunities both from the technical as well as from the managerial or business points of view. Out of the responses that we get from our interviewees, the system highly benefits organizations especially in speeding up the respective business processes, integrating business processes, and improves the management processes. In contrary using of the system have its own challenges to the business organizations. However, BPM systems are quit important tools to aid organizations in their business activities.

5. Discussion

In this particular chapter we discuss the findings in the research. Our discussion is based on the findings from the previous chapter and gives detailed explanations in relation to the research area and the theoretical backgrounds from chapter two of this thesis. The discussion focuses and directed to address the research question. Finally we generalize all the findings in the research in a form of summary.

5.1 General Discussion

In this research work we have dealt with the concepts of business process management systems and touched many points in relation to the system but we specifically address their impacts to organizations. From our theoretical findings we came across that prior to BPM and BPM systems there were different methodologies and techniques that the business organizations were using to do their business operations (section 2.3.2). But due to the frequently changing business environments and the current needs companies found them not competent so that they started to use BPM systems and can solve their problems. The nature of today's business environment enforces organizations to have a full control over the business processes and to well manage them efficient tools are required, as a result organizations can regulate business operations in accordance with the environmental changes and remain competent. Organizations might have different reasons but all need a better system which can help them in their day to day activities and is able to flexible to handle the business changes. In order to find out the need and the different impacts of BPM systems and answer our research question we did interviews with organizations and we almost get feedbacks that tally with our theoretical findings.

The theoretical review has shown the implementation and use of business process management system has got not only opportunities but also challenging to some extent. This is also proved during the empirical analysis in the previous chapter. That is the organizations we have contacted for the study told us although the system is helpful for their activities in many aspects they also face some problems in relation to it. Here we try to discuss the need and impacts of the system one by one.

5.2 Need of BPMS

These days business process management systems are spreading across business organizations due to different reasons. The interview results have shown organizations are looking for BPM systems to improve their business process and have control over them. Sections 4.1.3 and 4.2.3 show the first need of companies to use BPM systems is to speed up their business processes. Speeding up of business processes enhances the performance of organizations to increase their efficiency and effectiveness and lead them to achieve their goals. Actually speeding up of business processes can be interpreted in many ways, but the major one could be the ability to provide quick services to customers and constantly manage business processes which supports the current business situations (section 2.6.1). The interview analysis indicates the current business situations are highly dynamic and very flexible so that organizations are in need of systems that help them to remain competent in such kinds of market. Apart from this, organizations are looking for BPM systems to integrate the different sub components to make them working together in more interacting way for their common goals. This was one of the reasons for a company to use BPMS (sections 4.2.3 & 4.3.3).

The combined effects of all the above mentioned needs can enforce an organization to use BPMS so that they can manage and have a continuous control over the business processes. Chang (2006) also defended this idea in such a way that BPM systems can help companies to revise business processes in accordance with changes in the business environment.

5.3 Opportunities of BPMS

Both from the theoretical findings and the empirical study we understand that business process management systems can be solutions for many of organizational problems in relation to managing business processes. The system can give a relief for organizations from managerial as well as technical points of view. This means that BPM systems have a broad scope to evaluate business processes and help organizations to control their activities in order to be successful with their business and win the market share. The theoretical review part of the thesis reflects the system can provide a lot of opportunities which we also noticed during our empirical analysis. We will discuss the major system benefits in the following sections.

5.3.1 Speeding up of Business Processes

The theoretical findings indicate that speeding up of business processes is one of the major opportunities that organizations get from BPMS. Reijers (2006) mentioned that BPM systems fasten a business process which was explained in section 2.6.3. Once business processes are fastened organizations can do their business in time with out delay. The companies that we interviewed also stressed speeding up of business processes is one of their reasons to use the system and the benefits that they get after using it. In the previous chapter tables 4.1, 4.2, and 4.3 highlighted speeding up of business processes is one of organizations' benefits from the system. Speeding up of business processes also has a positive impact to monitor, control, and improve business processes with out delay (section 2.6.3). This actually gives other inter related advantages to organizations. For example as business processes are executed in time, organizations can become as flexible as the business environment in which they function and reduce their costs may be by avoiding unnecessary business activities. So BPM systems create a chance for organizations to have a continuous control over the business processes and enable them to provide services in time.

5.3.2 Integration

We also found that integration is another opportunity of business process management systems in business organizations. Two of our respondents during the interview explained that BPM system has a capability of integrating the different business components which can be individuals who take part in the business process or one process to another process. We have noticed this in section 2.6.2 where BPM systems are very important to integrate stakeholders in the business operations (Ramesh et al., 2005). Chang (2006) has also explained integration between people and systems that participate in business processes enhances the performance of business organizations (section 2.6.3). The process of integration can link the different components of the system and create a means of interaction among them. The interaction can then facilitate an easy flow of business operation and bring all the work together to achieve the goal of the organization. Mahmoodzadeh et al. (2009) commented on the interactions between people and system which can lead to the proper flow of business processes (section 2.6.3)

An integrated business activity can also benefit business firms to cross check activities and can evaluate the performance of each and every process towards their goals. Once business processes, data, and the system are integrated to one another organizations can easily manage and control the business processes and evaluate the correctness of the data according to the given tasks. Furthermore the ability of integration has a significant effect in the usage of resources in the company. The interview analysis in section 4.1.3 indicates that resources can be used effectively through the application of BPMS. This implies that since the business processes are well integrated by the system data or other resources are used in the right way to achieve organizational objectives which can avoid unnecessary business moves.

5.3.3 Flexibility

As repeatedly said the market trend in which organizations function is totally unpredictable that is why today's business success does not guarantee for tomorrow. This is one of the reasons for business companies to upgrade their performance all the time and enforce them to use BPMS. The system helped companies to withstand these changes by letting them to adapt the changes and continue to perform in the market. Flexibility is a major issue due to globalization and information technology advancements. As companies function in a wider market area they definitely face different business cultures and market situation with different customer's behaviour. To handle all these situations and perform well in the ground they must develop a certain mechanism which can help them to be flexible to the different situations. In section 2.6.3 of the theoretical study we have observed that flexibility is one of the benefits for business organizations simply because they use BPMS.

For our interview question addressing the benefits of BPMS, two of our respondents on behalf of their company respond as the system makes them to be flexible according to the environmental changes in their business area (Table 4.1 & Table 4.3). The issue of flexibility can range from modifying a business process to replacing it with other business process as long as the customer's needs are satisfied. BPM systems then have this quality to make organizations fit with the business environment.

5.3.4 Other Opportunities

Information management is another crucial issue for business organizations that they should consider in their day to day activities. Managing of information might refer to the proper usage or transfer of information but it can also imply the proper handling of data. Organizations can now have a better option to easily manage their information due to the fact that BPM systems give them this access. In our empirical analysis we have understood that the business organizations participated in this research already got this advantage from the system. As clearly described in sections 4.1.3 and 4.4 or figured out in table 4.1 of the previous chapter the organization has got an improved information management facility after using of BPMS.

Similarly the other company also got some advantages towards data storage (section 4.3.3 or table 4.2) from the system. All these have some kind of resemblance or relation with the theoretical findings concerning information management. Ramesh et al. (2005) discussed organizations are given with all available information and updated with it by the help of BPMS (section 2.6.2). If information is managed properly companies can easily observe and evaluate their performance and even use the information as a base for future business design. In section 2.6.1 of chapter 2 Chang (2006) has outlined BPMS are used to design and redesign business processes depending on organizational need which actually involves information retrieval from the previous business activities. Thus we found business process management systems as a very good tool for data or information handling about business processes in organizations which can assist them to have a continuous control over the business and do the right decision.

Decision making can be discussed here together with information management hence information is highly required in order to make a right decision. Having of ample information can improve the quality of decisions that is why our respondent (Appendix C) and our analysis in (section 4.1.3) proved that the system is improving their decision making processes. Actually decision making is a process which can also be associated with the whole idea of speeding up of business process but information is also a decisive point for decision. In the theoretical part of our thesis, Cummins (2009) explained the BPMS help companies even to under take complex decision as long as they are changed in to business rules. Therefore the ability of managing information in a certain organization has got significant effects in the overall performance of the company. The other opportunity of BPMS is that it provides a

standard way for operating business processes so that processes can be easily and rapidly managed in an organization.

5.4 Challenges of BPMS

So far we have seen the various benefits of BPMS to business organizations from different angles. But during our research work we found out that there are some challenges in which organizations are facing in association with the system. The major problem for companies in relation to BPMS is resistance from users or employees. In our theoretical study Stoitsev and Scheidl (2008) raised this issue as a problem for companies. The thing is that whenever new technologies are imposed in to the day to day activities of business processes, there is a fear from users that they might loss their position. This is also a problem for the first organization that we contacted. At the initial times they had strong resistance from the users and hard time to persuade them so that users can start to use the system in their regular activities. This also has an indirect effect in the budget of the company because employees need to be trained to use the system, as a result the company might invest a lot of money to bring the users to the required level.

BPMS are modern tools to give companies full access to manage and control their business processes continuously and be flexible with the business changes. These two system contributions finally result companies to extra expenses. The expenses here are associated with developmental costs. As the system provides continuous management ability over the frequently changing business processes, companies always need to upgrade the system likewise. This means the system needs to be modified or developed some how with the new features which is usually costly activity. Another common challenge for organizations is the systems incapability towards notifications where it lacks to provide appropriate information to the users. The system might tell the occurrence of an error but does tell how the problem happens.

In general business process management systems are tools which are really important for companies to remain competent in the business area. It benefits organizations from various perspectives and help them to increase their performance in the market. In other words although it has got few shortcomings we believe that organizations have no other option other than using the system in their business operations.

5.5 Summary

In this chapter we have discussed what we have discovered in our research. Our discussion is based on the theoretical findings and the analyzed interview results. The discussions indicate that many of the theories are similar with the practical findings of the research. BPMS is an important business tool in this modern business environment and benefits organizations to operate in the changing business area. It could be possible by speeding up, flexibility, and integrating the business processes. The system gives managerial as well as technical support for organizations so that they will improve the way they do businesses. But, the system has some possible challenges for the organization such as developmental cost, absence of notification procedures, and users resistance for not using the system. In one hand it reduces cost because it speeds up and reduces unnecessary activities of the business process but on the other side it incurs companies' further developmental costs which remains with as long as they use the system.

6. Conclusion and Future Research

This is the final chapter of the thesis where we give conclusions for our study and recommend some ideas for future research. The conclusion is basically constructed from the findings that we get from the previous two chapters. Finally we also try to explain some of our limitations in our research work.

6.1 Conclusion

This research is conducted to answer our research question “*What are the perceived impacts of BPMS in organizations?*” After studying the theoretical concepts and background, the authors did interviews with individuals from companies in order to reach at a final conclusion for the research. Both from the theory and practical interview analysis we realized that implementation of business process management systems has got both opportunities and challenges. The research findings in general imply BPMS provide a lot of perceived impacts to organizations. The opportunities are either from the technological, business or management points of view. The system is highly required due to the frequent changes of business environment so that organizations become competent and cope with the changes.

BPM systems are really important in today’s business and benefits organizations by speeding up the business processes so that they can give the appropriate services to customers and manage the business processes in time. Integration is another interesting advantage of BPMS where the system unites the business components to one another then all work towards to achieve the organizational goal. Among the many positive impacts of BPMS we also found the system quite advantageous in order to handle the business changes and manage company’s business information.

But unlike to the fore mentioned system opportunities, we also found from both the literature review as well as interviews, applications of business process management systems is a bit challenging for organizations. The system is challenging mainly at the time, when the organizations start using it. This is because it needs time and some cost to shift the processes to the system one by one. In addition, there are no ways that the system notifies its users about the effects of its activity on the business process.

Although BPM systems have some challenges, the systems are really important and powerful for an organization to manage its business processes in order to improve its performance and become competent in the market.

6.2 Research Limitations

We did this research study by taking initial ideas from our theoretical findings and compare with the practical interview results. But, we faced some problems which limit the research work. One of the limitations of the study is the number of case organizations used in the research. In spite of the hard work, we only managed to get positive responses from three companies that agreed to participate in the study. This narrows the dimensions of the study and in addition to that two of the organizations are operating in the same region. Due to this limitation it becomes difficult to generalize the research findings.

6.3 Future Research

In this thesis we have studied the impacts of business process management systems and from our research findings we realized that the systems have given opportunities to organizations to improve their performance and increase their efficiency in the business environment. This study used qualitative research method, so the first possible recommendation will be to study the impacts of the system by including quantitative methods as well. This might sharpen the results during data analysis and easy to generalize. We also suggest that it will be more interesting to see the impacts of BPMS from different perspectives such as the technical points of view. Finally we would like to recommend that further studies should consider the limitations of this research.

Appendix A: Introduction Letter

We, Getnet Amene Yeshanew and Muhochi Mapinduzi, are students of the department of Informatics at Lund University. We are conducting a research study for the partial fulfillment of Master’s degree in information systems. Our research is focused on the impacts of Business Process Management Systems (BPMS) in organizations / Companies.

The research process involves collection of information regarding the case above and this will be done through interviews or questionnaires. Therefore, we are kindly requesting your participation at this stage by responding to the interview questions. Participation is voluntary while all data collected will be used only for academic and learning purposes. In addition all responses will be kept confidential.

Interview discussion will only be processed by the researchers (Getnet and Mapinduzi) and the final output of this research will be kept at the Lund University thesis database and the University Library.

You are also free to withdraw from participating in the research at any point without any further notice or any personal consequences. Your written consent for participating in this study will highly be appreciated and this is for the purpose of fulfilling the research procedure and quality assurance.

Thanks for taking your time and participate in this study.
With regards,

Getnet Amene Yeshanew
.....

Muhochi Mapinduzi
.....

I..... received information from Getnet Amene Yeshanew and Muhochi Mapinduzi on their research study about “Opportunities and Challenges of BPMS”. I am aware that my participation is free and I can withdraw my participation at anytime. Knowing this I agree to participate in the study and provide the necessary information regarding the study by responding to interview questions.

Appendix B: Interview Guide

A. Introductory Questions

1. What is your name?
2. What is the name of the company that you are in?
3. What is your position in the company?
4. For how long have you been working in that position?
5. What is your role in the company?

B. General questions

6. What is the type of your Organization?
7. What is the approximate size of the organization / company?
8. How can you grade the rate of usage of IT facilities in your organization / Company?
9. What are the major business areas that the organization is highly involved? Can you describe them?

C. Specific Questions

10. Are you familiar with Business Process Management Systems?
11. From your understanding, how can you describe Business Process Management (BPM) and Business Process Management Systems (BPMS)?
12. Is your organization using a Business Process Management System?
13. Can you describe your relation with the system?
14. What was (were) the initial goal(s) of the company to use BPM Systems?
15. Why your organization needs to have and use Business process Management Systems?
16. IS BPMS important for the company?
17. Can you describe the kind of business processes that are controlled by the system (BPMS)?

18. Can you name and explain the major advantages you get after using of BPMS in your company?
19. How do you describe the capabilities of BPMS to handle the need of the company?
20. What challenges did you face while you are using BPM systems?
21. What are the general impacts of the system on the overall organization's performance?

D. Concluding Questions

22. Is there anything that you would like to mention about BPMS?
23. Do you have something else to say?

Thank you

Appendix C: Company A

Capital Markets and Securities Authority (CMSA), Tanzania

Respondent: Kelvin kiritta

Introduction Questions	
1.	Getnet: Can you tell us your full name, please? Kiritta: <i>Kelvin Kiritta</i>
2.	Mapinduzi: What is the name of the company you are working for? Kiritta: <i>I Work in Capital Markets and Securities Authority in Tanzania</i>
3.	Getnet: Would you please tell us your position in the company? Kiritta: <i>I am a Senior Systems Administrator</i>
4.	Mapinduzi: For how long have you been working in that position? Kiritta: <i>I think it is approximately for three years, since February, 2007</i>
5.	Getnet: Can you tell us your role in the company? Kiritta: <i>I am in charge of the administration and support of the ICT systems. This also includes management of the main servers, internet, MIS, and logistic and procurement of ICT. I am also involving in handling of IT projects for the development of the Capital Markets.</i>
General Questions	
6.	Mapinduzi: What is the type of your organization you are working for? Kiritta: <i>It is a Regulatory Authority</i> Mapinduzi: Is it a Government or private organization? Kiritta : <i>You may call it a Regulatory Authority or a Government Agency</i> Mapinduzi: Ok
7.	Mapinduzi: What is the approximate size of the organization? Kiritta: <i>It is approximately 26 to 30 staffs</i> Mapinduzi: What about the breakdown may be by departments? Kiritta: <i>IT department comprise of two staffs, these are Senior Systems Administrator and the other one is Senior Database Administrator.</i>
8.	Mapinduzi: How can you grade the rate of usage of IT facilities in your organization? Kiritta: <i>when you think of a rate, assigning a mark may be from 0 to 10, I could say 8.</i>

9.	<p>Mapinduzi: What are the major business areas that the organization is highly involved? Can you describe them?</p> <p>Kiritta: <i>The Agency has a number of functions, but to mention the major ones, the first one is licensing of market intermediaries as you have visited our website, it is to regulate securities and capital markets business in the Country. So actually we have the role of licensing market intermediaries like Stock brokers, investment advisers. The second role is market development; this is the service that the authority is charging with responsibilities of put into the market the number of products so that we actually improve our capital markets. So the major role here is market development which involves launching of new products, issuing securities in the market; this goes in hand with launching of collective schemes and also the launching of small and medium enterprises, you can call it entrepreneurship market development. The role of entrepreneurs' gross market is actually to allow those who could not afford to trade in the primary market to be able to trade in the secondary market.</i></p> <p>Mapinduzi: Ok</p> <p>Kiritta: <i>As you have realized that the primary market requires an aggregate capital and we have done the research and realize that, this has actually disallow a number of companies who are not qualify to trade in the market.</i></p> <p>Mapinduzi: Any other business areas?</p> <p>Kiritta: <i>The third one which is very crucial and which is much related to the system use is market supervision. Since we have licensed those brokers, we actually mandated by law to make sure those people are actually conducting trades as per regulation and rules of law. We have onsite and offsite inspection. Onsite involving going in physically to the brokers and market intermediaries and trying to see how are they fitting in the business. So we have routine onsite inspection. We have also offsite inspection which involving receiving the financial market reports, and trying to analyze them if they comply with the regulations. Inline this is also involves what we call it online surveillance. Online surveillance comprise of market watch.</i></p>
Specific Questions	
10.	<p>Getnet: Mr Kiritta, are you familiar with Business process Management Systems?</p> <p>Kiritta: <i>Yes, I have experience of BPMS.</i></p>
11.	<p>Mapinduzi: From your understanding, how can you describe Business Process Management and Business Process Management Systems?</p> <p>Kiritta: <i>BPM as far as I understand, are those management practices which are there to ensure that business processes are executed in a way that will bring competitive advantage or will bring effectiveness in organizations activities. So it is the application of management practices to ensure that business processes are embraced and executed in a way that will bring efficiency to the organization.</i></p>

	<p>Mapinduzi: Ok</p> <p>Kiritta: <i>While BPMS are those systems which will now actually help the decision maker or the management to execute those business processes. So what the BPMS does is actually to automate business processes and to increase the organization's efficiency.</i></p>
12.	<p>Mapinduzi: Is your organization using BPMS?</p> <p>Kiritta: <i>Yes, we have but we are not actually call them BPMS, but the term is under the umbrella of so, so and so systems (several systems) because you cannot go to the market and say "can I have BPMS?" But we have actually procured a BPM System.</i></p>
13.	<p>Getnet: Do you have a direct relation with the system?</p> <p>Kiritta: <i>I don't get it! Can you please elaborate?</i></p> <p>Getnet: I mean, what is your interaction with the system?</p> <p>Kiritta: <i>We are actually responsible for the configurations of the business logics, It is like, If you have a request and you need to improve the system. As I said before we have licensing portal and in that licensing system, the role is actually to provide or grant license to the applicants so that assume we have a request may be we have more market segment apart from the one that we have in, so my role is actually to configure the business logic to accommodate those new coming brokers to the market, but I am also responsible for change request management in terms of the development of new models to those systems. So one of the roles is actually to come up with the requirements and enforce those requirements that can be in house or through outsourcing to the developers.</i></p>
14.	<p>Mapinduzi: What were the initial goals of the organization to use BPM Systems?</p> <p>Kiritta: <i>The first one is, previously we had to go through a manual system and that was actually hectic in terms of resourcing, we spent a lot of time and money in trying to go through a manual process. So one of the major goal I could say is automation of the business processes and through the automation of business processes eventually we realized that it has helped us to speed up the decision making process which has ultimately lead us to efficient decisions. The third one helped us to save resources and optimize cost.</i></p>
15.	<p>Mapinduzi: Why your organization needs to have and use Business Process Management Systems?</p> <p>Kiritta: <i>The major reason is that, the business environment which we actually operating is changing everyday that is why we had a problem because as the business changes we have to adjust our manual process to cope with the changes but later on we realized that we need to look for a solution which would be able to alleviate that problem. We did bit of research and realize that we need to have a system that will automate those business processes so that we can have flexibility on the way we can execute our activities. So we thought that it could be advantageous on our side to have a system that will provide flexibility in terms of the configuration of business processes.</i></p>

16.	<p>Getnet: Do you think that those BPM systems important to your organization? Kiritta: <i>Yes, it is important and it has proved very successfully in the organization.</i></p>
17.	<p>Mapinduzi: Can you describe the kind of business processes that are controlled by the system? Kiritta: <i>We have actually related the BPMS to measure the feedback in the trade system. We have done workflow system, online filling system; also we have a licensing system and HR System.</i></p> <p>Mapinduzi: Can you describe a little bit about those? Kiritta: <i>The workflow actually provides a mechanism to creation, storage and dissemination of information. The workflow is configured to provide a way we can safely store information but also to have a system which will enable us cross passing information with the organization. The major issue is to make sure that we don't have a loss of information. The workflow system is configured to ensure that information is passed to the responsible personnel and also to have a monitoring of those information. So the information can come from external sources such as memo, letters and so on, when they reached into our organization, workflow system captures that and it will send information directly to the CEO, and the CEO determine the information which is in terms of action now., and channel it to the responsible personnel.</i></p> <p>Mapinduzi: Ok, you mentioned about three systems, that was one, what about the others? Kiritta: <i>Yes, the licensing system or portal is actually provides a way to granting or revoking of the license, so it is configured in way the business processes in place and that the business processes are configured in way that comply to our rules of law. You have to understand that the issuing of license in the regulatory authorities explicitly stated by law. The issue of licensing is mandated through provisions which created an authority so that we are actually taken those business processes and implementing and licensing and therefore when the system receives the application, it will match to those to see if the applicant has successfully submitted the required provisions as per configured business rules or process in the system. If the applicant has successfully complied to the business process so for implementation, the applicant will be granted application otherwise the applicant will be revoked. The online filling system which allows online submission of the financial reports actually helped us; the previous system was that, the broker or market intermediaries were supposed to come physically to our office. We that was a bit tiresome, so we tried to actually automate that process, then we came up with online filling system which enable the customer from their office to submit financial statement to our organization.</i></p> <p>Mapinduzi: so what kind of customer are you talking here? Kiritta: <i>As you realized, since the beginning of this interview there is market intermediaries which are major players in the capital markets and securities industry. We have about four but will mention three, market brokers, Investment advisers and custodian of securities and the rest I forgot</i></p>

18.	<p>Mapinduzi: Can you name and explain the major advantages you get after using of BPMS in your organization?</p> <p>Kiritta: <i>Be able to automate business processes that lead us to speeding the execution of our decisions, but this properly save resources in terms of cost and human resources.</i></p>
19.	<p>Getnet: So, it means that the system is capable for you to run business processes?</p> <p>Kiritta: <i>yes</i></p>
20.	<p>Getnet: What challenges did you face while you are using BPM systems?</p> <p>Kiritta: <i>We have got two challenges to mention. The one was IT adoption, people were accustomed to a manual way of doing things, so it was not easy for us to actually change the way of their mindset to adopt the system. The other problem was that, we still have this problem as far as the business environment changes, we have to adopt a new business process or business rules. So the configuration of that business rules or business process, calls us for modification or configuration of the business process. You may find out that some other systems are quite easy for development but some of them require external development and this cost a lot.</i></p>
21.	<p>Getnet: What are the general impacts of the system on the overall organization's performance?</p> <p>Kiritta: <i>The general impacts I could say that it is actually helped us to improve the efficiency and effectiveness of the organization activities, such as smooth execution of organizations' laws and have a better regulatory.</i></p>
<p>Concluding Questions</p>	
22.	<p>Mapinduzi: Is there anything that you would like to mention about BPMS?</p> <p>Kiritta: <i>I would advice to consider the challenges and you should be able to address how that challenge can be tackled as different organizations might have different challenges. So when you generalize, you should come up with a solution. It is difficult but also depends on the organization culture.</i></p>
23.	<p>Getnet: Mr Kiritta we have finished our questions but if you have anything to say before you we wind up?</p> <p>Kiritta: <i>I just wish you good luck</i></p> <p>Getnet and Mapinduzi: Thank you</p>

Appendix D: Company B

Tanzania Telecommunications Company Limited (TTCL)

Respondent: Albert Joseph

Introduction Questions	
1.	What is your name? Joseph: <i>Albert Joseph</i>
2.	What is the name of the company that you are in? Joseph: <i>Tanzania Telecommunications Company Limited (TTCL)</i>
3.	What is your position in the company? Joseph: <i>Database/ System Administrator</i>
4.	For how long have you been working in that position? Joseph: <i>Approximately 4 years since 2006</i>
5.	What is your role in the company? Joseph: <i>Support of all IT systems and databases at TTCL</i>
General Questions	
6.	What is the type of your Organization? Joseph: <i>Telecommunications Company</i>
7.	What is the approximate size of the organization / company? Joseph: <i>The company provides the Telecommunications services throughout the country and therefore we have offices in all of the 25 regions in Tanzania. In short it is so large with thousands of workers but am working at the headquarter office which have approximately 500 staffs.</i>
8.	How can you grade the rate of usage of IT facilities in your organization / Company? Joseph: <i>The rate of usage IT facilities is very high</i>
9.	What are the major business areas that the organization is highly involved? Can you describe them? Joseph: <i>We are providing both pre-paid and post-paid telecommunications services to our customers using landlines and mobile telephones. We are also providing internet services in the country, so we also work as an ISP you can call internet service provider.</i>

Specific Questions

10.	<p>Are you familiar with Business Process Management Systems? Joseph: <i>Yes, am familiar with BPMS</i></p>
11.	<p>From your understanding, how can you describe Business Process Management (BPM) and Business Process Management Systems (BPMS)? Joseph: <i>Business process management is the approach focused on aligning all aspects of an organization so as to meet the needs of clients and improve organizations productivity, effectiveness and efficiency while BPMS are the systems which make this happen.</i></p>
12.	<p>Is your organization using a Business Process Management System? Joseph: <i>Yes, we are using one from Sun Systems</i></p>
13.	<p>Can you describe your relation with the system? Joseph: <i>As I said before my role is to support all ICT facilities in the organizations so one of my duties is to support this system to makes sure it works properly all the time</i></p>
14.	<p>What was (were) the initial goal(s) of the company to use BPM Systems? Joseph: <i>Apart from telecommunications services the other things we are engaging very much is procurement issues. We are regularly buying so many things for the companies from computer sets, telecoms equipments, routers, hubs, and so many other things and it was very difficult to control the procurement processes and that's where we come up with the idea of purchasing the system for handling these issues. So the goal is to automate logistic, asset management and procurement services.</i></p>
15.	<p>Why your organization needs to have and use Business process Management Systems? Joseph: <i>For automation of logistics and procurement activities so as speed up the procurement process and to increase integrity of the responsible workers. Another reason is to have the procurement records well stored for the future references and audit purposes.</i></p>
16.	<p>IS BPMS important for the company? Joseph: <i>Absolutely, the system is very important</i></p>
17.	<p>Can you describe the kind of business processes that are controlled by the system (BPMS)? Joseph: <i>Mainly it supports procurement process from requesting, status checking and approval of the requests.</i></p>

18.	<p>Can you name and explain the major advantages you get after using of BPMS in your company?</p> <p>Joseph: <i>The system helps us to speed up the processed very much and also to save the company's financial resources because it increased the integrity. Also the system made the auditing process becomes very easy as all procurement records are stored in the system.</i></p>
19.	<p>How do you describe the capabilities of BPMS to handle the need of the company?</p> <p>Joseph: <i>I think we are satisfactory</i></p>
20.	<p>What challenges did you face while you are using BPM systems?</p> <p>Joseph: <i>The slowness and there is no system notification for the effects, request for proposal handling (RFP) is not well supported.</i></p>
21.	<p>What are the general impacts of the system on the overall organization's performance?</p> <p>Joseph: <i>Since the system only handles procurement activities which are not the major activities for the company, it will be difficult to see the overall contributions but in terms of procurement activities the system has helped us a lot</i></p>
<p>Concluding Questions</p>	
22.	<p>Is there anything that you would like to mention about BPMS?</p> <p>Joseph: <i>Not real, Its just like I have mentioned above</i></p>
23.	<p>Do you have something else to say?</p> <p>Joseph: <i>No thank you</i></p>

Appendix E: Company C

Ericsson: Lund, Sweden

Respondent: Michael Andersson

Introduction Questions	
1.	<p>What is your name? Andersson: <i>Michael Andersson</i></p>
2.	<p>What is the name of the company that you are in? Andersson: <i>Ericsson</i></p>
3.	<p>What is your position in the company? Andersson: <i>Team leader for our Process Framework</i></p>
4.	<p>For how long have you been working in that position? Andersson: <i>One Month</i></p>
5.	<p>What is your role in the company? Andersson: <i>Have been working with Process Mgmt since 2005, mainly within Finance but now have a group wide assignment to establish a common framework for all our processes.</i></p>
General Questions	
6.	<p>What is the type of your Organization? Andersson: <i>Per definition it is a multi hybrid organization.</i></p>
7.	<p>What is the approximate size of the organization / company? Andersson: <i>+ 80 000 Employees</i></p>
8.	<p>How can you grade the rate of usage of IT facilities in your organization / Company? Andersson: <i>We have a really strong global platform in terms of our ERP system. All our employees have access and use IT services on a daily basis.</i></p>
9.	<p>What are the major business areas that the organization is highly involved? Can you describe them? Andersson: <i>What are the major business areas that the organization is highly involved? Can you describe them? Telecom networks, build design and implementation Service and maintenance of the same Multimedia applications enabling ISP and telecom operators to deliver value adding services to their end customers.</i></p>

Specific Questions	
10.	Are you familiar with Business Process Management Systems? Andersson: <i>I am, have experience from both ARIS and RMC.</i>
11.	From your understanding, how can you describe Business Process Management (BPM) and Business Process Management Systems (BPMS)? Andersson: <i>An excellent approach for a company to secure continuously improvements of their operations while they add value to their customers.</i>
12.	Is your organization using a Business Process Management System? Andersson: <i>Yes, we are mainly using ARIS from IDS Sheer today</i>
13.	Can you describe your relation with the system? Andersson: <i>I am not personally using the system, but it is a main component in our Process Framework. Right now I am responsible to secure both the definition and alignment to the framework throughout the company. Framework covers both the process architecture as well as the document standards in relation to information models.</i>
14.	What was (were) the initial goal(s) of the company to use BPM Systems? Andersson: <i>Secure internal efficiency and handovers between the functional units. The need is different within different parts of the company, some focus on lead time, some on quality while other wants to ensure a standardized way of working leading to cost reductions.</i>
15.	Why your organization needs to have and use Business process Management Systems? Andersson: <i>It simplifies and makes the maintenance of our processes efficient while enabling a direct link to our information models.</i>
16.	IS BPMS important for the company? Andersson: <i>From my perspective of course, but I have learnt over time that it is not obvious if you are not familiar with Business Management using processes.</i>
17.	Can you describe the kind of business processes that are controlled by the system (BPMS)? Andersson: <i>Customer Services, it is made up by eight different product areas where we deliver service to our customers on their telecom networks. Here we also use the system as a component in our delivery to our customers, describing interfaces and activities. Human Resources, Our IT process, Our R&D process</i>

18.	<p>Can you name and explain the major advantages you get after using of BPMS in your company?</p> <p>Andersson: <i>We gain a common standard, with the standard as base we are able to continuously improve. It also makes it clear where we have the different handovers and interfaces to other units or external suppliers.</i></p> <p><i>A system with a firm data model helps us to define all our activities in a proper format and even if it is time consuming it helps us clarify what we actually mean when we state an activity in the system.</i></p> <p><i>It also gives us the possibility to standardize how the different activities should be performed within the company, it is one tool to educate and introduce new ways of working.</i></p> <p><i>When we change something in our current work flows, we see what areas it will have an impact on. This is valid both for the individual activity as well as the information objects related to the activities.</i></p>
19.	<p>How do you describe the capabilities of BPMS to handle the need of the company?</p> <p>Andersson: <i>Used properly it is an extremely powerful tool when it comes to process design and development of the company. By describing the standard way of working and implement measurements on different process flows we are able to change and evolve over time.</i></p>
20.	<p>What challenges did you face while you are using BPM systems?</p> <p>Andersson: <i>It is cumbersome to move a company from a functional structure to a process driven company. When both governance and target setting is done within each function the processes gets the second priority. Also the awareness of BPM and the support it brings is not high on every agenda leading to bad quality in our process descriptions.</i></p> <p><i>A very fundamental requirement to utilize a BPM system is that you are able to describe your process including the activities. When you start the transition to a process oriented company it is extremely cumbersome to describe all activities and all the artifacts per activity.</i></p> <p><i>We still have quite some things to do here so we are no way near our full potential when it comes to BPM.</i></p> <p><i>It is very time consuming to establish the processes and define all activities within. A company wide process architecture must be defined and agreed, including all notification objects you want to use.</i></p> <p><i>It does not support that handovers between different functions are handshakes and agreed before they are described in the process.</i></p> <p><i>It is a steep learning curve when you want to introduce new people into both the tool as well as BPM.</i></p>

	<i>Most systems are built for Process Designers rather than operational people in the line organization, therefore it is important to have a clear strategy showing how you move from the process flow to something the end user can relate to.</i>
21.	<p>What are the general impacts of the system on the overall organization's performance?</p> <p>Andersson: <i>We have seen substantial savings within different functions as a direct result of the usage of standardized processes. It has also had a positive effect on both quality and lead time in different processes.</i></p>
Concluding Questions	
22.	<p>Is there anything that you would like to mention about BPMS?</p> <p>Andersson: <i>The devil is in the details.</i></p> <p><i>My experience is that you naturally start by looking top down when you want to optimize a company through BPM. It is easy to measure and you can show some quick results. This gives a limited effect on the overall performance since you have not been able to fully address the root cause. To be able to do that you need to be aware of the activities you actually perform within the different processes. But there you have the cumbersome part that often gets overlooked. Describe the details in terms of activities, and you can twist and turn your processes depending on your need</i></p> <p><i>Another area that is often overlooked is that the processes are great when it comes to designing and developing the workflow. But it is not worth anything if you are not able to make the organization follow it. The organization has different needs in terms of understanding the processes and the role they play in the process. It is not all about processes, it is about making a change within the organization.</i></p>
23.	<p>Do you have something else to say?</p> <p>Andersson: <i>When it comes to repetitive activities I have not seen any other tool as powerful as BPM if you want to develop your company and make it more competitive on the market.</i></p>

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