Enhancing Organization Business Performance Management through Business Processes Modelling - Visualization and Standardization

A case study - Ericsson AB, Stockholm, Sweden (ICT Service Delivery, GFBE)

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Abstract

Many organizations nowadays have recognized the important and value, provided by the enhancement of business performance management success. And also, many have realized an alignment of strategic initiative with the organization set goals and objectives, to sustain the highly challenging competitive ICT markets. However, many are still having great challenges in achieving this aim. In addition, most of the organization have not given adequate attention to this area of study, and some are not even aware about the important this will create for the growth and development of their organization, due to inadequate knowledge and lack of understanding. This research work analyzed, proposed and designed a standardized business process model to visualize all the activities using Ericsson AB ICT service delivery organization as a case study, to improve their organization business performance, and at the same time sustain some of their strategic initiatives. The analysis of the result shows that with the standardized and visualized business process model in place, the process ambiguity caused as a result of unclear assignment of roles and responsibility and lack of smooth process ways of working was highly reduced. Also, the lost lead time(in days) of customer service deliveries was drastically reduced, based on the result analysis after the business process model was implemented, monitored and controlled. The study also show that user involvement and adequate combination of technical and business process skills will go a long way in realizing the practicability of making use of this model to enhance the organization performance success. Effective communication nonetheless, is also recommended during and after the implementation of the business process model, as this is the main key that drives the continuous organization performance success.

**Keywords:** Organization Performance, Business Processes, Business Performance Management, Business Process Visualization and Standardization
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Accronyms Definitions

GFBE – Group Function Business Excellence

BPM – Business Process Management

BP – Business Process

ICT – Information and Communication Technology

IT – Information Technology

PM – Project Manager

HWC – Hardware Coordinator

PDU – Product Development Unit (Customer Interface)

ITTE – IT Test Environment

RTT – Request Tracker tool
1. Introduction

1.1 Background

The Business Process design and development of an organization must vividly be taken into very keen consideration as it amount for the effectiveness to enhance organizations’ overall business performance, (Anttila and Jussila, 2013a). It is also known to be a way to naturally achieve integrated business quality with efficiency and discipline management. For the success of any organization, there must be measurement, monitoring and analysis in order for them to reach their optimal performance level. Performance can be described as an accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed (Bierbusse and Siesfeld, 1997). Furthermore, one of the areas within the Business Intelligence (BI) arena that is catching a lot of attention in today’s world is the Business Performance Management (BPM). As a matter of certainty, it was positioned as one the highest ten technology area that the CIO needed to put more attention (Ariyachandra and Frolick, 2008). Basically, the BPM entails a situation whereby the business strategy of an organization and its technology structure are put together as a result of achieving a standard organizational goals and objectives. Figure 1 shows the input to achieving organization goals and objectives.

Moreover, the alignment of IT strategy and business strategy is of great importance, especially nowadays that many organization needs to combat with the deep hypercompetitive market. (Venkatraman et al., 1993). With these challenges facing the market, many organizations are still...
currently striving very hard to reach this strategic alignment in the most optima level that will allow them to meet their defined goals and objectives (Ariyachandra and Frolick, 2008). And for the fact that, there is a lot of methodology proposed for reaching strategic alignment, very few of them have actually succeeded when put into practice (Ariyachandra and Frolick, 2008). However, one of the methodologies is BPM which when used systematically and analytically allows organization to reach a high status of strategic alignment (Ariyachandra and Frolick, 2008). Having used the BPM as a very interesting methodology for attaining strategic alignment, a lot of organization face great challenges in practically put the implementation into practice (Ariyachandra and Frolick, 2008). Of course, there are a lot of reasons for this problem facing the BPM methodology implementation, and this include inadequate or lack of support from management, lack of not clearly defining the organizational objectives, and some infrastructure issues and so on (Ariyachandra and Frolick, 2008).

In order to ensure that the BPM is successful when it comes to its implementation, there are many critical success factors (CSFs) which needs to be considered. Some of them are related to the information systems development initiatives, and others are unique to BPM implementations. (Frolick and Ariyachandra, 2006).

In addition, the BPM is one of the seriously burning topic been discussed in many industry nowadays. However, there is still a lot of confusion when it comes to the definition of the BPM. While some have limited the definition of BPM to the concept that entails planning, scheduling, and budgeting practices, other people have narrowly described or discussed it in the context of legislation such as Sarbanes-Oxley. The misunderstanding of BPM still goes further to call it other names such like corporate performance management and enterprise performance management (Ariyachandra and Frolick, 2008). It also went further to described BPM as a series of business processes and application designed to optimize both the development and the execution of business strategy.

We can summarize that BPM comprise of two important tasks; firstly, it greases the wheels when it comes to the creation of the strategic goals for the organization and secondly, it also guides and supports the sub sequential management of the performance to those goals and objectives defined by the organization (Ariyachandra and Frolick, 2008).

In addition, the professional approach in handling processes has a very high influence in having an effective and efficient business performance (Rummler and Brache, 1995) and nonetheless improving quality management (QM) and quality assurance(QA).This approach of professionalism has been
adopted by many organization over the two and half decades (Anttila and Jussila, 2013b), (Anttila and Jussila, 2013c), (Anttila and Jussila, 2013a). The general overview of Business System as a whole comprises of relationship between different processes interlinked together and having dependencies on each other and their corresponding business structure. The greatest factor in terms of strategy and operational areas affecting any highly functional organization is the performance of their business process.

Therefore, in order to enhance or manage the Business Performance of an organization, Business Processes should clearly visualize the activities that will ensure that the goals of the organization are reached effectively and efficiently (Jan Stentoft Arlbjørn, 2011). The visualization of business process is described as a communication channel methodology that brings about promotion of a common understanding platform any kind of developmental project in many organizations (Jan Stentoft Arlbjørn, 2011). With this visualization of business processes in place a lot of large data can be represented and quickly understood by people, which enhance good improvement decision action, and in turn lead to better organization performance. The visualization of business processes also play an important role in the support of improvement and change processes, which create possibility effect in the way people carry out their corresponding roles and responsibilities of their daily activities (Fenton, 2007). And likewise, it was described that another way aside process visualization to enhance performance management by the use of business process modelling is the process standardization (Björn Münstermann et al., 2010). Also, process standardization reduces a lot of waste which in turn reduces cost savings from the practical point of view.

And besides, it was stated by (Ian Robson, 2004) that before ensuring to identify all possible areas in enhancing performance, it is important to understand the actual idea behind implementing Performance measurement System, is to provide the highest possibilities and opportunities of increasing and promoting the efficiency and effectiveness of the business processes as a whole. Therefore, the goals for making strategic decision in any organization is determined by some concrete objectives and indicators that are then mapped with some metrics and compared to their respective operational performance (Ariyachandra and Frolick, 2008). Achieving an effective strategic goal in any organization will require business improvement models such business process (visualized and standardized) within the organization performance level as this will enhance the measurement of the performance, which will eventually promote growth and development to the organization (Rodney
1.2 Problem Statement
Rendering a quality ICT service to the customer within many Service delivery operations as in the case of the (IT and test environment at Ericsson), has been a challenging task due to lack of documentation of what and how various activities are been carryout different roles and responsibility in an efficient and effective manner. In order to find improvement areas, the processes need to model, visualized and documented. Besides, visibility and documentation, the business process performance will be measured, monitored and analyzed accordingly.

1.3 Research Questions
The study seeks to address the following questions:

1. How can the improvement of Business Performance Management at Ericsson AB be achieved through the business process model standardization and Visualization of its way of working?

1.4 Goals
The goals are as follows:

1. Analyze the organization current situation to deduce what their weaknesses are, in terms of the best practices in the area of their Organization and business management system.
2. Presentation of process and relationship mapping as a business process modelling tool to visualize the structure within the Service Delivery unit of Ericsson Organization system.
3. Highlight the possibilities to view improvement areas by the use of the suggested Business process Model tool.
4. Identify some of the benefits that would be achieved after implementing the suggested business process model and emphasis how it can positively affect their total quality improvement strategy within the organization and business performance system level.

1.5 Scope

1.5.1 In Scope
The In Scope of this thesis work is as follows:

1. The thesis work only targeted the service delivery operation area of an ICT organization as a case study.
2. It will only focus on business process modeling as a tool to support the organization’s quality improvement strategy.
3. Both the Business Process Modelling and its benefits will be presented in this work.
4. The performance improvement measurement will be effectively carried out.

1.5.2 Out of Scope

Following activities are out of scope:

1. The study does not cover organization business system outside an ICT service delivery operation.
2. The thesis will not touch areas outside the scope of Business Process Modelling as a tool or framework for quality improvement.


2 Research Methodology

This chapter describes the methodology taken into consideration during the course of the research work. It started by describing the objectives and the purpose of carrying out the research work. Furthermore, explanation about differences in terms of research methodology was also touched. Moreover, it explained the approach that was used to carry out the research within the scope of this thesis work. Also, the objectivity in the research methodology selection approach and ethical consideration were also highly taken into consideration.

Having strictly sought permission from the Manager of the Ericsson ICT delivery before the research study was carried out; active general observation in the Ericsson ICT service delivery premises was used as a major methodology tool during the course of the research work. Also, despite the fact that I was an employee in the company, the research study was carried out without any bias, as I was been very objective in both the qualitative and quantitative data retrieved during the course of the research work. Likewise, ethical consideration was fully adhered to, as all information and observation noticed during the research study was strictly made confidential among different stakeholders involved during the course of the research study. Data gathering was carried out using the measurement from KPI Lost lead Time (LLT) and Lead Time Reduction (LTR) of the procurement customer tickets, in the Service Delivery business process operation, within three units in Ericsson. The Data retrieved from this measurement was analyzed, and observation and conclusion were drawn out from it, in accordance to the scope of the thesis work. After the analysis of the data; performance improvement were measured to ensure alignment with the company strategy. The focus strategy was order-to-cash cost reduction (that is, reducing the lead time of customer procurement ticket in the service delivery operation).

This section of research method explored a lot of information regarding the research strategy that will be used to validate the literature background of the research area and at the same time highlighting the methods and tools needed to collect the data for carrying out the research and how the analysis will be drawn out from the data collected.

Furthermore, the Request tracking tool (RTT) of Ericsson service delivery tool was used to capture the data of all the customer procurement ticket, and was used to analyze and prove this research work (how business process modelling improve the business performance management of an organization). After all the data were captured with the use of this RTT tool, the Business Intelligence (BI) tool called Minitab 17 Statistical software and Microsoft excel were used to analyze the result of the data and
deduction were drawn based on the analysis.

The research methodology summary is visualized in the figure 2 below:

2.1 Research Strategy/Purpose: Case Study

The objective of this research is to find out answers to questions through the application of scientific procedures (Kothari, 2004). In the literature cited by (Creswell, 2013a), three different approaches to research were highlighted, namely; qualitative, quantitative and mixed methods. The quantitative approach was chosen in this research work, as it was described (Alan Bryman and Emma Bell, 2007) as representing the different ways of classifying different methods of business research. Also, due to the fact that quantitative is very useful for a range of issues which is concerned with the engagement of practice of business research nowadays.

The quantitative research is used based on the fact that, it is described as a research strategy that
stresses the quantification in the collection and analysis of data. It has the below following properties (Alan Bryman and Emma Bell, 2007):

- It has a deductive approach to the relationship between the theory and research, in which the accent is placed on the testing of theories.

- It has incorporated the practices and norms of the natural scientific model and positivism in particular; and

- Embodies a view of social reality as an external, objective reality.

Moreover, the quantitative method chosen will adhere with the Philosophical Worldviews framework presented by (Creswell, 2013b), (Creswell, 2013a), where he stated that, in order to plan a scientific research study, researchers need to ponder through the philosophical worldview assumptions they carry along to the study, the research design procedure that is related to this worldview and the specific methods or procedures of research that translate the approach into practice.

Therefore, as related to this research, once the data were collected, they will be analyzed and mapped to the research aims and objective. The quantitative data collected in this research work also gave an opportunity as a researcher, to understand the existing process in the Ericsson AB (ICT Service delivery Organization). Figure 3 below shows the framework for Research with their interaction of worldview Design and Research Methodologies explained above.
2.2 Data collection method
The research design included document analysis and quantitative approach which entails capturing and analysis of data. The data collection was done on previous two years of operation and mapped with different business process in carryout their delivery operation at the Ericsson AB ICT department.

2.3 Research Process
The research process started with the literature background study of Business Performance Management (BPM) and its relationship with how it can be enhanced through Business Processes visualization and standardization. As soon as we received a permission from KTH and Ericsson to conduct the research, the practical scenario in Ericsson Ways of Working was also considered as part of the research process as it gives the picture of the company status when it comes to their BPM and its business processes in carrying out their daily ICT Delivery operation.

Furthermore, since I currently work in the company, it gives me the opportunity to understand the background on their business process when it comes to the ways of working and standardization. The Manager of the organization (that is, Ericsson Service Delivery for Cloud, Infrastructure and Hardware, and Mobile core) and some other stakeholders as shown in figure 2 was also interviewed and to
understand the history behind the reason behind the process ambiguity and lack of standardization in the organization ways of working, when it comes to their business processes of the daily work activities with different responsibility areas.

All the gathered information gave the researcher the opportunity to become fully aware of the organization background and history when it comes to the organization’s Business Performance Management (Business Process in particular) which is in conjunction to the researchers’ knowledge base regarding the intended research areas.

2.4 Second-source data gathering

Literature review – a systematic search of published work to find out what is already known about business performance improvement through process modelling and visualization. This will help the researchers to analyze and measure improvement areas. Also, collecting internal documents and information from the company that will be relevant for the thesis.

2.5 Empirical data gathering

Interviews – these will be performed early in the project in order to be used as a baseline for further exploration and to choose which processes to focus on. Some team members was randomly interviewed to further understand the Organization Business Process Ways of Working and Standardization.

Case studies – chosen processes will be investigated further and the current state of the processes will be documented. Further interviews will be held at this stage.

Brainstorming – together with process owners and performers we will create new process maps that describe how it should be.

In order to make a high quality process mapping we will have to make use of the systematic approach which will shows all the activities within the organizational flow strategy.

2.6 Evaluation of data and modelling

Data will be evaluated with the Nine Boxed Model developed by Rummler & Brache. This model suggests there are three levels of performance (organization, process and performer level) and three levels of performance dimensions (goals, design, management). This model will be used to explore the research using the Ericsson Organization ICT Delivery Organization Chart. This will allow the research to
relate the theoretical research question towards practicality using the above mentioned model framework.

2.7 Limitations of the Research Methods

It is very rampant that the case study is a simple and not very difficult methodology when compared to others such like the qualitative methods (that is, experiment or survey). As many criticisms are always pointed out with regards to data collection and analysis, this research work will carefully take this into an appropriate consideration when collecting and analyzing to avoid any kind of ambiguity and errors. For validity purpose, the case study will be repeated and checked with other scenarios used by different researchers (Yin and Robert K, 2011) to cater for this kind of limitations.

2.8 Validity and Reliability

There are three main usual means of evaluating business and management research. They includes: Replication, Reliability and Validity (Winterton, 2008).

Replication implies when the research tend to reproduce the work of another researcher. This is not the case in this research. All the literature backing to validate the research study was properly referenced, to avoid any kind of this matter. Likewise, for the result to be repeatable, it explains the reliability of that result. Reliability is mainly concerned to the quantitative research as to whether the result is stable or not when analyzing the measurement of the research work (Winterton, 2008). The result measured in this research study is very stable as long as the methodology described in terms of business process model to enhance organization performance, is strictly monitored and controlled. Furthermore, the validity, which is the most important criteria in any research work, is mainly concerned with the integrity of the conclusion drawn out from the research work (Winterton, 2008). In this research work, the conclusion generated came the literature backings, in which the research question is based upon which eventually shows and highlight the benefit of enhancing the business performance management through the model of business processes – visualize and standardize ways of working in any organization, that is keen in reaching its full potential and meeting up customer demands.

2.9 Ethical Consideration

Many discussion regarding the ethical procedures and principals in business management research and the exceeding of the boundary revolves in certain areas of loop which includes: probably, this can cause hazard to the participant, maybe there is a lack of informed consent, probably there is a trespassing of privacy and probably deception is highly involved (Winterton, 2008). Most ethical principle revolves around the above mentioned loop during the cause of any research work.

Therefore, in this research work, all this area of ethical principle was appropriately and adequately taking into consideration to avoid any kind of future bounce back, both in the institution and company(Ericsson AB), where the research work was conducted. No kind of any hazard was caused to participant during the course of the research, and likewise consent of the section manager was sought before the commencement of the research work. Also, privacy was not breached and no deception whatsoever was perpetuated throughout and after the conduction of the research work.
3 Literature Review
Since the aim and the scope of this research work is to explore how the BPM can be enhanced through the visualization and standardization of Business Processes in an organization, the literature review begins by providing a more detailed insight into some of the aforementioned concept— that is, Business Process, Business Performance Management; Business Performance Measurement, Business Process Standardization and Visualization.

Moreover, this part of the research work studies the existing literature and its views on the connection between Business Performance Management (BPM) and its enhancement through the Business Processes.

Furthermore, the research work explores the enhancement and the improvement of Business Performance Management through the Visualization and Standardization of the Business Process in an organization (Ericsson ICT Delivery Organization is chosen as a case study).

Finally, this research section describes the methods or framework to be used by organization with a goal, vision and aim of improving their Business Performance Management through the enhancement of their Business Process to create an alignment of the company Business Strategy and goals and objectives.

3.1 Business Process
Since today’s market and customer demand on requirement in service delivery is drastically increasing, many organizations are currently laying more emphasis on their business processes (BP) development to enhance their performance and meet up with the challenges of the competitive environment (Looy et al., 2011). BP also plays a lot of role in improvement of quality alongside with performance enhancement. Due to the above mentioned challenges, different authors have proposed detailed procedural road map with good practices towards the development of BP which give a lot of advantage and benefit to many organizations. The road maps are called business process maturity model and this is receiving a very great attention in the BP literature nowadays, for example; (Abdul Azim Abdul Ghani et al., 2012), (Van Looy et al., 2013), (Solemon et al., 2012), (Mohsen Moradi-Moghadam et al., 2013).

Also, different kind of definition of a BP have aroused since its awareness on its impact on enhancing the business performance management which includes: a set of largely definable and interconnected activities, predictability and definable inputs and outputs, performed by different kind of resources,
adding value for customers and stakeholders involved between the input and the output. BP is also traditionally known to have originated from manufactural industries and is less applicable to many service delivery organizations.

Therefore, to leverage the definition of a BP and make it relevant to all areas of organization business operation, BP has been defined comprehensively as a repeatable set of activities which has a triggering reference through required business even, and thereafter executed by human resources or machines, in any kind of goal driven and oriented high performing organization, which eventually leads to customer or end user satisfaction, and at the same time meeting up their predefined requirement and needs. The definition of BP can be summarized into two parts: namely;

1. **Modelling**: it means predefining the business process which can either be represented graphically or textually.

2. **Deployment**: This can be described as actually execution of the process accordingly.

This figure 4 below illustrates the BP definition.

![Business Process Definition Diagram](image)

Furthermore, organization business systems entail the inter-relationship between business processes and its corresponding organization structures (Anttila and Jussila, 2013b), (Anttila and Jussila 2013c), (Anttila and Jussila, 2013a). Also, the Business process performance has the highest and greatest strategic and operational positive effect on the overall business result of an organization, its competitiveness and success sustainability both for the present and future growth.

In addition, the professional business processes approach is a great avenue to improve the organizations’ business performance(Hung, 2006), (Rummler and Brache, 1995) and gaining quality management (QM) and organization quality assurance (QA). Products (that is, goods and services) are

Furthermore, many kinds of resources in an organization and profound knowledge when it comes to specialized discipline that are required for organizations’ management come into advantage through the creation of business processes in terms of visualization and standardization in the way activities are carried out in an organization.

It has also been noticed in several organization that the management of business processes has gone in a wrong direction due to the misconception of the concept of business process by focusing too much in one single way of handling information and documentation, and also creation of different management systems for many different disciplinary areas of organization development.

The adaption of any kind of productivity activities of human being or any living things which can vary in terms of been mechanically or automatically driven can also be related to business processes. Most of the basic kinds of these tasks are referred to as “elementary processes” which can be due to moving of people and equipment from one place to another through communication and information channels. And when the above mentioned kind of elementary task are linked together to achieve the effective business result of an organization, then we refer to this as business processes. The projects are also tagged as singular processes for unique kind of business task (ISO, 2008/2009). The figure 5 below shows an example of different task linked together to form a business process.

![Organization Business Processes Flow](image)

Figur 5 Example of an Inter linked different kinds of tasks forming the Organization Business Processes flow

Furthermore, there is no how we will be discussing business processes without highlighting its structure in parallel. Many researches show that business process and its structure construction is an important and hard topic in the management of business processes. Organizational operations are dynamic and dualistic compositions of process and structure (Anttila and Jussila, 2013b), (Anttila and Jussila, 2013c),
(Anttila and Jussila, 2013a). This is also related to the philosophical principles of mind and matter/body (Descartes), and emptiness and form (Buddhism). Process means acting and structure, being. This means they cannot be substituted for each other. In order to achieve an efficient and effective business operation, one need to put into consideration what kind structure is required to attain a considerable quality and efficiency of business processes.

People are also key element resources in all kind of business processes, but they have not be adequately put into consideration when many organization are making strategic planning on their Business Process Management. The activities carried out by people are very essential in all business processes. It is also stated by Nishibori, japan, and O’Toole, USA (Meekings et al., 1994), that the concept of activities carried out by people is based upon: creativity (thinking and pondering), physical activity (carrying out activities), and sociality (that is hardship time and good time with friends and colleagues). And Nishibori has identified the happy part as the most challenging part of these basic elements.

All the senses or organ such like hearing, thinking, creativity, innovation and feeling are elements that contribute to the structuring of business processes through its nature. There are also different kinds of structures outside the human areas which includes building of infrastructures, providing the physical devices and technological systems and so on. All these have standard ways of doing carrying them out to suite the business need and requirement. And likewise nowadays, a lot of structures are built to utilize the use of IT infrastructure such as software, database applications and Hardware’s (“Using Service-Oriented Architecture and Component-Based Design to Build Web Service Applications - 2169.pdf,” n.d.).

In many cases, the business processes and procedure (that is, way of carryout activities) are not understood clearly especially when making use of it in the management systems standards, e.g. ISO 9000 standards (ISO, 2008/2009). But, they are stated very clearly in the standard. The ISO standard described business processes as set of task connected together relatedly which is triggered by an input and expecting a desirable output. While on the other hand, procedure is defined as a specific way to execute a task or a process. Business process is just like carryout something to achieve an output result therefrom and procedure or way of working is like a set of guidance one needs to follow to execute a process for example, installation of window operating system on a pc requires a guidance set of steps to ensure it is done properly.
Organization can also be viewed widely in terms of its business processes it cut across. Taking for instance the comprehensive system of inter connected business processes cutting across a whole organization whereby all the business tasks and job are achieved through processes. All kinds of flows of activities between any organization and its stakeholders where value added items are carved out appropriately are achieved through the business processes being in place. The below shows an organizational infrastructure model that has highlighted the advantage of managing the business system of a processes (Anttila and Jussila, 2013a), (Anttila and Jussila, 2013b), (Anttila and Jussila, 2013c).

Figure 6 Corporate-wide business process framework and its links to functional resources within an organization and its partners, and to the market place. (Source: (Anttila and Jussila, 2013a), (Anttila and Jussila, 2013b), (Anttila and Jussila, 2013c))

The framework shown in figure 6 describes four activity/management different levels to effectively manage an organization extensively (Anttila and Jussila, 2013a), (Anttila and Jussila, 2013b), (Anttila and Jussila, 2013c), (Rummler and Brache, 1995), : corporate-level, strategic business level, operational process level, and individual personal and team level. The process level should be put into an important consideration at all level of management.

So, business processes plays a very important role in organization improvement performance in terms of business operation effectiveness and efficiency. Business Processes also represent Core of the functioning of an organization as shown in figure 7:
The next sections will explain and present the Business process Management (BPM) and Business process orientation (BPO) as their corresponding component are derived from BP.

3.1.1 Business Process Management and Business Process Orientation

Business process management addresses the business processes throughout the complete wide view of an organization which comprises of people, process and technology (described as nexus of an organization) (Wong, 2013a).

In the past many years, many organizations have intended to reach the highest level of optimum performance in satisfying customer needs and meeting up with the challenging competitive market to improve their entire organization business performance (Wong, 2013b). This kind of recent change in the business system has affected the organization in many other areas; they have to extent their initiative across boundaries in terms of both functional and organizational level involving all kinds of stakeholders, for example; customers and suppliers. And this has transformed many organizations from functional culture to process oriented culture. The result of the business system change in the trend of nowadays market for many organizations is referred to as Business Process Management (BPM).

The need and requirement set by the customer are not all the time met by the independent performance of the organization but whereas its business processes that spread across the entire organization. And this make the aggregation of business processes to make up an organization setup most especially when modelled, managed and improved (de Oliveira et al., 2001). Therefore, the BPM entails driving and managing business processes continuously by the process owner to ensure that all the human resources performs their predefined activities accordingly. The managing of the business processes by the process owner is encouraged through the use of IT technology which will bring about
automation and analysis (Roger T. Burlton, 2001).

Furthermore, BPM can also be used as a yard stick to plan and describe the strategic initiative of organization management to enhance business performance improvement. This is explained for example by (Jeston and Nelis, 2006).

Figure 8 below shows the inter relationship between the BPO, BPM and BP as the have impact in the improvement of organization overall excellence performance (Van Looy et al., 2011).

![Figure 8 Framework showing the linkage between BPO, BPM and BP (Source: Van Looy et al., 2011)](image)

The entire component in the figure 8 is defined in the scope of the business process maturity model which is the driver to attaining an effective and efficient organization performance.

In addition, Excellent business processes forms the main component of business process management (Barjis, 2010). Business processes management architecture grant the opportunity for a big ranging pillar for the management of business processes to assist many organization towards attaining optimal performance level. However, lesser focus are given to how the architecture or system could be designed, which gives room for the best way of managing business processes, which may occur in the course of process deployment. In reality, business process management is a very strong area of performance management when it comes to processes which are defined explicitly, known and execute as expected. Having a look at the business process management on other side of the coin explained the risk management which can impact each other in many ways of organization business performance. Figure 9 shows the business process management chasm. A tool which is widely used for implementing and designing this kind of business management system is called ARIS which usually take into consideration both best practices business process design and the undesirable ones. Figure 9 shows the business process management chasm.
Moreover, business process management has been visible as a best-practice management system principle which gives many companies the opportunity to be sustainable in a competitive environment (Luiz C. R. Carpinetti et al., 2003). Since there is a high pressure on the trend in which the business world is moving towards today in terms of decreasing product life cycles, a lot of companies require the need to improve on their business processes to maintain a sustainable position in the competitive market. Therefore the BPM provides this avenue for many companies to adapt to this kind of changes in requirement by the customer and market as a whole. The main focus from many organizations point of view is the value added part in the business processes which can be achieved through a continuous improvement measures.

As a result of the advantages the BPM give to many organizations, the research in this area have increased dramatically (Thomas Neubauer, 2009). Many researchers and consultant are constantly suggesting different methods and concepts that are based upon the BPM in other to provide future solution to the increasing demand for many organizations to be sustainable in terms of their status in the corporate process and operational efficiency.

The integration of management and IT together (that is, processes) is what brings about enhanced or improved performance that will cut across different organizations, and this can only be achieved through the means of BPM (Wong, 2013b). The BPM is further described as area of study that connect both business and Information Technology that comprises of many techniques, methods and tool, to analyze, improve, innovate and control business processes that will have a tremendous impact on customers, organization, humans, documents and other related sources of information and
3.1.1 Business Process Modelling and Reengineering

The business process modelling, PM is a way to visualize how organization conduct their business operations; through definition of business processes which includes entities, activities, enablers and their corresponding inter relationship (Tom R. Eikebrokk et al., 2011). More so, it is through the business process modelling, that, data and information are processed about business processes, which are described in process models. The PM gives the opportunity to represent organization’s current and future planned business processes that will give room for continuous improvement. BP also shows the diagrammatic representation of business processes to promote an effective communication platform and allow identifying areas of improvement within all activities carried out in the organization.

Nowadays, the BP needs to be modelled due to the fact that the changes in the current business and technological environment are affecting many organizations inevitably (Bider et al., 2014). These changes resulted from concurrent customer demand and need, political instability, competitive market
and so on. And in other to effectively and efficiently tackle this tough current market situation, the organizations needs to adapt to this changes as quick as possible and this can only be achieved through business processes continuity improvement of business process modelling. And this means that, in other to adapt to this changes faster, the business processes needs to be structurally modelled for capacity and capability enhancement.

All the areas that are noticed during modelling in terms of variation would be properly identified and systematically documented formally to facilitate the quality of improvement processes which is one of the key benefits of the business process modelling.

A multi-perspective for business processes modelling has been described (Bider et al., 2014) as well, to cater for the variation that could occur during its course for both the organization and functional perspective for quality performance attainment. The multi-perspective includes:

- The intentional perspective
- Organizational perspective
- The functional perspective
- Non-functional perspective and
- The resources perspective.

Furthermore, many different kinds of business modelling tool have been made with the requirement to process a lot of data and information. All this different kind of tool manages the volume of information required to define and build a model of business process, which at the same provide the means to analyze the behavioral patterns of those models under different of design and business operation conditions (Aguilar-Savén, 2004). However, based on all the benefit associated with the business processes development as it impact performance improvement to the organization, the business PM implementation has not been fully adapted in many companies’ operation areas and the cause affecting the lack of acceptance is still not clear. This means more awareness needs to be made towards many people involved in the activities that we take part in the process model implementation but with less forces and mandate as this could lead to job dissatisfaction and cause a decrease in employee productivity.

Therefore, to fully understand the acceptance and support for the implementation of business process modelling, there is a requirement from the organization perspective explaining how process model is
introduced and accepted at the level of different organization to enhance the performance improvement and meet customer demand and needs. The figure 11 shows the conceptual model researched on the process modelling behavioral benefit that cut across technology, individual, organization and socio political determinants (Tom R. Eikebrokk et al., 2011).

![Conceptual model explaining the behavioral pattern business process modelling.](image)

3.1.2 Business process approach on organization refinement

The implementation of business processes that is consistent in terms of its approach does not necessarily need to start from the scratch especially for an organization that is already in existence. The business processes approach is usually based on the organization which already has business processes and a concrete organization structure. The research and development together with learnings keys forms the basic elements of the strategic development in which the refined process approach is based upon.

One way to carefully approach the business processes development for an organization good performance could be through analysis and synthesis by using the heuristic Vee methodology which is described by (Wheeldon and Ahlberg, 2011) as shown in the figure 12 below:
Any kind of business processes to be used should be in alignment with the strategic and operational management of the organization. And the studies and practical experience has indicated that the good business approach account for the basis for the background thinking when it comes to the requirement for a persistence and efficient development and investment in improving the performance of an organization through the business processes approach. However, the kindly of techniques to be deployed in achieving this greatly depends on the organization’s business situation and future goals and objectives.

### 3.1.3 Business processes and people

A very great concern for improvement process performance and business process management is the attitude of each individual that are required to carry out their corresponding roles and responsibility. These individuals consist of employees, managers and other forms of stakeholders and how they are fully aware of the important of having cooperation in making the business processes work for organization excellence.

For the promotion of employee satisfaction and clarity in the roles and responsibility, any kinds of issues that could result from the conflict in the employee’s process activities should be carefully avoided. And most especially, in relationship with his default mind set process way of carryout his daily duties. (Dobrodolac et al., 2014). The managers often ignore this part as they pay more attention in ensuring that the actual job is done in an efficient manner. Ensuring that employee feel satisfied with the set business process for their activities is very important, just as the job is important to be done well. With both factors put into consideration, there will compromises and organization performance excellence will be reached.

Many of the problem areas that hinder the organization from reaching their full potential when it comes to performance is due to human factors in the activities performed by business leaders and employees. And this account for the major threat facing the performance of business process and organization as a whole. Some organizations have found out that this is the root cause analysis of the problem is related to the human factor in...
the way in which their daily work is carried out within the business process of the organization (Mike. Rother, 2010). Figure 13 shows how business process constitutes as part of the distribution of stressor to human personality in contributing their quota for organization improvement performance.

3.1.4 Business process and process owner

The process owners owns the entire flow of activities in the entire business process loop and he is fully accountable in ensuring that the business processes are adequately managed in alignment with the organization strategies in accordance to their goals and objectives.

It is also very essential that the process owner create awareness for the performer individual as this is a very tangible area that constitute to the practicality of business process management in reality (Juha Lindfors, Juha Röning, Jorma Kajava, Juhani Anttila, n.d.).

As human performer have a great impact in the business processes efficiency, it is even of concern nowadays that the globalization and outsourcing make different cultures collide during the deployment and execution of business processes.

So, it is also of utmost important for the process owner to participate in the actual implementation of business
process modelling and design for effective organization improvement. Process owner participation will create an avenue for different kinds of change that will allow the organization to utilize the competence and expertise of all the employees’ knowledge for achieving goals and objectives for company’s growth and development. And with this, continuous process improvement cycle can be adequately measured and communicated to the decision makers for strategic decision making.

### 3.1.5 Business Process Visualization

Any kind of organizations that are very keen in cost and order to cash reduction, there is a requirement to ensure a systematic approach to analyze business processes consistently. However, some other organization operates in a static mode and this will have a great impact on them when it comes to optimization in their employees potentials to carry out their daily activities and come up with improvement actions that will enhance organization performance. In this regards, thorough analysis of business processes in many aspect of the organization, for example, supply chain management, procurement and so on can only be effectively achieved by visualization of the business processes (Jan Stentoft Arlbjørn, 2011).

Furthermore, most of the organization that is keen in having an effective performance management and monitoring of their business processes, a proper visualization and monitoring of their daily operation is very essential (Rinderle et al., 2006). Visualization of the business processes in most cases gives users the possibility to quickly understand the process structure and also provide quick displays of roles and responsibility.

Moreover, visualization assists many business processes operation nowadays which are inter-related and are model in a complex business process daily flow of activities. And carrying out these business processes among different people can generate a lot of ambiguity which will have a great effect on the organization performance (Hao et al., 2006). Therefore, with visualization of business process in place, effective and efficient organization goal can be achieved, improved and optimized in such a way that daily process activities will be carry out smoothly without any kind of complexity.

### 3.1.6 Business Process Standardization

The business process standardization is the process of integrating and combining different aspect of a group of business processes with the aim of having a positive effect on overall organization performance. And with the certainty of a having an effective success performance business processes standardization, it is most of the time not possible to integrate different groups and variants of business processes, due to different cultural background among people, legal procedures and requirements in some cases, skill set of user involved and other operational factors (Romero et al., 2015).

Also, in today’s competitive market, standardization of business processes has a huge positive impact on business value especially in the enhancement of organization business performance management, reducing cost and improving business processes quality and time (Bjoern Muenstermann et al., 2010). And besides, also have an advantage in outsourcing project in many organizations.
Furthermore, another literature studies in the purchasing business processes signify that, standardizing the business processes has a very significant positive effect on the organization business performance as a whole (Cristóbal Sánchez-Rodríguez et al., 2006). And also, stressed the important of standardization as it helped many organizations material expenditure to be met, improve the quality of materials, fast delivery from suppliers and enhance their inventory performance as well. The figure 14 shows the relationship between contextual factor, process standardization and business performance.

![Figure 14 Relationship between Contextual factors, process standardization and business performance (Romero et al., 2015)](image)

### 3.2 Business Performance Management

Many organizations that are interested in striving for success in the today challenging and competitive environment need an effective and efficient management of its business performance. The business performance management ensures the direction of many entire organization toward achieving a common goals and objectives through the means of the combination of both technology structures and its business strategy (Ariyachandra and Frolick, 2008).

Therefore, the business performance management is an important topic in today’s business intelligent arena, since it maintains the methodology used for the strategic alignment of many different organizations. Even though, it is a very useful tool for strategic alignment, a lot of organization still faces difficulties in its design and implementation. With this said earlier, there are various reasons for the difficulties in successfully implementing the business performance management, which includes, inadequate or lack in the support from the management, resistance in management, objectives and goals not clearly defined, issues regarding the tools to be used and so on. For the success of the business performance management success, there are several critical success factors that could be put into consideration the solution to those difficulties highlighted above.

The business performance management has an advantage of facilitating the creation of strategic goals and at the same time providing the supporting actions needed for ensuring the set goals are aligned with the organization strategy. Most of this strategic goals are made by taking into consideration some key performance indicators and objective that have considerable positive effect to the organization. And these indicators will then be associated with the operational metrics and performance measurement can thereby be established for incentive and strategic decision making.

Although, there are some confusion regarding the business intelligence, BI and business performance
management as many research uses it in a similar way. But, in the real sense of it, the BI provides the organization an avenue to make use of the data and information technology in the improvement of the strategy decision making that will enhance the performance of an organization (Clayton, n.d.). In this regard, the BI has a very narrow scope compared to the business performance management that comprises of the entire enterprise of an organization.

3.3 Business Performance Management Framework

The business performance framework proposed by (Frolick and Ariyachandra, 2006) consist of four main processes. They consist of

3.3.1 Strategize

This is when the business strategy of an organization is identified to ensure that, the real driver is on ground to attain the strategy. It is also at this stage in the organization that the metrics are generated for the measurement of performance over a period of time. As it is very challenging for many organizations to realize the metric in alignment with the company’s strategic goals, this stage in the business performance framework still happens to be the most important part in achieving success throughout the entire flow in the framework.

3.3.2 Planning

This stage in the framework is solely the point in which the development of the activities that will meet up with the strategic goal is defined. They include setting up of program actions and time frame in which the strategy will be achieved accordingly. It is also at this stage that managers from the different part of the business unit set up goals and objectives, develop project design plans and budget in accordance to the cooperate strategic initiatives. The target plans made here will be based upon the based metrics in the first stage of the framework.

3.3.3 Monitoring and analyze

After strategizing and planning are carefully carried out accordingly, and the metrics baseline established, then the monitoring will be initiated to ensure that performance are measured compared with the benchmarked metrics define. This monitoring ensures that, there are no deviations with planned actions according to the strategy setup by the organizations. It also aids the identification of an improvement area to avoid and mitigate any kind of setback in the strategic initiative plan. It is at this stage that the BI technology of utmost important as it allows the analysis of data that will visualize which areas needs an improvement by the organization.

3.3.4 Carrying out corrective action

This is the stage in which corrective actions are taken based on the analysis from the monitoring phase of the strategic plans. It is at this point that all the stakeholders are alerted of the future problem areas which will allow revisit of critical thinking ensuring the business performance management framework in the right direction for the success of the organization. The actions and activities at this stage give the user an opportunity to have
guidelines and advice in dealing with the problematic situations identified.

The first two highlighted above in the business performance management framework indicate the creation and consolidation of the organization strategy while the last two of the process explains how the strategy will be modified and executed accordingly. Figure 14 shows the process loop of the business performance management framework to portray the business strategy of a high performing organization. The value of an organization can also be enhanced through this means of process loop approach framework.

![Business Performance Management Framework](image)

Figur 15 The business performance management framework: source: (Ariyachandra and Frolick, 2008)

### 3.4 Critical Success Factors for the Success of Business Performance Management

Since the business performance management is the most known way of realizing and achieving the alignment of strategy and effective approach for excellent strategic execution, its implementation becomes very challenging to many organizations. Research has also shown that many organization lay more emphasis on the financial aspect of business performance management while forgetting there are more areas to be touched in this areas to achieve a great view in the execution and deployment of strategic goals (Schiff, C., 2007).

Aside the opinions from the industry expert that explains the factors that are critical to the successful deployment of BPM, the academic literature from researchers also identified may also impact and influence the achievement of business performance management success. The main critical success factor for the success of the implementation of the business performance management as described by (Ariyachandra and Frolick, 2008) will be explained in the sub chapter below.
3.4.1  **Strong support by the management team**

A very strong support is required from the top management team in realizing a success in the business performance for many organizations and this is also supported by (Griffin, J., 2004). Early involvement of higher level of management will have great impact in enhancing organization performance through the deployment of the business performance management solution. The level of support and commitment they show in putting this solution in place will make the whole project life cycle of this kind worthwhile.

3.4.2  **Team capability and skills – Process and Technical skills**

In order to achieve high level standard of success in the deployment of enhanced business performance management, some set of skills are required if not mandatory as the case maybe. Those skills required consist of the process skills and technical skills. Any team with these two aforementioned skills will be highly engaged in the success of implementation of the business performance management in any organization. In most cases, organization does possess individuals with technical knowledge but with inadequate or even lack of business process and analytical skills which is the core driving force in enhancing business performance management in high performing organization.

The business performance management project team requires an individual with the skill set to design and analyze business processes in order for the organization to fully understand the key areas of business processes in an organization and for it to be translated into meaningful metrics to align with the company’s goals with their corresponding strategic initiatives. This individual in discussion must have the inter relationship skills and sound critical thinking ability to address and question different business operation areas and ensure those business processes activities are translated into understandable metrics that will be used to enhance the business performance management of an organization (Biehl, 2007). This kind of individual has skills in design of business process and strategy maps which will be used as a baseline for the performance measurement that will improve the success of business performance management.

In addition, some organization utilize a dedicated individuals or a set of KPI team to achieve the business process skills while other organization make use of a business analyst that already have sound and good understand of the company business processes (Wayne W. Eckerson, 2010).

Furthermore, the technical skill which is also a great requirement is also necessary as this will enhance the translation of the metrics retrieved from the analysis of the business process into a working application that will be used to promote the success of the business performance management. As described by (Gruman, 2004), the collaboration of these two teams will have a huge positive impact to successfully deploy the business performance management solution for the success of any organization. In addition, the collaboration will further yield a positive result in data discovery and analysis and if this is lacking, it can result in delay in the deployment of business performance management solution.
Moreover, both business process and technical skills enhance the communication channel of an organization through which is influenced by the combination of business and IT technology. And as described by (Ross, 2003), this business and IT are integrated together by the power of the effective communication that resulted in the combination of both the technical and the business process skills. This also results in the building of high performance in an organization and also will lead to an improved strategic alignment with set goals and objectives (Jerry N. Luftman, 2003).

3.4.3 User involvement and communication in the Business Performance Management Enhancement

The participation of the user is highly essential during the deployment of the business performance management as this is the key driver in using the design of the business processes to enhance the organization performance. The user being part of the deployment solution give them the opportunity to understand and be fully be part of the process design as their contribution will be useful both for the current and the future need if improvement action are required for better organization performance.

This knowledge understands will also create an effective communication within the organization which will also lead to better organization performance in facing the challenges of the nowadays competitive market. And as described by (Reich and Benbasat, 2000), this effective communication which resulted from the integration of the IT and business processes will eventually lead to a shared common understanding and a clear direction to alignment of organization business strategic initiative.

Making use of the above described critical success factor of business performance management, the organization performance will be improved in alignment with their strategic goals and objectives.
4 Case study description

This chapter of the thesis work describes how the project came to be researched upon from the company point of view on how it became a reality project. The description will be started by first describing the company background – the department specifically used as a case study in this project. And furthermore, highlight the current situation during the project kick off and also describe the Root-Cause Analysis based on the current situation. Afterwards, the chapter will further describe, how the business performance management framework is related to the current situation and the likewise, the critical success factor will also be evaluated based on the company current ways of carryout their daily activities.

4.1 Company Background

Ericsson AB is a leading service provider of Information and Communication Technology (ICT) facilities and operational services to different network operators around the globe. Ericsson is one of the few companies to provide end-to-end available solutions for all major standards in mobile communication industries. The company has more than 110,000 employees that provide services to different customers in more than 180 countries around the world. Creativity and Innovation are used to empower people, business and society as the company work towards the Network Society (Ericsson, 2015).

Since Ericsson AB is very huge company as described above, the case study is restricted on to the Group Function Business Excellence (GFBE) organization part of the company. The organization is a service delivery organization that renders ICT services globally for the research and development part of the company. The aim of the organization within the company is however, to create an environment of value, rust and collaboration where common functions work together will all stakeholders on establishing Ericsson as the Network Society leader around the world (Ericsson GFBE, 2015).

**Organization Strategy:** The organization strategy group initiatives are summarized into four areas which include: Growth plus, pricing transformation, Order-to-cash and profitability plus. These are the vehicles for successful execution of the company strategy. Figure 15 shows the organization strategy group initiative.
4.2 Analysis of the current situation for the organization’s business processes

To understand the business process management in Ericsson ICT Service delivery operation department as an input for the modelling the new standardized business processes, the conceptual models explaining the behavioral pattern of business process modelling (Tom R. Eikebrokk et al., 2011) method was used to evaluate how the business process within the organization can be standardized and visualized in a way that would be beneficial to the organization.

There is a Request Tracker Tool (RTT) used by the Ericsson ICT service delivery organization, to track the requirement from different customers request until services are fully delivered. This tool was used to capture all the data regarding the lead time for the procurement customer ticket. And based on the captured data from the RTT tool, current analysis based on the past, when there was no standardization and visualization of business processes was drawn out and deduction about the current state were made.

The figure 16 below shows a snapshot of the RT tool used for tracking the customer request until solution is provided. The same RT tool is visible to all the stakeholders involved in the end to end flow of the ICT service delivery render to the customers. All information about the status of the entire flow in the ticket customer request is visible in the RT tool. Different ICT delivery services rendered includes procurement of ICT product, ICT product configuration and installation, asset management, support of ICT services and so on.
Furthermore, there are two Key Performance Indicator (KPI) measurements regarding the lead time of services rendered to different customers by the organization and this KPI was one of the goals defined by the top management of the organization to execute the company’s strategic initiative. This is also reflected as already shown in the figure 15 where there is strategic initiative to reduce the order-to-cash, that is, shortening the lead time of service deliveries towards Ericsson customers, reducing working capital and improvement operational performance (Business performance management) which is the basis of this research work. Figure 17 also shows the KPI measurement skeleton indicating how the measurement is calculated in the RT tool. The parameters used to calculate the lost lead time and lead time reduction are Ticket create date, Agreed due date and Resolved date for the customer as shown in the figure 17.
The two different Ericsson service delivery organization KPI measurements regarding the lead time in rendering quality service to different customers are listed below:

Where:

LLT (Lost Lead Time) = Resolved Data – Agreed Due Date (Figure 17)

LTR (Lead Time Reduction) = Resolved Date – Ticket Create Date (Figure 17)

Based on the input from the LLT and LTR derived from the figure 17, the KPI LLT and LTR are calculated below:

› LLT KPI value = Σ LLT/ Σ (no. of SR) ; measured in days

› LTR KPI value = Σ LT/ Σ (no. of SR) ; measured in days

Where:

LLT = **Lost Lead Time**: The time lost after the agreed due date set by the customer based on their request.

LTR = **Lead Time Reduction**: This is the total lead time between customer request and when the service is finally rendered.

SR = **no. of Service Request ticket**

In this research work, only the **KPI LLT measurement** will be considered for analysis of result to highlight the impact of standardizing and visualizing business process modelling to enhance business performance management for a sustainable organization performance.

The figure 18 and figure 19 below shows a non-uniform distribution of data for the no. of customer service request ticket and KPI LLT respectively. Three departments within the Ericsson ICT Service delivery organization was taking into consideration in this research work. That is, ICT cloud, ICT Evolved infrastructure (EI) and ICT mobile core (MC) deliveries. The data were captured with the RT tool already mentioned above and analyzed with the Microsoft excel and business intelligent (BI) tool called Minitab 17 Statistical software.
From the figure 19 which shows the the KPI LLT for the three department used as case study for the analysis of the organization business performance, it can be seen that the lead time have a non-uniform distribution pattern and this is due to the fact that the measurement was not based on a concrete business process modelling that standardize and visualize the ways of working in this respective department in the organization. And since there is no model that visualizes the business processes in which activities are carried out, improving business performance management to help the organization sustain a competitive advantage is a stake (Hung, 2006).

Therefore, the above described current situation where the organization does not have a standadized and visualized business processes which is what brought about the problem statement for this research work and
also, couple with the literature review studied in chapter 3.

The causes of this lack of having visualized and standardized business process model in those department in the organization will be explained in the next sub chapter.

4.3 Root cause for lack of business process standardization and visualization

The root cause of the not having the standardized and visualized business processes to always improve the organization was due to some major reasons which include (1.) Team capability and skills – Process and Technical skills within the case study team, (2.) effective communication and awareness about business processes, and (3.) User involvement and communication in the Business Performance Management Enhancement which also described in the literature (Ariyachandra and Frolick, 2008) as to those facts that can hinder the success of improving organization or business performance management.

An example of the cause due to the reason of an effective communication on the way of working was the requested due date of need by customer was not properly communicated between the service delivery organization and the customer, and thereby affecting the meeting their needs within the specified time. In some case, procurement ticket request that should take lead time of 8 weeks was set by the customer to have within two weeks, which is absolutely unrealistic set date due to the processes involved to secure their need. Figure 20 shows a snapshot from the company RT tool (Ericsson tool for logging customer request and tracking), an unrealistic due date set by the customer for the request of a procurement service.

Figur 21 Snapshot of an unrealistic due date set by the customer due to lack of effective communication

In addition to the cause was the business process limitation as no concrete agreement on ways of working on
how the customer and the service delivery organization should resolve a problem. Thereby, causing a long time
delay in responding to problem in some case, which also has impact on having a lost lead time in the delivery
time in providing adequate service to the customers. Figure 21 also shows a snapshot from the RT tool, the long
delay response time example between the customer and the service delivery organization.

Figur 22 Snapshot of the long delay response from the customer due to process limitation

The problems highlighted above was due to the lack of visualizing and standardizing the business process in those
department of Ericsson ICT service delivery organization and this is affecting the meeting up the set strategy
target as to reduce the lost lead time in delivery services to market. And this have an overall effect on company
overall improvement performance.
5 Result and Discussion

Having analyzed the current situation of the Ericsson ICT service delivery organization, and likewise describing the root cause analysis for the lack of business processes model to improve their organization through the visualization and standardizing ways of carryout activities, a conceptual standardized organization business process model was implemented and communicated to all the involved stakeholders. The design and implementation of the business process model (process mapping) was carried out with the support from the management team, full support and involvement of the users both from the customers and service delivery organization and also, creating awareness about the important of having a visualized and standardized business process management (Hung, 2006), (Wong, 2013a) in place. This is in conjunction with the literature research (Ariyachandra and Frolick, 2008), as those are the critical success factor in improving and enhancing business performance management in the current competitive market challenging organization environment.

The sub chapter below will describe the conceptual business process model (process mapping) implemented and designed based on the above discussion.

5.1 Conceptual standardize organization business process model

After thorough discussion in terms of effective communication and awareness creation with all the stakeholders involved in end to end flow of the service delivery process in the Ericsson ICT delivery organization, a conceptual process mapping was developed and used to improve the organization performance. These are the major critical success factor to enhance and improve organization business performance management (Ariyachandra and Frolick, 2008).

Figure 22 shows the conceptual business process model overview delivery process (process mapping), to visualize the standard ways of carrying out daily activities from the need of the customer to the point when the services are fully rendered.
This process map visualized all activities within our deliveries from customer requirement through procurement until final delivery is achieved. Responsibility was also mapped with activities in the delivery flow to ensure organization effectiveness and efficiency.

An example of the conceptual business process model handling a customer request is written in steps below:

- A customer makes a request to have a procurement of a particular Hardware needed for their activity project. This is represented as PDU in the figure 23.
- The Service delivery organization (Ericsson ICT delivery). Represented as ITTE in figure 23.
- Quotation from the supplier and investment happens simultaneously. The Investment ID is the input to the procurement of any product.
- Procurement is triggered as indicated in figure 23.
- Delivery is made to data center and the installation and configuration commence.
- The month charging of the usage of the test equipment starts towards the customer based on the depreciation of the product. And this ends this standardized business process model.

As shown in the figure 23, all the responsible person to carryout each activity are rightly visible based on the
business process standard.

Some activities in the figure 22 are expanded in more detail below:

The **PDU** (Product Development Unit) indicate the customer who is triggering all services to be rendered by the service delivery organization.

**ITTE** is the Information and Technology test environment which is the Ericsson ICT service delivery organization to act on the customer request described above.

**TEF/IR ID** is the Test environment forecasting and investment request identification which is an input for the procurement activities.

**BAMS Charging** is the booking asset management system used by the service delivery organization to charge the customer based on the hourly usage of the ICT infrastructure for the operation expenditure part of the finance.

**HWC** is the ICT Hardware Coordinator responsible to connect all the stakeholders interfaces together to ensure effective and efficient end to end service delivery flow.

**PM** is the Project Manager responsible for the overall project in terms of planning, budgeting and also end to end flow of the delivery of services to the customer.

The model has enhanced the organization performance as it also follows the framework of enhancing the business performance management of the organization (Ariyachandra and Frolick, 2008) designed for.

It has also in addition help the organization to maintain its sustainable competitive advantage as it provide them with a smooth way of carrying out their daily activities and providing the clear responsibility as it was clearly effectively communicated to all the stakeholders. And besides, they were also fully involved and aware about the business process model design and how it can reduce their stress and enhance their performance which in turns promote the success of an organization (Mike. Rother, 2010).

### 5.2 Outcome result of the standardized business process model

Once the implementation of the business process model described in the chapter 5.1 was designed, control and monitor measures were put into practice and corrective action were taking into consideration in areas where changes and amendment were required (Ariyachandra and Frolick, 2008). It took a while before reaching the final standard visualized business process model in figure 22 which went through a lot of re-arrangement, elimination and addition in some cases until final model was designed. And the way this was achieved was really through the figure 14 which was literally described by (Ariyachandra and Frolick, 2008). This required a lot of stakeholders meeting and feedback from all customers and users. This is also supported by the business process management
practices (Wong, 2013b), (Wong, 2013a), (Hung, 2006).

After the business process design and sometimes of control and monitoring, another set of data were captured in the RT tool where the entire customer and all ICT service delivery logging request are tracked on daily basis. The data were analyzed fully with business intelligence tool call Minitab 17 Statistical software, to illustrate first on the reducing the order-to-cash(KPI lost lead time), by shortening the ICT service delivery lost lead time, which is one of the organization strategic initiative for her sustainable organization performance.

The analyzed data was comparing the lost lead time between 4th quarters of 2014 and 1st quarter of 2015 to actually simulate how the design model has improved the organization performance by the lost lead time been shortened and standardization of business process visualization. The focus ICT service delivery tickets analyzed are the customer procurement service request ticket as this have a huge impact on all other ICT services rendered to the customer. One the lost lead time of the procurement is reduced, this will eventually reduce the all other service request by customer, such like installation, configuration and ICT support cases.

Figure 23 shows the simulation from BI tool (Minitab 17 Statistical software) the lead time (in days) of procurement customer service request comparing 4th quarter 2014 and 1st Quarter 2015 after the business process mapping was modelled and put into practice.

![Graphical Summary of Q4 2014 Pr; Q1 2015 pr](image)

Figure 24 Simulation of lead time(in days) of procurement customer ticket between Q4 2014 and Q1 2015 when the business process model is active.
As it can be seen in the graph, it can be noticed that the distribution of data for the lead time (measured in days) of the procurement customer service request tickets in Q4 2014 is not uniformly distributed, and likewise the spread of the lead time data on the right hand side of the graph for the same Q4 2014 also show a pattern of lack of business process standardization and visualization. It indicates that there is no pattern in the way ICT delivery activities are carried out with this organization in 2014.

On the other hand, in Q1 2015 when the business process model is in place and been put into practice with full control of standardization and visualization of the business process, it can be seen from the graph that the lead time distribution of data are uniformly distributed. And this indicates standardized and visualized ways of carrying out ICT service delivery business processes are in place with full control. And this is even much clearer on the right hand side as the lead times are spread out uniformly with only one outliers lead time value of 200 days due to exceptional case of a prototype procurement of ICT hardware which usually took longer time.

This standardization and visualization of business process activities in the Ericsson ICT service delivery flows means we can have a trend in identifying problem areas that will require carrying out improvement measures which in turn have value in driving the organization with improve market sustainability and enhanced performance success (Wong, 2013b), (Ariyachandra and Frolick, 2008).

Moreover, further analysis of the result also show that the lost lead time of customer procurement service request was reduced drastically in Q1 2015 when the business process was put into practice and effectively communicated (Ariyachandra and Frolick, 2008) compared to Q4 2014 where there was no standardized and visualized business process management. Figure 24 shows the reduction of LLT of procurement customer service request in Q1 2015 compared with Q4 2014 as simulated through the use of BI tool (Minitab 17 Statistical software).

![Interval Plot of Q4 2014 LLT ; Q1 2015 proc](image)

Figur 25 Lost lead time (in days) of Q4 2014 simulated against Q1 2015 when the business process model is put in practice.
As it can be seen in figure 24, it can be noticed that the mean value (LLT) of the customer procurement service request are reduced from 96 days to 43 days which occurred as a result of the business processes visualized and standardized been put in practice in 2015. The reduction of the lost lead time has indicated that one of the strategic initiative set by the top management team have been met, that is order-to-cash described in figure 15.

And like the figure 25 2-Sample t Test for the mean of Q1 2015 and Q4 2014 LLT. It can be concluded from the result in the figure 25 that the LLT for customer procurement ticket in Q1 2015 is less than Q4 2014 with a confident level of 95 percent (that is, 0.05 level of significance).

Therefore, analysis of the result has indicated that business process management been standardized, effectively communicated to stakeholder and user been fully involved which is put into practice in 2015 has enhanced and improved the organization business overall performance (Ariyachandra and Frolick, 2008) in terms of cost reduction, user satisfaction and time savings which is the main focus area of this research work.

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6 Conclusion and Recommendation

The purpose of this research work was to enhance business performance management of an organization through the visualization and standardization of business process model. The business process model design in this research only focus on Ericsson ICT service delivery organization which was used as a case study for the research work, but the concept can be used in many other organization that are also interested in reaching a sustainable performance advantage in today’s competitive challenging market environment.

Ensuring the quality and practical realizable of the business process model designed in this research work, the literature theory research with many academic research described by (Ariyachandra and Frolick, 2008) and (Wong et al., 2013) was put into practice most especially the critical success factor of user involvement described to adhere by any organization aiming at reaching their strategic initiative goals and successful operational performance. The conclusion and recommendation from this research work are itemized further in the subsequent chapter.

6.1 Conclusions

The below following conclusion were drawn from the research project work:

- The literature reviewed papers described in this research work, revealed the important of having a business process management to secure a strategic alignment with company’s goals and objectives and in the end promoting and improving the organization business performance management.

- The design of the business process model for the Ericsson ICT service delivery organization ascertained that all processes in the entire service delivery flow needs to be standardized and visualized to promote smooth ways of working and avoid any kind of ambiguity in terms of roles and responsibility of employees.

- Carrying out practically the designed business process model (process mapping) proved that the organization performance management can be improved and other areas of their strategic initiative, for example reducing time to market and competing highly with other customers can be achieved through an effective use of the model. The business process model can also be used to identify underlying problems in the entire flow of delivery and also aggregating the value added part of the process for the organization best performance success.

In conclusion, the people involvement during and after the design of the business process model is a very important factor in achieving and improving the organization business performance management success and also give the possibility to utilize the business process management to its full capacity.
6.2 Recommendations

- BI tools (Minitab 17 Statistical software) used in the analysis of the process model in this research work is highly recommended as it can summarize the capability test of organization performance before and after the process model is designed. And besides, the distribution of data displayed with the use of the tool is highly fascinating and have fantastic graphical summary view.

- It is also highly recommended that knowledge and awareness of the combination of technical skills and business process skills should be provided to all the stakeholders involved in the ICT delivery industries as this will allow fast deployment of business process management which improve the organization performance faster.

- To be recommended also is the involvement of the users and effectively communicating to the entire stakeholder, the measurement of organization performance on a regular basis. It gives the full picture of where the organization is standing and areas that requires more attention and action for better success of the organization performance.

- Flexibility in the standardization of the business process model is also highly recommended as it gives room for innovation and creativity for the people involved in the end to end of the organization ICT service deliveries. But, a question can also arise, that could you have flexibility without destroying the standardized way of working, and to what extent is allowed. This on its own is an interesting topic that can research in any future research study.

- To secure a sustainable organization excellence performance, the business process model must be effectively and efficiently controlled, monitor and measured with less harshness on people as they are the key driver in maintaining the organization success performance stability.
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