SMART PRACTICES OF BUSINESS PROCESS RE-ENGINEERING IN THE PUBLIC AND PRIVATE SECTOR USING CLOUD COMPUTING TECHNOLOGIES

Darko SHULESKI[1]
Crina Veronica CRISTEA[2]

ABSTRACT

Under the current economic conditions, both in public and private fields it becomes very important to prioritize key indicators (profit, market share, cash) by redesigning organizational processes and their radical change in order to achieve major improvements such as: lower costs, increase quality and improve time. The partial redesign of these processes will help improve the performance of public and private organizations and will create a competitive advantage. In this way, process redesign is an important management tool which enables substantiation of the development strategy and use of material, human and financial resources, to increase the company's market value, profitability and competitiveness. Given the need to initiate, design and implement organizational change under the most diverse conditions and a high frequency we can say that one of the main competitive advantages of an organization providing services, ensured by its management, is the ability to partially redesign processes and groups of processes with acceptable efforts, especially costs and durations. Thus, we believe that this paper is an answer (of many possible) to the question on how to effectively increase performance and competitiveness in an increasingly crowded market.
KEYWORDS: *IT, Strategy planning, Innovation, BPR, Project Management,Improvement.*

JEL CLASSIFICATION: *O32*

1. INTRODUCTION

In the book „Reengineering the Corporation", Hammer and Champy state that an organization is wasting too much time passing duties and responsibilities from one department to another. One of the measures to increase performance would be to set up a single team holding the responsibility for all the tasks within the same process whether this is required for the partial or total reengineering of the organizational processes.According to Ross and Moore (2006), a Business Process (BP) is simply all about how work is done in an organization. "BP is a set of logically related tasks performed to achieve a defined business outcome", (Dhillon and Hackney, 2003, p. 163).

Business Process Reengineering (BPR) is a modern trend in smart management, heavily supported by the followers of major organizational changes. The key elements of this process are: concentrating on fundamental processes, redefining business and making a leap towards performance rather than achieving step-by-step results. Increasing companies' performance requires adapting to the market, both through the products and the services and the management methods used. Adaptability means the ability to partially or completely redesign the organization management and to adapt to market requirements. There are three kinds of companies interested in redesign: companies engaged in a fierce competition that need major improvement, companies which can anticipate problems to keep their current competitive advantages and companies interested to keep their market leadership position. Critics consider that BPR increased the role of managers and accounted for the cuts in costs and number of employees. Radical redesign means getting rid of existing processes and procedures and inventing new ways. Dramatic improvement means a quantum leap in performance (Hammer, 1993).

[1] Bucharest University of Economic Studies, Romania, darko_suleski@yahoo.com
[2] Bucharest University of Economic Studies, Romania, crina.cristea@gmail.com

Thus, BPR projects can fail to meet the inherently high expectations of reengineering, and many unsuccessful attempts have been registered. In this paper we will fill in a gap, by demonstrating that the reengineering project would be much easier to implement and more successful through business process management.

Organizational change by reeingineering in SMEs in terms of knowledge management

The organizational system is a set of interrelated elements that act to ensure the framework, combination, fragmentation and operation of work processes necessary to achieve the objectives set by the organization. "Those who want to cooperate will work together more effectively if they know the parts they are to lead inn any team operation, and the way their roles relate to one another "(H. Koontz, 1990). Organizational subsystem consists of procedural organization (functions, activities, tasks, roles) and structural organization (organizational structure – hierarchical organizational chart).Redesigning the organizational processes is a step in the organizational change, requiring completion of certain steps aiming also at other components. Therefore, this article aims to cover only a part of the organizational reengineering issues, detailing the appropriate area of organizational processes. The starting phase of this reengeering model is the SWOT analysis, which analyzes the strengths, weaknesses, opportunity and threats of the environment in which the company operates. According to (Ion Verboncu, 2011) the organization reengineering requires a multidimensional approach, as summarized in Figure 1.

In addition to redesigning processes, organizational change also requires, based on the model above, redesigning other components namely informational-decision making subsystem, the methodological subsystem and the human resource management in order to improve management and managers. According to the model, after operationalization of expected changes, an evaluation of the effectiveness of the whole approach/action shall follow naturally.
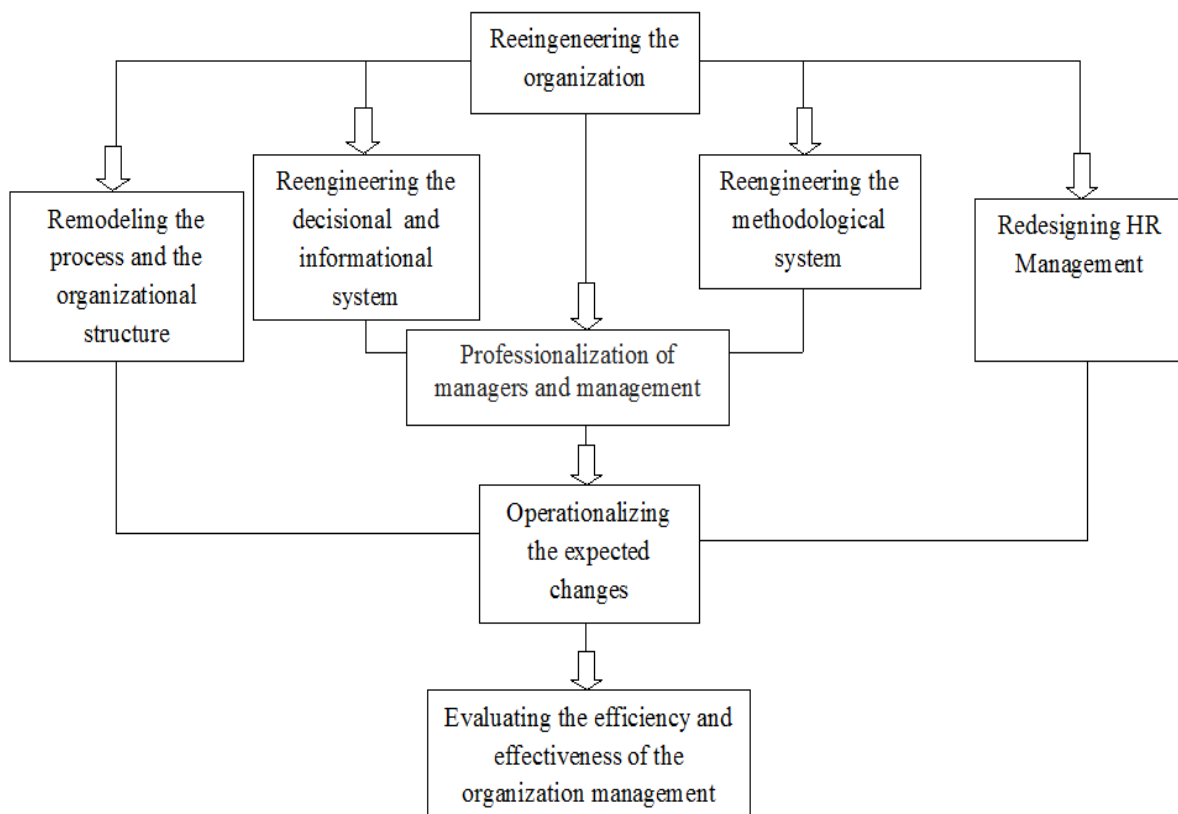

Fig. 1„The organizational change"
Source: adapted from(Verboncu, I, 2011)

Redesigning organizational management processes as a method to increase economic performance

The management process is a set of processes, phases and actions that determines the organization's objectives, processes and necessary resources, correlating staff performance by using complex methods and techniques in order to achieve the objectives established.Hammer and Champy (1990) defined reengineering as follows in their book *Introduction to Business Process Reengineering*, Business Process Reengineering (BPR) as analysis and redesign of workflow within and between enterprises.

The existing types of processes are as follows:

Main processes or core processes are those that contribute directly to the value of services and products (eg.: product development, purchasing, production, product care, logistics, sales, engineering, service, education, development of information system).

Management processes involve mainly the company's management, administration, maintenance of the quality management system and development strategy performed by the organizations' management (eg.: documents management, records management, internal audit, preventive and corrective actions, management review).

Support processes are administrative processes that contribute to the performance of key processes. Performance means uninterrupted production, qualified staff, quality products and services, safe environment for employees, information management. (eg.: purchasing, scheduling, accounting, finance, human resources and head-hunting).

Reengineering organizational processes represents the capacity of organizations to constantly upgrade and readjust to the requirments of environment and consumers. For the purpose of effectiveness and efficiency in various areas of the organization, we must have an optimal use of knowledge and information, development management, control process, design of structures and business processes.

Why do organizations and enterprises require reengineering?

The business world, created by the action of three forces - Customers, Competition, Change - clearly emphasize that the organizations, designed to perform in a work environment which is based on the division of labor, a characteristic of mass production, stability and growth, cannot be "adjusted" in order to succeed in a world where these forces require flexibility and quick response.

The only alternative that remains is redesigning businesses on new bases. In order to improve, enterprises facing problems must be redesigned for flexibility and fast response. Firm orientation is needed towards processes on the whole, aiming to improve time saving, reduce costs and increase flexibility, in order to meet the changing requirements of the market in a timely manner and ensure the progress of the company (Michael Hammer, 2003). People will go from simple operations to more complex works and will learn to use the power of decision-making, and process teams will take the place of departments.

Redesigning processes aims to achieve spectacular improvement of the indicators that are considered to be highly important in evaluating performances: reducing costs, increasing quality, improving time. (Michael Hammer, 2003). Processes are important because they represent a correlation of activities that use one or more types of inputs, creating an output value important to the client. Redesigning a process means to start from the beginning and to invent new approaches for the structure of processes such as: orientation towards process;

Redesigning an organization requires a simultaneous approach of all processes, by creating a completely new organization. If in the organization-enterprise there are some viable processes that can still yield a profit through improvement programs, then a strategy in stages may be applied in the medium and long term. In this situation, it is needed to create special teams to identify those processes which need redesigning. It is as if a new business would be created within the parent company. Redesigning which denies the old process and proposes to create a new one that generates, under the most convenient conditions, the service or product expected by the customer may not stand for an improvement. It is a total change or replacement of the process.

Approach to the process and its main advantages
Reengineering the organizational processes aims at improving continuously, as a part of the strategy of any company. We usually talk about: improving efficiency, the market share, the sales and customer satisfaction. Optimization refers to selecting the best options from a set of available alternatives. Automation will help any business process to select the best of several alternatives given, faster and easier, while reducing costs, duration and stress. Optimization and automation of any process require a project management approach. You must set the vision, structure and requirements and create the roadmap.
Process optimization and automation represent a complex project, because it addresses the way in which activities are carried out in detail and requires a detailed analysis of the company's activities. First we must analyze why redesigning is needed, how it helps, which would be its role, who influences the project, when it should be started and on what resources?
The modeling process takes account of the following elements: Scope of process; Start of process; Process activities and connections between them; Process Figures (measured values of activities).

Yahya (2002) put forward that most BPR endeavors fail because of a misunderstanding of BPR. Without appropriate awareness/information, the project will most likely fail. Employees may easily think that management is implementing a new type of surveillance systems. The employees should therefore be assisted in the transition period to the new working environment (Crowe et al. 2002; Liu and Seddon, 2009).

Choosing software for process redesign (IT Tools for process modeling)

IT Tool ARIS Express

ARIS is a well known methodology of process organizational modeling (Software AG-IDS Scheer). ARIS Platform has a great advantage, since it is supported by one of the largest software companies in Europe. Software AG is the largest German software company that bought IDS Scheer IDS Scheer in 2009. IDS Scheer is the inventor of Aris methodology. Aris supports SAP system which is the largest and best known ERP system (enterprise resource planning).

ARIS methodology (Architecture of Integrated Information Systems) is an approach to enterprise modeling. This methodology provides methods for analyzing processes and an overview of the process design, management, workflow and application processing. ARIS approach provides not only a well documented and generic methodological framework, but also a powerful tool for business process modeling.
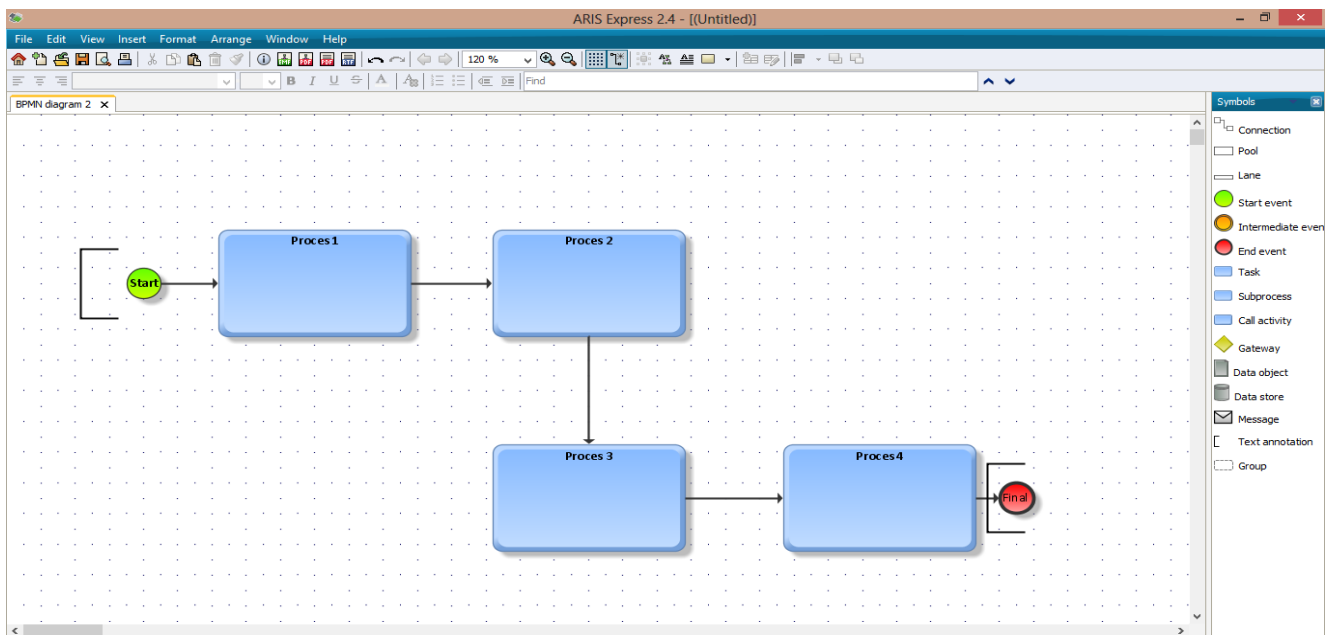ARIS multi-View approach(figure 2): organization view; function view; information view; control view.

Fig. 2 Process Map

Source: http://bit.ly/1nD9T3u

Simulation, analysis and optimization processes

Different situations may be simulated using software tools, based on a given process model. Changing the conditions of daily activities is a common activity, and making the right decisions is a difficult process. Simulation can help us identify the right decisions when an event occurs or an exception or when we are dealing with planned changes. Running different scenarios of simulations and analysis of results can help any process manager to understand the correlation between different factors and act accordingly.Some tools are used only for drawing diagrams while others are used for simulation, execution diagram model, diagrams exchange. The chart type model is used when the company needs software support to perform the designed processes. A tool can build a software solution that reflect the process design. Bonita Studio IT tool that we are going to use to simulate the processes in the company can build software solutions which execute processes designed in a web browser. In this way, a BPM designer can literally build software solutions to be used in production. We have chosen Bonita Studio software for simulating processes mainly because it is an open source (open source), we have access to the software on the website (www.bonitasoft.com), it supports the process lifecycle: modeling, simulation, process execution. It uses Business for process modeling and simulation. As it is easy to work with, it stands apart from the other tools and by comparison with other tools that have very expensive licenses and are complicated to work with, it is an open source.

Software tools to simulate process:

➢ **Bonita Studio (fig. 3);** Microsoft Visio 2010 premium (analisystView 360); Visual paradigm; Igrafix Floecharter; Signavio Oryx.
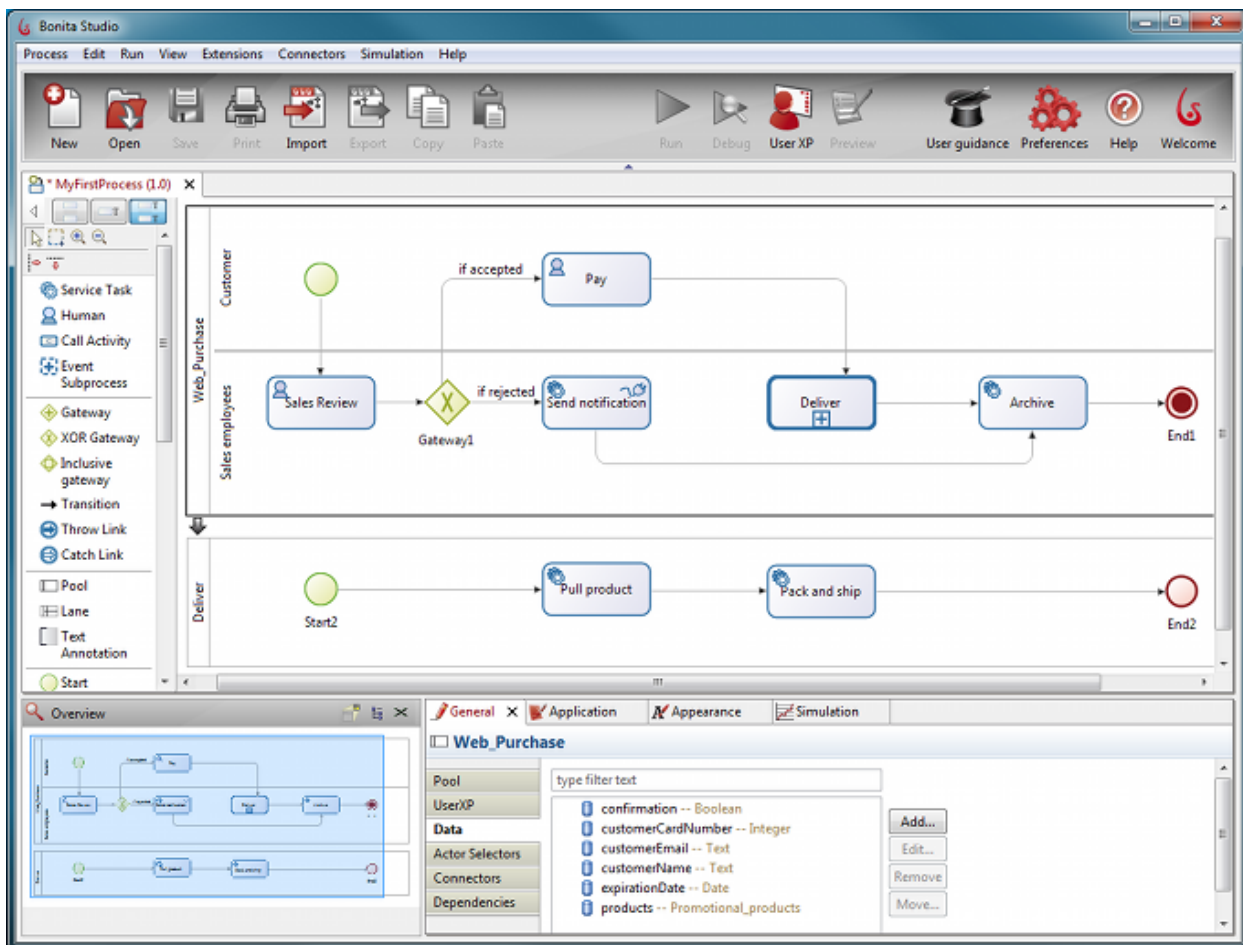
Fig.3 Process modeling and simulation
Source: http://bit.ly/1zFEJzT

The organization's entire system related documentation must be structured to facilitate understanding and management. ISO 9001 has greatly influenced the definition of the structure of documentation in organizations. Although the above standard regulates quality management in organizations, it states that the organization needs to understand all of its processes. The main document describes the organization and its processes and provides references to documents on lower levels. Records are documents that show proof of the work carried out (eg.: templates completed). The Management System Manual and other documents can be managed properly (maintaining drafts, access control, etc.). Relevant document management systems can be used. They can also be organized as an intranet site.

Processes are generally divided into processes related to:

- Products development and production (operational processes);

- Organization Management (such as document management, records management, audit, preventive & corrective actions, management reviews);

- Support processes (such as the purchase process);

- References to processes are provided in the Management System Manual (MSM), and detailed descriptions are provided in "Documents – Process Description".

The researchers have identified possible causes of BPR failures: technical incompetence of the implementers; failure to define organizational objectives; poor communication between the implementers and the management, thus inability to inform the management of arising challenges; project management failure to respond to delays adequately; organizational resistance to change; lack of organizational ownership of the project significant time schedule overruns; project management failure to create awareness of the project; poor users' requirements collection and analysis; failure to train the users, and project failure to meet organizational goals.

To manage to overcome this failures, we propose the implementation of management projects in the business process reeingineering.

Business Process Management project overview

BPM is a complex project because it is addressing the way how we operate, in details and requires a detailed analysis of the company's activities. Before starting a BPM project we need to find the answers to several questions:

1. Why should we implement BPM? Why do we need it?
2. What should be its role, its goal?
3. Who are the BPM stakeholders? Who will be influenced by the BPM project? Who will influence the BMP project?
4. When do we start? What are the resources? What are the constraints?

Process modeling considers the following elements: ● Process scope ● Process start ● Process activities and their interconnections ● Process numbers (measurable figures of its activities. E.g. duration, number of staff, maximum load, etc.) ● Process KPI (key performance indicators) ● Process end ● Process connections with other processes. All these elements need to be documented before starting implementation and automation.

How do we start a Business Process Management project?

First we need to define a rationale and a business goal (why and what do we want to achieve). Second we need to describe and analyze the existing processes. The BPM implementation is appropriate for all types of organizations which want to improve themselves, enterprises, public or private organizations, micro and SME-s companies.

A BPM project has as a starting point the need to improve or the need to solve a problem. A BPM will not improve the image of our products but can improve the time of delivery, the quality, the way they reach our clients. Before starting a BPM project, we need data and facts from our present situation. It is commonly known that big organizations implement and use a BPM approach. Their complex processes and their strict resource allocation can't be handled without a proper process management. In the context of global economy, SMEs need to be efficient in order to survive on the market. Their flexibility is not enough in some cases. For example, running an on-line store is commonly known but running it efficiently requires efficient supply and delivery processes, a fast feedback process, an easy to use payment process, etc.To be able to implement a BPM project, we need to be aware of what needs to be improved.

The best way to describe requirements for a new Information System is:

○ First step towards certification of Quality Management System (ISO 9001:2008);
○ First step towards automation;
○ Faster customer response times, lower resource costs, transparent processes.

To be able to start first you need to convince the management, or, if you are the management, convince the middle-management and employees. Without the proper awareness, the project will most likely fail. Employees can easily think the management is implementing a new type of 'big-brother' system. Convincing the management is usually tricky but the following aspects can help:

● Present a clear goal of the project, measurable if possible;
● Present the benefits in terms of cost reduction and outputs improvement;
● Present a plan of the project and its necessary resources;
● Present the alternative of doing nothing!

How do we manage complex projects such as Business Process Reengineering?

BPM projects should take into consideration all the steps of a project management approach.
1. A vision has to be created or considered;
2. Specific external and internal requirements have to be known;
3. Functions of different units / elements have to be defined;
4. We have to establish how all elements will work together.
Continuous improvement is part of any company's strategy. A strategy is an internally consistent configuration of activities that distinguishes a firm from its interval (Michael Porter 1998). Improvement of efficiency, market share, sales, and customer satisfaction would lead in an increase of the company's outputs. Optimization refers to the selection of the best option out of a set of available alternatives. Automation will help any business process choose the best element out of given alternatives, faster and easier, while reducing costs, time and stress. Optimization and automation of any process requires a project management approach. Vision, structure and requirements have to be established. The road map needs to be created.

CASE STUDY: An example of successful implementation of a BPM project

We have decided to conduct a process modeling simulation on the database of companyMiniPRIXSC m-fahsion srl, which is a leading business to consumer, e-commerce company from Romania.With a large, loyal and rapidly growing customer base established, the company expanded into select general merchandise products. On their website miniPRIX.ro and through mobile application miniPRIX, they offer fashion and apparel, for baby, children and adults, accessories and home and lifestyle products, among others. miniPRIX has transformed itself into an integrated online shopping mall with prominent destination categories.

Customer Service School is the consulting company which takes care of the modeling, optimization and reengineeringthe processes in the call center department with collaboration of Shuleski Darko – Business Process Manager at company miniPRIX.
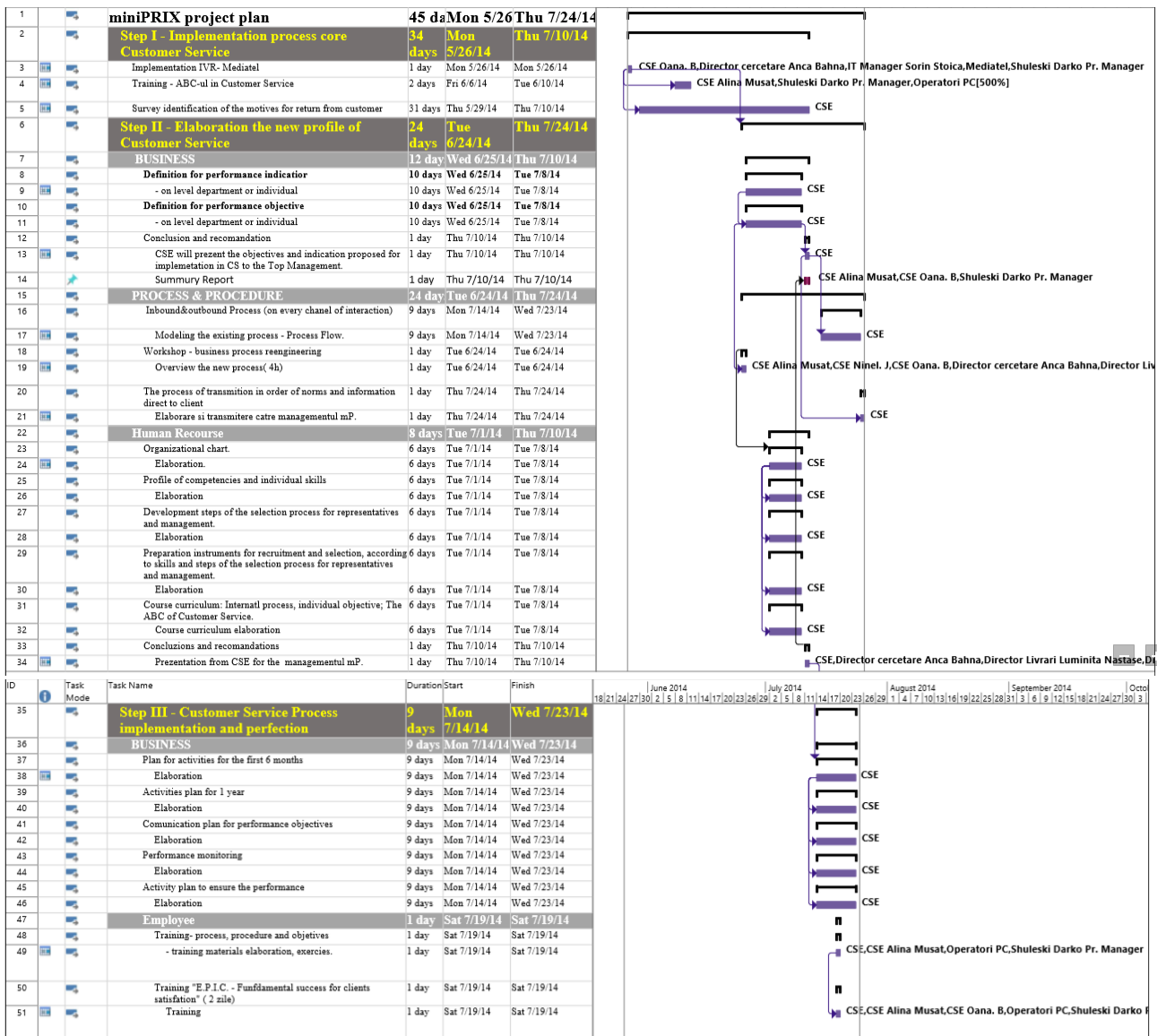
Fig.4 Projet Plan (Customer Service process reengineering at company m-fashion)
Source: Shuleski Darko (author) PM- miniPRIX & CSE (consulting company)

Because customer satisfaction is very important for miniPRIX , we decided to start withredesign the call center process in order to improve services and support for clients, by implementing Interactive Voice Response (IVR) figure 4. IVR isa technology that allows a computer to interact with humans through the use of voice and DTMF tones input via keypad. In our case, IVR helped the company to better monitor the activities of the call center agents and to measure the performance indicators of the agents, which lead to an increase in productivity as shown in the analysis below.

	Average time of response/ activity	Average time of response/ activity	Average time of response/ activity
	May	June	July
e-mail	5	5	5
Facebook activity	2	2	2
Thread	4	4	4
Calls	2.3	2.4	2.4
Blog/messages	10	10	3
Average activities/day/Agent	69	86	106
Total/min/agent	273.81	332.37	385.94
Agents Productivity/hour/day/Agent	4.56	5.54	6.43

Fig. 4 Customer care agents productivity
Source: Shuleski Darko (author) PM- miniPRIX & CSE (consulting company)
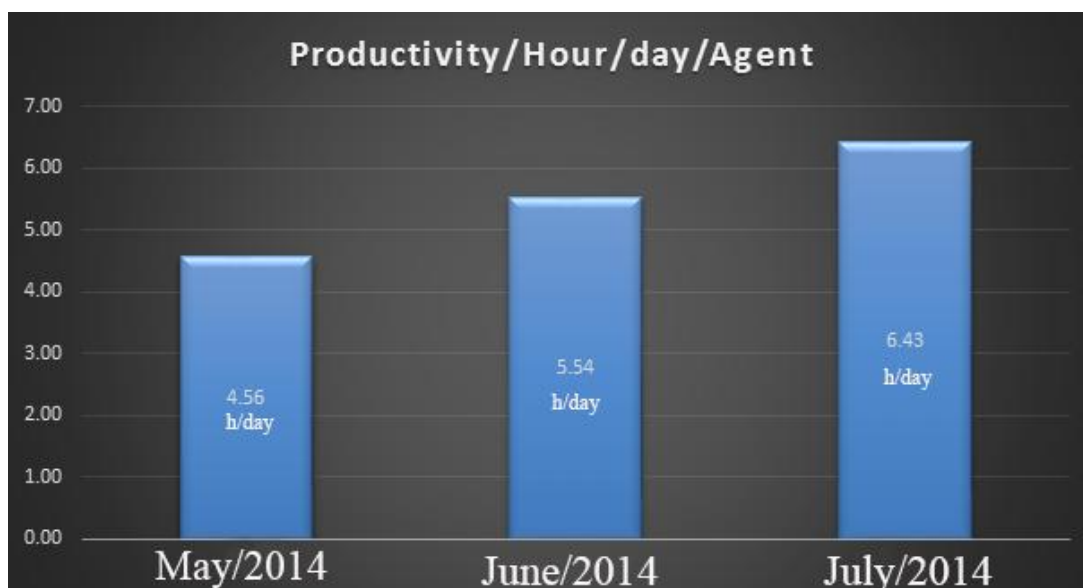

Fig.5 Customer care agents productivity
Source: Shuleski Darko (author) PM- miniPRIX & CSE (consulting company)

After the Call Center process reengineering, as shown in Fig.4 and Fig.5,by taking into account the average activities and the time of response per activity of the call center agents, we can observe an increase in the productivity from May to July with 29%.We can observe that using the process reengineering project could be the solution to many of the performance issues facing businesses today.

RESULT (BPM project, kick-off)
Prepare the BPM project Kick-off document specifying:
   a) Rationale description, aims and goals (measurable);
   b) Project team description (management, supervisors, analysts, technical team, information providers and external mediators and experts);
   c) Project plan (milestones, events, tasks), tracking plan;

d) Project cost calculation (incl. ROI);
e) List of processes or key-process areas which will be;
f) Risk plan (preventive actions, "emergency" plans);
g) Communication plan;
h) Configuration management plan;
i) Quality plan.

Distribute it to all project stakeholders, acquire signatures of confirmation covered Kick-off document is presented as an example.After the kick-off , BPM trainings should be organized and should consider the following aspects:

a) Process Management – basic principles;
b) What are the key elements of any process;
c) Process starting and process ending;
d) Process planning and process monitoring (KPI);
e) Process modeling (representation, drawing);
f) BPM rules and tools.

The training should have two objectives:

➢ To introduce the methodology and train the PM team in using it (case studies and practical exercises are recommended);
➢ To present the project to all project stakeholders, facilitating the understanding and getting their support (demonstrations and practical examples are recommended).

How to identify the process list (Examples of priorities)**:**

- The key processes have to be described;
- Process owners have to be appointed;
- All the processes in the company are described and modeled (good to have sometime in
- the future);
- External processes are modeled and integrated with our suppliers and partners (wild idea, but we will store it for the future)

Process list has to be created taking into consideration the existing documents and structure but also processes which have not been documented.
The difference between activities and processes has to be clearly defined:
PROCESS = interconnected activities which are using resources to transform inputs into outputs.

Conclusion

Many organizations need to reengineer their processes to improve on efficiency but, due to many innate and extraneous factors, the employees and other stakeholderstend to resist change. To increase on the possibility of BPR success and benefit in system use, user involvement should be paramount during the inception, design, development, implementation, and ultimately use of the system. However, this is without neglecting other factors that have contributed overtime to BPR failure. Therefore we designed a new framework of Business Process Reengineering and organizational resistance through Business Process Management Project to enable organizations roll out BPR with minimal failure possibility.

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