

BUSINESS PROCESSES AS BUSINESS SYSTEMS

Ivica KANIŠKI, Ivan VINCEK

Abstract: Business process is the foundation of the work organization of every business. It is a set of different activities or tasks that are carried out in a certain order and use certain resources of an organization with the aim of fulfilling the mission or the purpose of its existence. As each business process is defined by parameters such as output quality, speed, cost, added value and the like, it is logical that they are the cornerstone of achieving competitive advantage. It is therefore important to monitor and analyze them in order to remove any drawbacks in their performance before endangering the survival of a company. Business process is a structured, analytical, inter-functional set of activities that require continuous improvement. It represents a repetitive flow of activities with a clearly defined beginning and end, and in more or less constant intervals, creates value for the buyers.

Keywords: business process, process orientation, company as a system, knowledge management

1 INTRODUCTION

Business process is a set of business activities put together with a goal of creating added value for a specific customer or market. It can be also defined as:

- a closed set of activities taken as a response to a certain event, with the purpose of generating an output;
- everything that is required to ensure that the person interested in a business process gets an expected outcome;
- interaction between people, equipment, methods and regulation with the goal of achieving a certain business objective.

Basic elements of a business process are the following: the goal, available resources, activities, indicators, focus on the buyer, and the process holders.

Managing business processes is carried out by means of the following activities: formation of business processes, their execution, and measuring their success.

The goal of managing business processes is the continuous improvement of business processes based on measuring the results of performance of the existing business processes.

Well-defined business processes accelerate work, increase inner order, decrease expenditures, support the increase of the products/services quality as well as the general organizational activities and skills.

2 HISTORICAL DEVELOPMENT AND THE ORIGINATORS OF BUSINESS PROCESS INITIATIVE

Business processes have not only existed since the times when work started being performed in an organized manner; their existence and importance were recognized at the transition of the 19th and the 20th century, if not earlier.

The concept of business processes appeared for the first time and was studied into more detail at the beginning of the 1920s, related to the methods and analysis of the procedures.

At the end of the 18th century, with the rise of the industrial revolution, a more significant emphasis was given to the organization of business processes.

Through history, entrepreneurs continually changed their production processes and in that way contributed to, first of all, progress of their manufacture or craft workshops, industry itself, and in the end, the civilization at large. [1]

As far as production is concerned, it can be said that with the appearance of scientific management, production processes came to be investigated and improved.

At that time, processes were implicit and they were not automated.

Quality control approach, which started with W.A. Shewart and W. E. Deming who conducted strict analysis and control of production processes, is what significantly contributed to development of the process initiative.

Although they, just like their predecessors, place emphasis only on production processes but not the cross-functional processes, it was possible to observe production activities from the very beginning to the completion.

In the course of the 1960ies and the 1970ies, through the quality movement, Japanese companies gave a significant contribution. They developed quick and efficient processes in numerous industries: new product development, logistics, production and marketing. [1]

Value chain model was developed by M. E. Porter who looked at a business company as a comprehensive set of all activities carried out to design, produce, promote, deliver and support the production line.

Value chain model represents the highest level of observation of a business activity within a certain organization, i.e. among organizations.

As opposed to this model, the process model was, above all, directed at the optimization of activities within an organization.

Besides the value chain model, significant contribution was also made by the Total Quality Management (TQM) concept.

This concept was a product of Japanese companies that wished to improve the quality of their products so they could be competitive to American producers. It represents further development and continuation of the quality control concept.

Total Quality Management concept can be defined as an approach to improvement of efficacy and flexibility of a company as a whole.

It entails numerous methodologies like quality function development, reduction of variability, self-evaluation and application of ISO standards, lean manufacturing, statistic processes control etc.

The key feature and value of the total quality management approach is focus on customers and business processes. Besides, its important characteristics are the practice of benchmarking, i.e. the employees' involvement. [1]

Paying attention to business processes reached its peak at the beginning of the 1990s with the appearance of business processes reengineering. This refers to a managerial philosophy which is based on thorough consideration and radical redesigning of business processes to achieve dramatic improvements in critical contemporary measurements of success, such as expenditure, quality, service and speed.

Reengineering of business processes can be defined as the formation of brand new and efficient business processes, independent of former practice. Philosophy of reengineering of business processes is characterized by four fundamental words: thorough, radical, dramatic and processes. Their goal was radical improvement of productivity between 70% and even up to 95%. Additionally, this philosophy implied questioning of the logic of existing business processes and often demanded start with a clean slate and in many ways also an empty and clear mind, capable of thinking outside the restrictions of the existing systems and assumptions as well as questioning them. Reengineering was most often conducted top-down and was focused on the cross-function processes. It was based on the application of information technology, which significantly differentiated it from the former development approaches. Due to its particularity and potentially big benefits, it attracted a lot of attention in the business world, so in 1993 up to 66% of American companies applied one of the forms of business processes reengineering, while in 1995 its application reached peak and was implemented in even 78% of the researched companies.

Although reengineering became extremely popular in a very short time span, it soon became clear it was just another managerial delusion. Namely, more than 50% of business process reengineering projects in the USA and approximately 70% of the same projects in Europe ended in failure. [1]

2.1 Process Orientation Concept

Each organization consists of business processes. These processes are of implicit nature or are simply

inherent to the organization from its very start. Each business activity can be considered a part of a certain process which determines sequencing of its performance, i.e. positioning within a wider organizational system. While within an organization numerous activities are held in different areas and on various hierarchical levels, it is possible to identify the existence of several business processes which, in a certain way, determine the very organization itself.

The business process orientation represents a new business philosophy which facilitates not only the vertical but also the horizontal flow of information and resources needed for the accomplishment of organizational objectives. It observes organization from the customer's point of view. It is focused on the activities within or among organizations that create added value, i.e. it is focused on the activities contained within business processes. Process orientation is characterized by the greater connection and coordination of different departments within an organization into an interrelated unit. By doing that, roles of each individual activity and its impact on the organization as a whole are taken into account.

Process orientation offers a horizontal perspective of business activities and facilitates coordination of organizational systems with business processes. It tends to make the processes themselves transparent and in that way advance the organization. One can say this is not only about the new approach to business, but an entirely new way of thinking about organizations and how business is performed within them. [1]

3 PRINCIPLES OF BUSINESS PROCESSES CONSTRUCTION

A process can be defined as "a course, a route and a way in which something becomes or is, a development, an approach". The latest ISO 9001:2008 standard came into power at the end of 2008, more precisely on November 15 2008. It is a more refined version of ISO 9001:2000, which in addition to the supplemental interpretations of already existing requirements does not offer any major alterations. To be more precise, the process approach and basic requirements stay unaltered, but there is an array of improvements.

Some improvements refer to defining 'outsourcing', taking measurements wherever applicable, the greater role of the environmental impact, taking bigger responsibility of a product up to the point of its recycling, giving more significance to the member of the board in charge of monitoring the quality management system, enhancing the compatibility with the existing ISO 14001:2004 standard and the facilitation of its conduct.

In addition to the requirements stated in standard ISO 9001, standard ISO 9004:2009 gives instructions on considering the effectiveness and performance of the quality management systems and consequently the potential of efficiency improvement.

In comparison to ISO 9001, the goals of the customers' satisfaction and quality of a product are extended to satisfaction of the interested parties and the ability of organization.

It can be applied to all the processes in an organization. The goal of this international standard is achieving a lasting improvement, measured in terms of satisfaction of customers and other interested parties. [4]

3.1 The Competency Model

In the course of business process building within an organization, a number of problems will arise. They can be divided into a few groups regarding their causes: 1. Lack of the critical mass of know-how; 2. Opportunism; 3. Insufficient willingness to change; 4. Deficient motivation. To overcome these problems up to an adequate extent, and remove their causes, it is necessary to adhere to the competency model which is obvious in at least two cases: 1) in case of finding and choosing methodology for building business processes, and 2) in case of team-work at building business processes.

The choice between the already existing or the construction of one's own methodology for building business processes is not an easy task at all – the authors are not willing to present or publish their solutions so in the course of building one's own methodology, the problem of verification of one's own solutions' validity will arise.

Considering the effectiveness, we distinguish at least three groups of teams:

- 1) **Unsuccessful teams** are those whose work achievements are worse than the sum of the proficiency, abilities and competences of each individual member. Associates within such a team give inferior results when working as a group than individually.
- 2) **Average teams** are those whose results correspond to the exact sum of the proficiency, abilities and competences of each individual member. Such teams are not profitable, they are too expensive and of no value to an organization.
- 3) **Successful teams** are those whose results surpass the sum of the proficiency, abilities and competences of each individual member.

When choosing a team leader, it is important to take into account their leadership competence. On the other hand, when choosing team members, the most important thing is detailed knowledge of the technology of the course of the process or the part of the process, as well as having the ability of comparative analysis and resolving the conflict between what is important and what is not. [2]

3.2 Principle of Consistency

Regardless of whether we have accepted an already existing one or built our own methodology of business processes building, we need to master the methodology entirely.

The methodology of our choice needs to be applied to all

the processes the building of which we have opted for in compliance with the chosen methodology. The processes differ, above all, in their nature and the level of complexity. They have a certain structure. Their simpler elements or components, on the lower level, are sub-processes, i.e. process steps.

Besides having to build the processes by implementing the methodology we have opted for, it is equally necessary to consistently apply them in processing all the elements of a certain process. That is because it often happens that the exit from one of the processes simultaneously represents the entry into another process. It regularly happens that the exit from one process step simultaneously makes the entrance into the next process step of the same process. Thereby we assure recognizability, simple perception of correlations between many business processes of a single business system.

It is exactly those reciprocal correlations among various business processes, that synergy that we recognize as a process approach.

3.3 Principle of Originality

The international standard ISO 9001:2000 does not suggest any methodology for building business processes. Related literature mainly does not offer a comprehensive methodology for the following reason: the authors who have built their own methodology are not keen on publishing the solutions they came to through research. Thus, quality managers and teams that have the role to build the business processes often resort to the partial or complete implementation of the other people's readily available solutions when building business processes. However, readily available, universal solutions do not exist.

Copying other people's solutions or making smaller adjustments and their adoption as one's own optimal solutions are a deceit and in practice they will cause the entropy of the process structure and consequently the business system itself. [2]

3.4 The Principle of Systematization

The process in itself is a system, a specific logical structure. It is composed of its elements, sub-processes, process steps, and activities arranged in the logical sequence of progression.

The building of the business processes indirectly represents the building of entire business systems that consist of the sequences of subsystems such as:

- subsystem of organizational structure,
- documentation subsystem,
- information subsystem,
- communication subsystem,
- administration subsystem,
- process substructure and alike.

It is necessary to build and arrange all the above mentioned subsystems of a business system. To administer the processes, it is needed to:

- implement them into a functional organizational scheme,
- have a clearly defined system of informing within the process structure frame,
- document all the processes by the principle of sequence,
- have an efficient communication system. [2]

3.5 Principle of Rationality

One of the most important features of every process is its reliability. Reliability is defined as a probability of a process functioning correctly at a certain time. To ensure the conditions for reliable functioning of a built business process in time dynamics is a complex task because processes are subject to the influences of various variables. The workforce (i.e. staff conducting the process) want an efficient way of uninterrupted process regulation so as to reduce deviations from a goal. To ensure the efficient mechanisms of regulation, the following will help:

- each result of a product's characteristic needs to be associated to one or a few process variables,
- the means of adequate adjustment of the process variables need to be provided, and
- there needs to be a predictable, clear relation between the extent of the modification in setting the process variable and the resulting extent of the outcome on the product's characteristic [2].

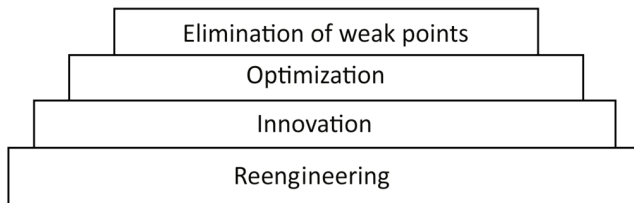


Figure 1 Mechanisms of achieving the rationality process considering the extent of intervention, duration and the risk [7]

4 MANAGING THE BUSINESS PROCESSES

Business process is a sequence of logically connected activities that utilize the company's resources. Its ultimate goal is to satisfy the customers' need for products and services of an adequate quality and price, in an adequate time frame, while simultaneously achieving a certain value.

The international organization for standardization (ISO), by the principles of quality control that the ISO 9001 standard is based on, also encourages the acceptance of the process approach for the management of an organization. Moreover, it makes a regulation which states that the company wanting to operate efficiently has to identify all its activities and resources that participate in them, link them, and manage them accordingly.

The major features of business processes are the following:

- each process has an end goal,
- each process has its owner,
- each process has a beginning and an end,

- inputs go into the process and outputs come out of it,
- it is composed of the activities that can be performed sequentially,
- success of the process can be easily determined based on the input and output,
- for the process to survive it needs to have known inner and outer suppliers and consumers, and
- process improvement is inevitable. [5]

4.1 Components of a Business Process

We can differentiate three logical components of a business process:

- managerial informational process,
- operational process,
- managerial process.

The managerial informational process refers to the component of the entire managerial system which relates to a specific business process.

The operational system is created by humans and it consists of people, equipment, organization, politics and procedures, everything that is aimed at ensuring efficient work of an organization.

The managerial process is also created by humans, and it consists of staff, authorities, an organization, politics and procedures with a goal of planning and controlling activities taking places within an organization. [5]

5 BUSINESS PROCESSES MANAGEMENT CONCEPT

Conducting business brings a lot of pressure all over the world due to big competition, business environment changing fast and ever more demanding customers. There are three trends that contribute to this pressure and they are as follows:

- 1) Globalization
- 2) Technological, legislative and regulatory modifications
- 3) Organizations getting more agile and flexible.

Management of business processes combines the managerial approach with adequate technology with the goal of improving the company's performance. Business Process Management (BPM) is a methodical approach to business improvement based on modeling, metrics, analysis, improvement and process management.

Managing business processes relies on the business approach of managing modifications for improving business processes with the ultimate goal of achieving business objectives in the course of which the modifications entail the entire life cycle of a process: from designing and modeling to execution, analysis and optimization of the process.

By managing business processes one accomplishes:

- improved quality,
- shorter time span,
- lower costs,
- improvement,
- lower risk of conducting business. [6]

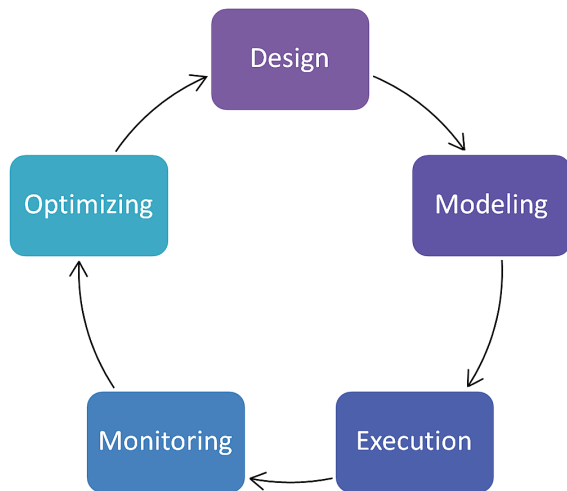


Figure 2 Life cycle of business process management [7]

6 MODELING AND MONITORING BUSINESS PROCESSES

Modeling and monitoring business processes is of vital importance for the success of the initiatives related to managing business processes. Activities within the phases of a business process management life-cycle develop a clear definition and understanding of business processes that lead to their improvement and optimization. [3]

6.1 Business Processes Modeling

There are two approaches to business processes modeling:

- 1) Graphic methods (static modeling)
- 2) Simulation modeling (dynamic modeling).

Graphic modeling of business processes implies formation of diagrams that show the activities of a business conduct and the sequence in which they take place. When creating a business process model, standardized graphic elements are used. This facilitates the communication between the participants at the monitoring phase.

Business process modeling also enables the following:

- defining key business processes,
- modeling all the processes or specific ones into detail,
- identification of the processes that need some improvement, and
- modeling new processes before they are implemented.

Simulation modeling of business processes: simulation is a useful tool for modeling and altering business processes. Simulation enables the inclusion of accidental variables into the model of a process, experimenting with the model, and the anticipation of the impact of modifications on the model's performances that are characteristic of simulation modeling.

Besides the obvious advantages that could arise from the implementation of a discrete simulation in making the proposal for the improvement of the existing processes, it also has certain disadvantages:

- long and expensive development of a model,

- complex evaluation of the model and its testing,
- necessary knowledge of a big number of methods and tools,
- the result of simulation experiment is not the optimal solution, and the choice of the best solution depends on the evaluation and decision of the members of a project team. [3]

6.2 Business Processes Analysis

Analysis of business processes enables their better understanding and its logical consequence is more efficient setting, connecting and execution of the activities that make that specific business process.

By analyzing business processes one finds activities that do not add value, redundant activities, inadequate use of technology, inappropriate rules and procedures, ways of giving feedback, and connections between the missing processes.

Steps necessary during the process analysis are as follows:

- defining the goal of activities and analyzing the steps that constitute the activities,
- detecting whether the activity adds value or not,
- defining measurement criteria for the results of the activities,
- determining the knowledge needed to perform the activity,
- defining who the activity is performed by,
- defining the costs, resources, time span of the activity, and
- process simulation. [3]

7 MANAGING KNOWLEDGE

The key to the successful accomplishment of any activity lies in the human factor quality. It comes out of the quality of the staff's education and the foundation of their education manifests in people's readiness to put their knowledge into the function of a change.

That is the reason why knowledge and science are not only the main developmental resources of the 21st century but also why the 21st century has been declared the century of knowledge.

Knowledge represents a complex concept that has been discussed by academics, managers, analysts and philosophers for many decades now.

Explicit knowledge represents everything that is coded and documented and can be relatively easily transferred to others. It is processes, procedures, drawings, graphs or all that has been written in a comprehensible way and is easy to transfer. People continually externalize such knowledge and make it accessible to other people. It is also called formalized knowledge.

Tacit or implicit knowledge represents what people have in their head and it is not easy to define. [5]

7.1 Importance of Knowledge Management

Nowadays, in order to become and stay competitive, organizations have to efficiently and effectively create, secure and distribute organizational knowledge. According to estimates, the biggest portion of knowledge, 50-95%, both explicit and experiential, is transferred through verbal, direct communication. At the same time, a big portion of knowledge is being lost so companies mainly use approximately 20% of their organizational knowledge.

Organizations have to manage knowledge for the following reasons:

- science and new technologies continually bring changes,
- knowledge grows rapidly and consequently more and more complex business and managing problems arise,
- values of an organization depend on knowledge management,
- a company creates competitive advantage. [5]

7.2 Goals of Knowledge Management

The purpose of knowledge management is to maximize effectiveness of organizational activities related to knowledge. It has to follow, encourage and facilitate all the activities related to knowledge, it has to enable and continually improve the knowledge infrastructure, create, renew, build and organize the knowledge, as well as efficiently distribute and implement the company's knowledge.

Goals:

- improvement of the process of knowledge documentation, keeping it within an organization, securing the access to the existing knowledge and supporting the process of the exterior knowledge assembling;
- modifications of the organizational culture, improvement of communication and cooperation, improvement of education, training and introduction of new employees, personal development improvement;
- transforming tacit knowledge into explicit, improvement of the knowledge exchange, improving the innovations management, acceleration of the innovations' creation process;
- decrease of prices and expenditures, increase of productivity;
- selling knowledge, increase of the organization's growth;
- development of new business areas, decrease of business risks;
- boosting the employee satisfaction and motivation, improvement of product quality, boosting the customers' satisfaction and/or quality of service;
- better planning, product/service delivery within a deadline. [5]

8 COMPANY AS A SYSTEM

Systems theory is a science that studies systems and laws that govern them. It was born out of the need for finding scientific and practical methods that could help scientifically analyze and solve problems that cannot be solved by traditional and common methods developed in other scientific areas, as they do not give satisfactory results.

Organization as an idea refers to a system in which people participate in an organized manner in order to achieve the system's goal.

There are various theories of organization:

- classical theory of organization,
- neoclassical theory of organization,
- modern theory of organization,
- early system approach, and
- modern system approach.

8.1 Cybernetic Model of a Company

Analysis of cybernetic model of a company says there are two important subsystems. The first one refers to the transformational part, and the other one to managerial mechanism.

8.2 Company and General System Theory

Organization or a company as a complex system can be divided into the following subsystems:

- subsystem of goals and values,
- managerial subsystem,
- technical subsystem,
- psychological subsystem and
- structural subsystem. [4]

9 CURRENT STATE AND TRENDS IN BUSINESS PROCESSES MANAGEMENT

Managing business processes is constantly changing and developing. At the Garter's congress in 2008, results of the current situation in the business processes' management were presented.

The results show five current trends in business process management:

- 1) Managing business processes together with service oriented architecture,
- 2) Managing business processes becomes directed by events in order to support the nature of business activities administered by events,
- 3) Increase of focus on processes based on knowledge,
- 4) Enabling social computing,
- 5) Moving towards dynamic business applications.

The trend most discussed about is the first one mentioned above. Global market is not static and current business environment demands continuous evolution of businesses processes management.

Business conducting trends set in front of the company process the goal of shifting from the traditional, static automation to the flexible automation in which the adjustments of the business processes in real time make part of the expected daily operations [4].

9 CONCLUSION

The most successful global companies can thank their success mostly to the practice of managing business processes and knowledge management. By applying both IT and the knowledge of staff, it is possible to accomplish a system for managing knowledge. That system deeply changes the way employees work. Accordingly, each employee becomes the instrument of knowledge that participates in creating, distributing, applying and evaluating knowledge. Besides creating more motivated employees, managing knowledge within organizations leads to higher accessibility of expert knowledge as well as faster and higher quality solutions of customers' demands. Long term success of companies also largely depends on the quality of managing business processes. Managing business processes improves competitiveness and the level of a company's innovativeness and therefore leads to faster and more flexible reactions of a company in volatile market conditions.

What is important for creating the process orientation is the implementation of adequate IT applications; therefore, the real value of IT depends on the way it supports business processes of a company. Consequently, knowledge management and business processes management lead to significant organizational benefits.

10 REFERENCES

- [1] Sikavica, P. & Hernaus, T. Dizajniranje organizacije, strukture, procesi, poslovi, Novi informator, Zagreb, 2011.
- [2] Žaja, M. Poslovni sustav, Školska knjiga, Zagreb, 1993.
- [3] Bosilj-Vukšić, V., Hernaus, T., & Kovačić, A. Upravljanje poslovnim procesima, Školska knjiga Zagreb, 2008.
- [4] http://kvaliteta.inet.hr/e-quality/prethodni/8/Drljaca_Miroslav.pdf (Accessed on June 2017)
- [5] <http://www.teched.hr/TechedBizSol/TechedBizSol-BPM.aspx> (Accessed on June 2017)
- [6] [http://www.foi.unizg.hr/studiji/pds/ips/kolegiji/\(npp\)/PDS/\(ver\)/1.1/\(course\)/61808](http://www.foi.unizg.hr/studiji/pds/ips/kolegiji/(npp)/PDS/(ver)/1.1/(course)/61808) (Accessed on June 2017)
- [7] http://bib.irb.hr/datoteka/521542.Principi_izgradnje_poslovnih_sustava.pdf (Accessed on June 2017)

Authors' contacts:

Ivica KANIŠKI, mag. oec.
University North
104. brigade 1, 42000 Varaždin, Croatia
099/372-0774
ivica.kaniski@gmail.com

Ivan VINCEK, mag. oec.
University North
104. brigade 1, 42000 Varaždin, Croatia
091/501-8171
ivanvincek92@gmail.com