

UDC 338.36

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BUSINESS PROCESSES MANAGEMENT AT MACHINE-BUILDING ENTERPRISE

Annotation. A modern machine-building enterprise is a complex system, management of which requires a variety of tools and methods, aimed primarily at achieving specific goals and objectives at the lowest cost. There are many business processes that affect the success of the enterprise. Therefore, we will try to distinguish between three main types of business processes. The relevance of this topic is primarily due to stagnation in development of enterprises today. Hence, in this article we will indicate the main advantages that an enterprise acquires with the transition to process management, as for example, the client-oriented nature of activity; focus on strategic processes; flexibility of management system and its adaptation to changing environmental conditions; responsibility for the final results; simplification of hierarchical organizational structures; cost reduction, etc. Business processes must be built in such a way as to create value for the company and value for consumers, and to exclude any unnecessary or even necessary actions. Hence, in this article we will also discuss two main stages of the business process transformation and the stages of enterprise development, i.e. establishment of the enterprise and market development, growth of the company, and development of network structure. Consequently, we will highlight the possible goals and tasks facing management at each stage of development. At the output of properly constructed business processes, the value for the consumer and profitability (the lower cost of production of goods or services) increase. The article will explain the order of formalizing a particular process at the enterprise. Business processes can be modeled using various methods. One of the ways is to compile the business process model "as is". After this, the business process model is subjected to critical analysis or processed by special software. Moreover, we will bring in the notion of importance of introduction the new methods for scientific and technological progress management, and formation of innovative strategies by businesses that are suitable for market conditions, especially for machine-building enterprises.

Keywords: business processes, machine-building enterprise, process approach, optimization of business processes.

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УПРАВЛІННЯ БІЗНЕС-ПРОЦЕСАМИ НА МАШИНОБУДІВНОМУ ПІДПРИЄМСТВІ

Анотація. Сучасне машинобудівне підприємство є складною системою, управління якої вимагає різноманітних інструментів і методів, спрямованих, в першу чергу, на досягнення конкретних цілей і завдань за найнижчих витрат. Існує багато бізнес-процесів, які впливають на успіх підприємства. Тому ми спробуємо розрізнити три основних типи бізнес-процесів. Актуальність даної теми обумовлена насамперед стагнацією в розвитку підприємств сьогодні. Отже, у цій статті ми виявимо основні переваги, які підприємство набуває з переходом на процесне управління, такі як, наприклад, орієнтований на клієнтів характер діяльності; увага до стратегічних процесів; гнучкість системи управління та її адаптація до змін навколишнього середовища; відповідальність за остаточні результати; спрощення ієрархічних організаційних структур; скорочення витрат тощо. Бізнес-процеси повинні бути побудовані таким чином, щоб створювати цінність як для компанії, так і для споживачів, а також виключати будь-які непотрібні або навіть необхідні дії. В даній статті ми також опишемо два основні етапи трансформації бізнес-процесів та саме етапи розвитку підприємства, такі як створення підприємства та розвитку ринку, зростання компанії та розвиток структури мережі. Також буде висвітлено можливі цілі та завдання, що стоять перед керівництвом на кожному етапі розвитку. На виході правильно побудованих бізнес-процесів зростає вартість для споживача та рентабельність (нижча вартість виробництва товарів або послуг). У статті буде наведено порядок формалізації певного процесу на підприємстві, проте всі бізнес-процеси можна моделювати за допомогою різних методів. Один з способів складання моделі бізнес-процесу є «як є». Після цього модель бізнес-процесу піддається критичному аналізу або обробляється спеціальним програмним забезпеченням. Крім того, у статті наведено важливість запровадження нових методів управління науково-технічним прогресом та формування інноваційних стратегій підприємствами, додатними для ринкових умов, особливо для машинобудівних підприємств.

Ключові слова: бізнес-процеси, машинобудівне підприємство, процесний підхід, оптимізація бізнес-процесів.

Problem and the relevance of the study. One of the methods of determining the approach to business organisation is an assessment of the business possibilities processes use in the machine-building enterprise. Currently, each organization seeks to improve quality, reduce waste, as well as increase profits by creating value based on the needs of the client. To achieve these goals, enterprises use special production tools, but insufficient funding can be a problem here. Thus, the question of how a particular organization can achieve efficiency through the introduction of optimization of business processes is always relevant and requires further research.

Analysis of recent research and publications. The basis of the methodology belongs to Meskon, as well as Hummer. Later, many scholars and researchers conducted research on optimizing business processes [1 – 17]. The analysis of scientific publications showed that study the management problems of business processes of

enterprises devoted to the work of I. Ansoff, S.V. Wojtyka, O.A. Havrysh, V.G. Gerasimchuk, I. Deming, P.P. Drucker, I.M. Kreydich, A. F. Taylor, A. Whitehead, A. Fayola, V. D. Shapira, L. M. Shulgina.

Purposes of the article. The purpose of this article is to evaluate the possibilities of optimization business processes of the machine-building enterprise as a tool for increasing its productivity. Today, for businesses that are focused on long-term business success, the transition from functional to process management becomes relevant to creating an effective management system. The process approach considers management as a set of continuous, interrelated actions aimed at achieving the goals of the enterprise. This approach makes management more efficient because customer-oriented products, and therefore its application, allows the production of competitive products, and to reach the desirable position on international market and ensure a stable socio-economic development in the long term.

Core material. First of all, we need to define the concept of the business process. A business process is a set of interrelated activities or tasks aimed at creating a specific product or service for consumers. There are three main types of business processes. First one is managing - business process that controls the functioning of the system. Examples of the management processes include strategic management and corporate governance. Secondly, operational business processes which form the basis of the company's activities and in the end form the main revenue stream. Examples of operational business processes are supply, production, marketing and sales. Third, supportive business processes that serve the core business. For example, accounting, staff selection and training, technical support [1 – 17].

The business process [1, 2, 6–11] begins with the demand of the consumer and ends with his satisfaction. Process-oriented organizations try to eliminate barriers and delays that arise at the junction of two different divisions of the organization when executing a single business process. The business process can be decomposed into several subprocesses that have their own attributes, but they are also aimed at achieving the goal of the main business process. Such analysis of business processes usually involves drawing up a business process map and its subprocesses that are divided into certain levels of activity. As a result, the business process model is built "as it should be." Some consultants omit the phase "as is" and immediately offer the model "as it should be." In turn, the change in business processes at the enterprise level must affect production and economic activities, which is necessarily formalized through regulatory documents and orders and is recorded in the plans for further development of the enterprise. The transformation of business processes is reduced to two main stages. First one is the formation of the optimal (ideal) type of business process (primarily the main one), and the second is a search for the best (by means, time, resources, etc.) optimal process. Business Process Management (BPM) is the concept of process management of an organization that considers business processes as special enterprise resources that are continuously adapted to permanent changes and relies on such principles as:

- the clarity and visibility of business processes in the organization through the modeling of business processes using formal notations, the simulation software, monitoring and analysis of business processes,
- the ability to dynamically rebuild models of business processes by the forces of participants and the means of software systems.

The main task of business processes management is the appropriate and rapid reorganization of interrelated processes, depending on the changing parameters of the external and internal environment, be it supplies, settlements with counterparties, or market expansion. The activity of a modern enterprise is based on a complex system of interrelations between projects and processes. A particular project implemented at the enterprise is built into the structure of existing business processes and uses them to achieve ultimate goals. In connection with this, the ordering and optimization of existing business processes is becoming important, while taking into account the requirements of the implemented projects and the influences of the external and internal environment. Also, another important factor affecting this aspect is the stage of enterprise development. We will highlight the possible goals and tasks facing management at each stage of development.

Stage 1: establishment of the enterprise and market development (number of employees - 15-40 people, up to three levels of management). The main tasks in the organization of management:

- Creation of a clearly formulated strategy for the development of the enterprise, indicating specific goals and developmental motivations;
- definition of duties and responsibilities of individual employees, and departments and working groups;
- formation of an algorithm for training and transfer of skills and knowledge to new employees at various levels of complexity of the work performed;
- analysis of the participation situation in the further development of the enterprise by new specialists from outside, who have specific knowledge [1–4].

The main goal at this stage of the enterprise development is the creation of an orderly and formalized management system, which should be transparent, understandable, and enshrined in normative documents.

Thus, a clear description of the main business processes and enterprise strategy allows us to focus attention on the results of the organization's activities.

Considering the business process as a set of actions to solve the task, and the activities of the enterprise as a set of business processes, it will be possible to improve the efficiency of the company's management, taking into account the goals set by the company's management.

Stage 2: growth of the company (the number of employees is more than 50 people, the allocation of functional units).

At enterprises where more than 50 people work, a functional hierarchical management system is usually formed. Accordingly, with the growth of the company, the effectiveness of management is reduced, which is determined by the specifics of decision making, which requires the participation of all department heads to develop the best options and, ultimately, even for medium-sized tasks, involves the senior management.

The main tasks in the organization of management:

- organization of delegation of authority of the department chairs;
- maintaining the proportions between the growth in the number of personnel and the growth in revenue;
- search for reserves to reduce costs due to increased competition;
- coordination of the activities of functional units at the average level of management.

Often, the solution of these tasks depends on how quickly the enterprise can transform the existing functional system into the system based on the process approach.

Moreover, this approach will be relevant in times of external instability, when one of the important and determining criteria of the management system is the speed of decision-making.

A special feature of the process approach is that it takes into account the results of the enterprise's activities. Hence, this information is used in business process management, where the main emphasis is aimed at achieving the greatest efficiency of the organization's work.

Based on the fact that about 80-85% of business process operations are typically repetitive, detailed rules of action are drawn up for them. Thus, the process of the main activity should be configured as efficiently as possible, while the manager is included in the process only if there are any unusual situations or problems.

Based on this, we can talk about the systematization of the company's activities, which manifests itself in the emergence of two main effects:

1) due to the fact that the management structure relies on the structure of existing business processes at the enterprise (for an average enterprise no more than 5-7), the number of levels of management and subordination decreases;

2) the effectiveness of management increases due to the increase in the standards of controllability (an average of 2-3 times), since the control effect in this case is aimed at the coordination of personnel and is included in the process only with any violations and deviations from normal activities.

To organize a management system that is based on a process approach, a number of steps need to be taken:

Step 1 - Defining the development strategy for a machine-building enterprise

Step 2 - The main tasks of the organization

Step 3 - Business Processes System

Step 4 - Formation of the organizational structure

Proceeding from the foregoing, the following scheme of process control seems to be expedient: the higher link controls the effectiveness and the result of the middle management unit, which in turn controls the lower link, which is executive.

Stage 3. Development of network structure, opening of new representative offices, branches.

When deciding on the opening of new branches, the alacrity of the company for such a transformation should be taken into account. The analysis of readiness is carried out on four levels: managerial, financial, marketing, and process-based.

The main tasks in the organization of management:

- development of a formalized technology for opening new divisions;
- organization of control over all aspects of the activities of branches.

The main emphasis in solving these problems is on the construction of a network structure, transition to process management is necessary (if this was not done before), since the functional hierarchical principle can not organize the activity in the most efficient and less expensive way.

The most rational solution is to transfer already formalized business processes, the regulation of which were made in the second stage. This will solve most of the organizational issues, as well as will effectively organize the management of units due to a high degree of independence in making model decisions on adaptation to the existing external environment.

In this case, three tools are often used together:

- model of department management, based on the process approach and determining the measure of branches independence;
- an adaptive and optimal structure that meets the requirements of the external environment;
- developed regulatory documents and regulations governing the operation of network units.

Thus, it is necessary to decide how to ensure a high level of standardization of individual processes and at the same time leave the possibility for branches to react flexibly to various changes. Based on the foregoing, we can conclude that building an effective structure of a networked enterprise requires the formation of a process management system that implies a clear division of authority and responsibility between the center and units[11].

Also, it should be noted that use of process approach in building a management system can be preformed at any stage of company's development and will bring tangible positive results. Nevertheless, the correct description of business processes remains the important question. Further, we will explain the order of formalizing a particular process at the enterprise.

The first step is to determine the reason for the need to describe and optimize the business process(es). The following can be distinguished:

- an increase in costs that is not proportional to business growth;
- problems associated with production and maintenance (non-compliance with deadlines, marriage, incorrect communication with customers, etc.);
- lagging behind competitors in quality, as well as in bringing new products to the market;
- the need to increase the transparency and manageability of the business;
- the need for innovations for the further development of business.

The next step is to determine how much and what needs to be improved, what indicators can be used for it, when it will be clear that goal of improvements has been achieved.

After describing and defining indicators, it becomes necessary to optimize business processes, which often require serious changes. This already implies the development of a program for the transition to new processes. Such a program may include training of personnel, changing the information system of the enterprise, upgrading the tools, equipment, infrastructure, etc.

Also, it is recommended to use one of three options to describe business processes:

- 1) the focus is on description of system, facilities and levels of management, the establishment of relationships between processes in the enterprise;
- 2) the focus is on the description of the order of actions, initial and output events, as well as identification of the main participants in the process, material, financial and documentary flows;
- 3) the fulfillment of both options, and second one follows the first option.

In this case, a number of difficulties may arise. Here are the most common:

- usually it is impossible to describe the processes "as is" in such organizations where there is no process control. Therefore, in this case, the creation of a number of business processes and standardization of activities is a way to solve this issue;
- optimization of the enterprise activity is required, that is definition of target indicators, "gaps" in work and processes, identification of unnecessary costs, etc. ;
- the enterprise has a number of risks, both external and internal.

In order to rationally use resources to build process management in an enterprise, it is recommended to consider the following points:

- identify the main criteria for business processes: the objectives of the process, the maximum and minimum results, indicators, participants, etc. ;
- develop actions (algorithm) to achieve the set of objectives of the enterprise, and to define the role of business processes in this algorithm;
- selection of necessary tools and methods for algorithm.

The enterprises of the machine-building sector today are going through tough period, and are in a difficult situation. Mechanical engineering is an extremely complex industry in Ukraine. It is divided into several dozen sub-sectors and industries. The industry structure and range of machine-building products determine the features of the location of machine-building enterprises. Specialization in mechanical engineering is determined by the profile of machine-building enterprises and the nature of products: mass, large, small-batch, individual. There are the following types of specialization: subject based (output of final products), technological (production of semi-finished products), sub-production (release of parts, assemblies, aggregates for manning). Machine building enterprises are united on the basis of common technology, raw materials, as well as the purpose of finished products. Its organizational (managerial) structure was very unfavorable for the development of machine building in Ukraine. The planned administrative system of leadership in the USSR led to irrational transportation of component parts and components, as well as finished products. The reason for this phenomenon was the economically unjustified desire to create a single national economic complex of the USSR. With collapse of the USSR and introduction of market economy elements, this scheme of ties was destroyed, and a new system of interrelations have being created instead.

It should be noted that Ukraine steadily loses its income from the export of machine-building products. For last 3 years, the stagnation of the industry has been observed, which previously was considered the most promising. In 2016, the volume of exports decreased 2 times compared to 2013. The forecasts for this year also do not inspire optimism. The data of social security agencies testify to the deep crisis in the industry. In Ukraine, 70 thousand of the official unemployed (18% of the total number) are machine builders. The existing production facilities in the machine building industry are morally and physically obsolete (70 percent of the equipment is operated for 15 years or more, and resource-intensive technologies are used), and unable to provide the required production rates. A large number of enterprises need large-scale reconstruction and technical re-equipment in order to create conditions for manufacturing products with competitive technical and economic indicators. The competitiveness of most types of products is low and is mainly achieved through low prices. Innovative activity in the industry is not enough. Only about 14 percent of enterprises carry out innovative activities, although a significant number of scientific and design organizations operate. One of the main reasons for the low innovation activity of the machine-building industry is a small amount of financing. However, regardless of the magnitude of the crisis, the subsequent development of the industry is impossible without significant investment. At present, equipment wear, according to preliminary estimates, is about 70%. Due to a lack of financial resources, the problems of renewing the industrial potential of the industry are being solved very slowly, based on the use of innovative technologies and implementation of domestic

scientific developments, subsequent changes in structure of commodity production and development of science-intensive machine building, and competitiveness of the final product. Consequently, the prospects for the development of the machine-building industry should be linked to the activation of innovation approach. This depends on introduction of new methods for scientific and technological progress management, and formation of innovative strategies by businesses that are suitable for market conditions. In the future, it is necessary to expand the range of machine-building products, to intensify processes of machine-building products renewal, and the technical re-equipment of industries. The main place should belong to the creation of high-performance machines and their systems for all industries and sectors of economy [1 – 6, 11].

Summary. Thus, it can be concluded that use of the process approach is appropriate and relevant at all stages of development of the machine building industry, from small organizations to network structures. At the same time, both the construction of new business processes and the optimization of existing ones require a number of special approaches, as well as a qualitative analysis of the current situation in conjunction with the strategic and tactical goals and objectives of the enterprise. The main advantages that an enterprise acquires with the transition to process management are the client-oriented nature of activity; focus on strategic processes; flexibility of management system and its adaptation to changing environmental conditions; responsibility for the final results; simplification of hierarchical organizational structures; cost reduction, etc. All this, in turn, will help increase the competitiveness of the enterprise. Secondly, the management of business processes at the enterprise should be related to the company's development strategy, and take into account perspective needs of consumers, changing environment of the environment, based on an analysis of existing business processes and benchmarking, which will reveal the strengths and weaknesses of the business being carried out, processes, opportunities and threats that may arise in the external environment. Based on this information, management authorities should develop a reference model of business processes, use of which will help to ensure long-term competitive advantages in the market. Thirdly, in framework of management activities and in order to achieve strategic goals, domestic enterprises need to pay special attention to solving business process optimization issues. In this regard, more active use requires following tools to improve the management and optimization of business processes of the enterprise, such as reengineering and outsourcing. Further research is needed to question the formation of a system of indicators for assessing effectiveness of business processes, which is novelty in machine-building enterprises; organizational and economic support for successful reengineering of business processes, if possible; motivational mechanism for achievement of effective indicators of business processes.

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Рецензія/Peer review : 18.11.2017 р.

Надрукована/Printed : 15.01.2018 р.

Стаття рецензована редакційною колегією