

Business Modeling In Business Operations of Manufacturing Company

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Abstract. Any business is based upon its operations. In fact, business modeling is modeling of business operations. Business modeling of operations at the manufacturing company is aimed at determining competitive advantages that are external and internal. External competitive advantages provide for the current success and internal ones provide the future leadership. A business model as a whole is a tool for formation, development and management of competitive advantages.

1. Introduction

Modern business, under intense competition on global and national market, faces the issue of its product distribution. Drop in sales makes the management of companies look for new forms of business organization in order to increase its performance that is obviously a relevant task for any company.

Business operations play the key role in business as they are the principle type of the profit-generating activity. The nature of business operations is determined by the economic sector where the company works and the form of business: whether it is customer-, innovation- or infrastructure-oriented [1]. The article further reviews business operations of manufacturing companies with the developed manufacturing structure.

Successful business operations directly relate to the business strategy (model) adopted by the company and to interaction with all participants concerned, mostly with customers. In fact, business modeling is modeling of business operations. The article considers the scientifically and practically significant issue of developing such a business model of operations at the manufacturing company that would consider all its opportunities and competitive advantages. In general, the business model is considered to be a tool for formation, development and management of the company's competitive advantages.

2. Relevance and scientific significance of the issue

A manufacturing company in the modern management paradigm is a complex social and economic system. Management in such systems is directed towards the achievement of the company's economic objectives by means of fulfilling social or community objectives and it is called the value management [2]. The achievement of social or community objectives implies that the company management understands their mission in regard to all participants of economic relations (stakeholders) concerned.

Economic objectives of any business system relate to earning profits and generation of the adequate profits standard for the invested capital. As companies are open systems and they actively interact with



the environment, their well-being ultimately depends on their ability to play a "right" role in regard to all participants (stakeholders) interested in the company business. In order to be effective, i.e., to achieve economic objectives, one needs to correctly determine and to implement roles (functions) of elements in the system and the business system in the environment. The total amount of roles in regard to social, corporate and personal objectives is traditionally called a purpose or a mission. [3]. A purpose means to serve somebody and it also comprises some specific features of the company's business performance. It is only the company able to achieve its purpose that can be considered to be effective. In order to be effective, one needs to carry out one's mission in a right manner.

In fact, simultaneous achievement of social, corporate and personal objectives is not an easy task for the management system. Company management activities should have the purpose of selecting the strategy for the business model implementation that will be the most effective one (the closest approach to the objective with existing resources) and the most rewarding one (accomplishment of the mission with minimum costs).

The management theory shows us that the management system is responsible for effectiveness and performance of any social and economic system. The purpose of the management system is to provide for the effective and rewarding company business both in the current and long-term periods [3]. Management of business operations in the current period is aimed at maximizing the number of new financial flow sources. The Chief Operating Officer has to solve two issues at once: to maximize revenues from sales (income) and to use resources in a reasonable manner while not decreasing quality of the customer value proposition. Thus, increasing the effectiveness from business operations is aimed at increasing income due to a greater competitiveness of the company. Increased rationality is aimed at the reduction of costs but it should never be done at the expense of effectiveness [4].

It is important to state that specific reasons for decreased effectiveness of business operations of a manufacturing company is the inadequate number of customers or their attraction involves too many costs. The research of successes and failures of new product launches shows that one success accounts for fifty eight failed ideas. This statistics is shown in the book by John Mullins, Randy Komisar. *Getting to Plan B. Breaking Through to a Better Business Model*. Authors point out a special role of entrepreneurship modeling "Whatever smart your teams is or whatever innovative your product is, the company will survive only with the strong business model" [5].

Business modeling as a business design technology has been applied since the 1970s and it has quite a lot of followers. [6]. Nowadays, business modeling as the process for design of business operations is mostly directed at the value of the created product and customer interests and only in the second place - at the internal business processes of the company. It is related, among all other things, to emergence of the concept of the value proposition that helps to take into account all the desires of a product consumer [7]. Business model as a conceptual description, scheme or image of the systematic profit-generating process, reflects principal rules for the successful entrepreneurship of the company. For instance, the Debelak's business model views creation of a prosperous company on the basis of interaction between a business idea, a business model and a business plan. [8]. In general, the business modeling algorithm is the development or selection of a business model template. The scope of the model consists of determination of competitive advantages by elements of the model, testing and development of the model. Nowadays there is not a uniform view on principal elements of the business model and their assessment criteria. The model of Alexander Osterwalder and Yves Pigneur, illustrated in their book *Business Model Generation* [1] and further developed in their other book *Value Proposition Design*, has become the most well-known one [8].

3. Task statement

Nowadays, many managers underrate the importance of business modeling and significance of design of a business model for business operations. The authors believe that it is one of issues that emerges when business operations become more effective. Business modeling is the modern business operational management technology. It is the combination of methods and processes for the

development, selection and implementation of management solutions related to the creation of competitive business models and forming customer value propositions.

The company competitiveness is determined by the ability of the company to form competitive advantages that are the grounds for the earning capacity of any company. It enables forming the essential financial flow from customers and has a positive effect on production and conversion costs. Hence, the task of the research suggests studying the mutual connection between business operations and business modeling, types of competitive advantages.

4. Theoretical part and practical results

While studying mutual connection between business operations and business modeling, the following should be noted. Some authors emphasize the key operational function (function of operations) in business operations. It includes such business functions as procurements and production [9]. Other authors include business functions of production, procurements and R&D in the operational functions as they consider them to be the operational management object [10].

The authors of this article suggests considering business operations as a combination of five principle business functions: marketing, development, procurements, production and sales. We believe that it is not reasonable to consider marketing and sales separately as it weakens coordination of all business operations. The principal purpose of business operation is the formation of the customer value proposition that is achieved by implementation of relevant business function in the value generation chain. The coordination of business functions to accomplish the mission of business operation constitutes the contents of the function owned by the general management of business operations. At this, the management system of business operations becomes more complex to some extent because, on the one hand, current issues to minimize costs are solved, on the other hand, new prospective products are launched by the creative staff as well as by marketing experts responsible for the attraction of new customers[11]. Some functions may be outsourced to simplify the management systems. But it must be done only if these business functions have no competitive advantages.

Management of business operations requires the full-fledged implementation of all principle management functions: planning, organization, coordination, stimulation and control. The purpose of this article is to look at the essential management function, planning and the business design process taking into account the modern business modeling technology. The purpose of business modeling is to determine competitive advantages of the business, business operations and specific business functions. The mission of the business model is description of main principles and rules for creation and development of competitive advantages that are the grounds for earning capacity of the manufacturing company. Some authors define competitive advantages as distinctive features and characteristics of the product that form the value for the customer as well as specific organizational forms that provide for certain superiority over competitors [12]. Competitive advantages are also characterized as uniquely attractive goods and services or as uniquely effective issues due to combination of resources by such methods that cannot be repeated by others. These combinations are often called competences[13].

While analyzing definitions given by various authors one may distinguish between two types of competitive advantages:

- external – unique attractive goods and services, used to satisfy needs and to solve issues, accordingly;
- internal – unique effective actions during the process of production and management, aimed at rationality and effectiveness in business operations, accordingly.

The success of the company's current business operations is provided by external competitive advantages based upon unique products. The future leadership of the company is based upon internal competitive advantages related to production and management purposes. Uniqueness in the definition of competitive advantages means difficult copying and is characterized by the degree of activity. The activity of competitive advantages is expressed in used, unpromising and sustainable conditions. Sustainable competitive advantages are those that the company is able to protect for the long period. As a rule, they are internal competitive advantages. For example, the production system of TOYOTA

(TPS) cannot be copied and only some elements and methods can be borrowed. The highest level of sustainability is the feature of the management process that is extremely difficult to watch, especially in part of management solution development.

Unpromising competitive advantages are sustainable at this moment but they may be copied and become widely used in the near future. As a rule, external competitive advantages that are not protected enough from copying have such degree of activity. The goods are more prone to copying than services. It explained by the fact that the service, as a rule, is not separated from the manufacturing process that is somehow difficult to copy. Here one has to have necessary competences. Used competitive advantages are those that are copied by competitors, have become industrial standards and are mandatory to preserve one's positions on the market. For example, all modern gadgets look like APPLE products and modern manufacturing systems must use lean production principles. Managers responsible for business operations have to be open in popularization of competitive advantages that have already been copied in order to increase the value of their own brand.

While considering the dependence of business effectiveness on activity on competitive advantages, one may note the following. The future strategic leadership is provided by sustainable internal competitive advantages that are protected from copying for a long period of time. The short-term current success is provided by unpromising external competitive advantages that may become generally available at the nearest future. Company survival on the market is based upon used competitive advantages, usage of industrial standards for process organization and the quality of the value proposition.

The concept of business model is based upon the three-level model of project activity: goal setting (development of a business idea), design (development of a business model) and implementation (launching and operation of a business model)[14]. This article considers the second level – design of a business model.

While designing a business model, one should take into account the following factors: tendencies of external environment opportunities in long-term and short-term periods; the ability of the management system to use maximum environmental opportunities; the condition of key competences necessary to achieve strategic goals.

In general, the authors base the business model design on the following statements:

- competitive advantages are the grounds for the earning ability of business operations;
- key competences are the grounds for competitive advantages;
- a business model is viewed as a tool for formation, development and management of competitive advantages. At each specific moment, the director and their subordinates that are the managers of business functions should know the condition of existing competitive advantages, their types and degree of activity.

While speaking about the key competence, one needs to note that it is, as a rule, a combination of simple competences or unique skills (specific methods of work performance that cannot be repeated by others). The key competence is a specific combination of competences during the production and management process resulting into effective and rewarding business operations. The competence or the skill is different from the key competence just as novation is different from innovation, invention is different from its commercialization. At this, the description of the key competence may be very specialized. For example, Toyota invented Just in Time production, Honda was initially focused on production of the motorcycle reciprocator and Coca-Cola is the best trader of the very narrow product line in the world.

While managing the process for the creation of competitive advantages, one needs to be able to determine key competences and to expand their usage in the designed business model. Furthermore, we consider advantages to use the well-known A. Osterwalder's business model and make suggestions to increase the effect of its use in the management of business operations. Firstly, the model allows seeing the business as a whole and reasons of why it does not work. Secondly, it allows illustrating

competitive advantages and key competences that form them for all the elements of entrepreneurship. Thirdly, it allow making calculations in order to check quotations and to display their results.

The model has nine elements combined into four interconnected groups (Image 1).

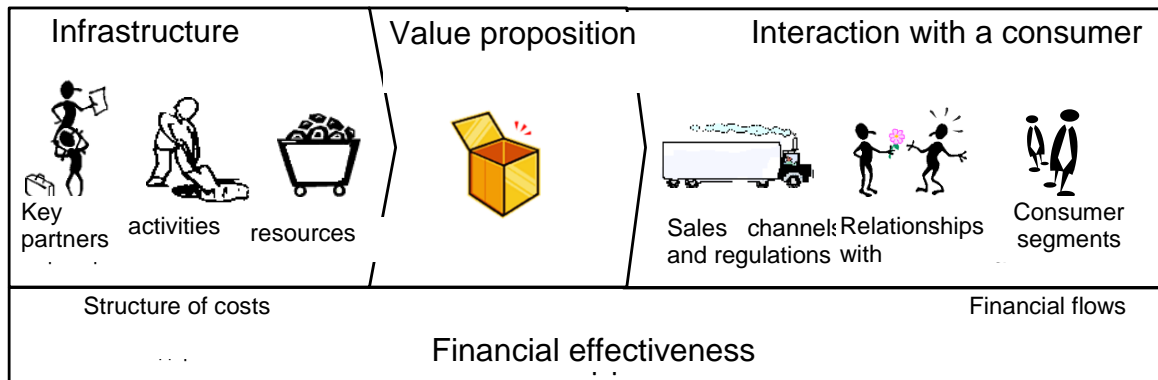


Figure 1. Group of elements in a business model.

Three groups visually describe the value creation flow: the value creation infrastructure (three elements), the customer value proposition (one element), interaction with customers during the value proposition promotion (three elements). The fourth group of elements in the model is represented as the foundation for entrepreneurship – financial effectiveness of the business (two elements). This group reflects, on the one hand, all costs related to operation of the business model, on the other hand, income flows from consumer segments. The financial result is determined by deduction of all costs in the structure of costs from the total income flow.

In Figure 1 the elements are represented by groups in the sequence of their activation within the framework of a practical activity. At this, such elements may be designed in any sequence, but the model authors recommend starting from the segmentation of customers and the value proposition for each highlighted segment, accordingly.

The element “Consumer segments” is the most complex and responsible in the model. The purpose of segmentation is to decrease costs for the attraction of customers and its role is to determine target customers, i.e. those who need products of the company. It is the target customer who helps to minimize costs for their attraction as they are already interested in what the company can offer to them. It is enough to correctly determine and to build oneself in their information channel of search for interesting goods and services. The mistakes in determination of the number and the contents of segments and their information channels will inevitably lead to either the inadequate number of customers or the increased cost of their attraction.

The second important element of the model is “Value Proposition” that is closely related to the profile of each customer segment. The value proposition is the characteristics of the product or the service provided by the seller to a certain purchaser (the consumer segment) that matches their requests [8]. It is the thing that is able to solve issues of the customer (as a rule, they are services) or to satisfy their need (as a rule, it is the product) in the best manner, according to the customer.

The value proposition discloses the reason of why customers prefer one company over the other one. The explanation of the reason for preference is based upon the three-level structure of the value proposition: benefits from using the product, advantages of its use and features of the product providing for these benefits and advantages.

Figure 2 shows the interrelation between the structure of the value proposition and the profile of the customer segment. Here we should note that the said interrelation belongs to the type of one to one (1:1). Each formula of the value proposition matches only one consumer segment and vice versa, each consumer segment matches only one formula of the value proposition.

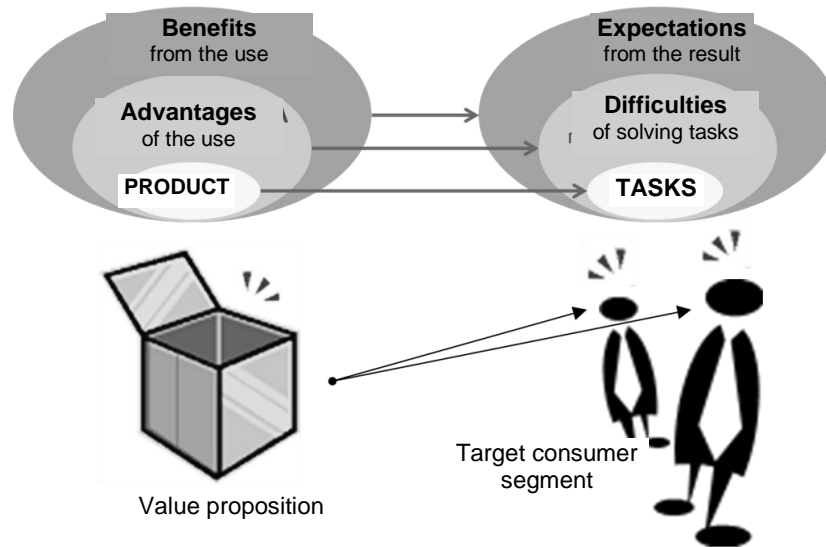


Figure 2. Structure of the value proposition.

With this in mind, the authors suggest making “Matrix of value propositions” during modeling. It is the summary table of value propositions where the value proposition is formed for each segment taking into account the preferences and expectations of customers (Figure 3).

Segment	1	2	...	n		
Product						
A						
B						
...						
N						

Value proposition	Consumer profile
Benefits	Expectations
Advantages	Difficulties
Product features	Tasks

Figure 3. Matrix of value propositions.

The size of the matrix depends on the range of products or services on sale (the column named “Product”) and the number of segments the company works with. The matrix cells contain the information about the value proposition taking into account customer preferences. The matrix of value propositions is the specific register of quotations for customers. The operational table “Value proposition” is made for each cell of the matrix. The basis of the table is “Consumer profile” that is the information about specific features of each segment in regard to tasks being solved, difficulties in their solving and expectations from their solving. The segment includes customers with similar tasks, difficulties in their solving and expectations.

The following persons take part in making the table: a marketing expert who knows everything about customer tasks, difficulties and expectations; a purchasing agent (a sales manager) who will directly communicate with the customer during signing of a sales and purchase contract; a consulting

technician for technical characteristics and features of the product (the service). The matrix of value propositions is also the grounds for training purchasing agents (sales managers) in the sales technique and the process of making customer relationships. The key moment for a purchasing agent is the ability to determine the segment the potential customer belongs to and then to precisely follow formulae of the relevant segment in the value proposition.

Such integral understanding of the value proposition formation during building of the business model for business operations of the manufacturing company may be provided on account of combining five aforementioned business functions. In this case, the business model of business operations may be shown as the combination of processes of its building that demonstrates what the chief operating officer must do (Figure 4).

Figure 4 shows the interrelation between the business functions of business operations and the business model elements. It is the illustration, on the one hand, of the contents of works the managers of relevant business functions are responsible for, on the other hand, the contents of main participants to form competitive advantages for each element of the business model.

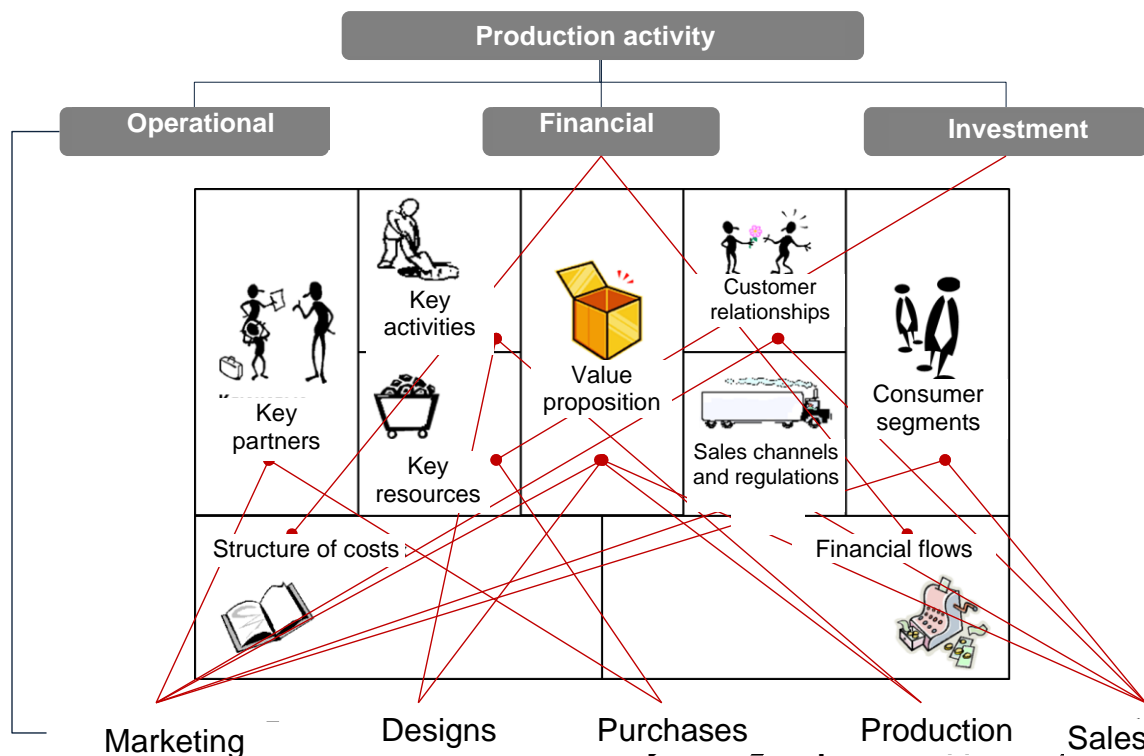


Figure 4. Model of business operations.

For instance, Figure 4 shows that employees of four subdivisions: marketing, design of new products and processes, representatives of manufacturing subdivisions as well as sales take part in designing the value proposition. The employees of purchasing structures take part in the process of interaction with key partners taking into account the existing need in key resources. Sales subdivisions, together with marketing experts, divide customers into segments, determine types of sales channels for each segment and regulations of interaction for each channel as well as the type of customer relationships. Financial experts control the structure of costs and provide for stable financial flows. The employees taking part in the investment activity of the company provide for the introduction of new production capacities for the production of goods according to advanced scientific and technical trends.

The aforementioned implies the practical significance of the approach to designing the business model of business operations in the manufacturing company considered in the article. In effect, it is the scheme for operation of the chief operating officer. He or she acquires the tool that helps to see business processes for all business functions of business operations simultaneously with their concurrence with business processes of the company's financial and investment activities. The chief operating officer shall think in the categories of business modeling, master the business modeling technology and have the key competence that helps to form the customer value proposition taking into account all customer expectations and needs. In its turn, all of this will help to form the competitive advantage of the company due to the combination of existing resources in such a manner that other will not be able to repeat.

5. Conclusion

This article, based upon the research of interaction between business operations, business modeling and types of competitive advantages, has shown that the business model of business operations is used as a tool for formation, development and management of the company's competitive advantages.

The authors have suggested the integral understanding of the value proposition formation during building of the business model due to combination of all business functions of business operations: marketing, designs, purchases, production and sales. The correct formation of the value proposition and design of the business model helps to design business operations of the manufacturing company in order to solve the principle problem of increasing its effectiveness and performance.

Business model designing was based upon the A. Osterwalder and Y. Pigneur model that is added by the matrix of value proposition and the scheme of interactions between business functions and elements of the business model in order to intensify the effect of its use in the management of business operations. It helps to strengthen the coordination of activities involving managers of all structural subdivisions for business operations during the creation of value proposition for each consumer segments taking into account maximum customer preferences and expectations.

The key role in the management of business operations is played by the chief operating officer owning the business modeling technology that helps him or her to arrange the work of his or her subordinates in a correct manner and to increase the effectiveness and performance of the process for formation of value propositions for customers based upon the constant activity of the company's competitive advantages. It explains the practical significance of the approach to building a business model for business operations at the manufacturing company suggested in the article.

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