

# Business model of construction organization management under conditions of new industrial basis

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**Abstract.** The article gives consideration to modern trends of a new economical epoch, which results in transformations under conditions of running industrial and economic activity. In view of this fact substantiation has been provided on the necessity of changing principles of organizations' structure and functionality for successful long-standing development thereof. The authors pay special attention to the relevancy of suchlike changes in the sphere of construction production, since "new" is adopted comparatively slower there than in the other branches of industry. As a result, the investigations of indicators of a new industrial base in construction are distinguished by the authors and the characteristic features of building business model of construction organization management are described. The article provides a conclusion that the application of business model of construction organization management under consideration in conditions of new industrial base will help construction organizations to adapt its business system and strategy to modern transformations of industrial and economic sphere, select innovations and develop business processes, which will most fully implement goals of organizations proper and satisfy demands of their key partners.

The modern conditions of conducting economic activity feature speed and quality of changes taking place therein, which influence all spheres of human life. At present it is impossible to imagine successful functioning and long-standing development of at least a single organization without timely responding and preventing possible changes. In particular, the relevancy of such actions can be observed in the sphere of construction, which is fundamental in many respects for providing social and economic development, but is significantly inferior to other spheres of industry on incorporation and utilization of new technological and intellectual capabilities as a result of external and internal reasons (intricacy of selecting workforce able and prepared to generating and using innovations, insufficiency of knowledge exchange from project to project) [1].

The modern market conditions compel the construction organizations to fit into changing conditions permanently exercising a search for the new ways of selling their produce. The development of business model of construction organization management

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aimed at providing its stable functioning for search of the sources of profit earning both in the internal and external environment under conditions of permanent changes can be referred to as one of the methods of solving this problem.

## 1 New economical epoch

Presently it is already an open secret that the world has entered a new economical epoch, which can be characterized by the following trends: 1) globalization of economical processes, 2) increasing speed of convergence of types of economic activity as well as 3) deregulation thereof for creating conditions of realizing free economics, 4) privatization of state property, 5) increasing intensity of competition between manufacturers of goods and 6) toughening of methods of competitive struggle, 7) transformation of retail trade and 8) tendency to an unmediated form of interaction with consumers, 9) increasing information awareness of buyers and 10) enhancement of market power thereof on the manufacturers as well as 11) all-around penetration of network information technologies and telecommunication systems into all spheres of social and economic activity.

The new economical epoch was marked by emergence of a concept “new economics”. There exist two basic approaches to defining this concept, where each one reflects direction of future development of economical systems:

– the first approach contemplates identification of “new economics” with informational economics, which is understood as a complex of science-intensive types of activity realizing production and servicing of information and communication systems, creation and propagation of software products, development of communication networks as well as shaping, storage, information dissemination and acquisition. This complex implies to a greater extent building of information and communication system on Internet [2];

– the second approach is geared to understanding the “new economics” as the economics of buildings, which is understood as a combination of types of economic activity characterized by generation of knowledge as a source of economic growth and being guided by the technical implementation of received knowledge. The “new economics” includes in the above context a sphere of educational services, information and communication markets, production of innovations, rendering intellectual services (consulting, communication, analytics, marketing) [2].

These approaches help distinguish criteria to creating and developing economical systems oriented to efficient functioning in the long-standing perspective. The following can be attributed to the following criteria 1) possibility of involvement into global economic process, 2) system of independence and self-sustainability, 3) possibility of receiving authentic, complete and timely information, 4) possibility of permanent and continuous renovation of information and knowledge.

It should be noted that the recent main indicators and drivers of development of a new economical epoch are as follows:

1) globalization of innovative and scientific and technical systems, production system, monetary and financial system, information and communication systems, system of commodity-money relations, which result in opening and interpenetration of the economies, emergence of global hyper-competition and manifestation of interrelation of types of economic activity [3];

2) intellectual capital corresponding to knowledge as a production factor, main resource and infrastructure element, which results in changing conditions and channels of application knowledge. This transformation brings about provision of economic growth not through permanent increase of physical volumes of implementation of permanently upgraded products and services, but through increase of added value of sold goods, which

depends on innovations, alternative preferences of customers and speed of business reaction to qualitative change of these preferences [2];

3) global application of new information technologies resulting in the reduction of level of environment uncertainty and increase of efficiency of organization activity as a result of introducing information support of business processes, information online interaction with the organization external environment, creating information portals, remote rendering and receiving services, development of electronic business, electronic commerce and mobile commerce;

4) transition of character and structure of labor from the executory-reproductive to intellectual and innovative [2], the result of which is the change of requirements to the level of workers' competence. The modern market conditions produce higher requirements to personal and professional characteristics of personnel, viz. versatility and wide professional outlook, orientation to satisfying clients' needs, seeking permanent training and development of peculiar professional and personal qualities, demonstration of loyalty to occupation and organization, resistance to stress, capability of initiating and adopting changes, creative, innovative and flexible way of thinking, operational mindset;

5) innovations as the factor of economic growth, which dynamics and quality depend on the rate, scale, practicality and value of technological shifts, which introduction will entail an increase of value of goods for a consumer, orientation to permanent continuous improvement of goods to meet the changing consumers' preferences, involvement of personnel into a process value adding, provision and management.

Thus, the above indicators make it possible to define the "new economics" as a process of development of global economic system, in which framework the social and economic development is based on continuous renovation and utilization of knowledge without territorial and spatial reference to the location of economic entities.

## **2 New industrial base in construction**

Proceeding from encyclopedic definition of the industrial base, which interprets it as a combination of industrial enterprises and production facilities, which can be used for production of this or the other commercial product or for rendering services [4], we can say that the structure of industrial base for the construction organization shall be represented by the following groups of economic entities: 1) production group is represented by the enterprises directly exercising a process of construction operations; 2) supporting group implies organizations providing the process of construction operations with necessary resources and directly engaged in the process of production of end construction produce; 3) auxiliary group corresponds to the enterprises and organization of market infrastructure, which are auxiliary with respect to the first two groups and satisfying the needs of these groups; and 4) regulating group includes a combination of physical persons and legal entities conducting monitoring and regulating activity in the process of construction and selling construction goods and services.

The new economic epoch changes a concept of business activity, its priorities and common factors. In this regard a transformation of requirements to industrial base takes place for implementation of construction operations. These requirements can be divided into four groups [1]:

1) development and use of new technologies, materials and tools, which include 1) up-to-date construction and finishing materials, 2) standardized modular or pre-fabricated components, 3) semi-automatic and automatic construction equipment, 4) new construction technologies (3D-printing, cross-breed robots), 5) "smart" equipment and equipment for optimizing life cycle, 6) digital technologies and application of "big data" in chain order of construction produce value adding;

2) optimization of business processes and operations by means of using 1) principles of economical production, 2) models of partners interaction with a uniform distribution of risks, 3) adaptive structure of project management, 4) models of management of subcontractors and suppliers, 5) economical and steady management of structure and operations, 6) stringent production process monitoring (volumes, time limits, expenditures);

3) development of flexible strategy of and innovative business model based on 1) differentiated business model, 2) targeted consolidation and partnership, 3) stable competitive products with optimal cycle of value, 4) entering foreign markets;

4) management of interaction of an individual, organization and culture in the way of 1) strategic planning of demand for personnel, 2) “smart” selection, 3) loyalty management, 4) continuous training and knowledge management, 5) forming highly-efficient organization structure, culture and motivation scheme.

It is necessary to pay attention under modern conditions of running business to the necessity of receiving maximum possible amount of trustworthy information about environment; it is conditional on the rate of changes going on in the preferences of consumers, activity of competitors and partners and the very conditions of exercising entrepreneurial activity. Thus, a significance of informational, innovative and, particularly, intellectual resources grows, they are able to pickup changes, adapt thereto and create conditions based thereupon for successful economic activity.

The sphere of construction activity belongs to that type of economic activity of entities, where decisions on the necessity of changes, development thereof, introduction and adaptation thereto are taken over quite a durable time period, this fact is conditioned by impossibility of quick incorporation of technological changes before the end of production process and duration of the construction process itself, which equals, as a rule, at least two years, great number of participants directly or indirectly engaged therein, as well as a wide circle of people concerned in its results. In this regard, a significance of entities of informational and innovative support of construction operations grows; the above entities carry out investigation and forecasting changes in the external environment (demands of consumers and community, activity of suppliers, partners and competitors) and internal environment (development of technologies of construction operations, emergence of new materials and structures) over a medium-term perspective and long-term perspective and development of innovations featuring a preemptive character. The, R&D establishments, HEIs, incubators, technological clusters, analytical-informational and marketing agencies can be attributed to such entities.

### **3 Business model of construction organization management under conditions of new industrial base**

Presently, there exist many concepts, approaches and typologies to definition of business model concept, but this multiplicity can be divided into two groups: 1) the first group focuses attention of business model on the progress of technological and production processes and is aimed at the search of internal capabilities for gaining profit, 2) the second group is related to forming up mutual relations with the external environment of organization, which in the process of interaction help it, due to adding and providing value, generate new sources of deriving profit from the opportunities available and emerging in the market. In this case it should be mentioned that the value is understood as a unique, comprehensible and useful advantage from the relations with organization by the interrelation of advantages of interaction over its outgivings and in comparison with key competitors.

Under modern market conditions an approach gained the greatest widespread, within which framework the business model is presented as an analytical tool, which in graphical

form provides a description of business structure and functioning, it reflects basic principles of creation, development and assessment of efficiency of all interrelated processes in organization and makes it possible to find the sources of gaining profit. The main purpose of business model development is a search for possible ways of developing organization, attaining goals of its activity. The main advantages of business model development as compared with compiling business plan, which in turn is also used for justification and reflection business processes implementation in organization, consist in the reflection of sense of business process existence, in describing the way the organization gains its cost (capital) from economic, social or cultural point of view at all stages of its life cycle unlike the business plan, which is limited by time boundaries of planning horizon.

One can distinguish many business models in the national and foreign literature, each of them helps have a look at business management from the positions of developing relations with clients, or business development as a whole. The most renowned and widespread of this number are the following models:

- business model of A. Osterwalder, Y. Pigneur “Business outline”: it corresponds to nine blocks, such as consumer segments, value proposition, sale channels, relations with clients, incomes, key resources, basic processes, key partners, structure of expenses; the model purpose is a selection of business development directions [5];

- business model of M. Johnson “Seizure of clear space”: it consists of three blocks, such as key resources, basic business processes, value proposition for consumers and formula of deriving profit, the model purpose is creation of formula of deriving profit for business [6];

- business model of H. Chesbrough, R. S. Rosenbloom “Open innovations”: it corresponds to eight blocks, such as technological inputs, value proposition, market segment, structure of chain of value creation, income and profit rate, value-based network, competitive strategy and economic results; the model purpose is the use of new technologies [7];

- business model of D. Abell: it consists of three blocks, such as consumers, value proposition, key resources and capabilities; the model purpose is the development client-oriented strategy [8];

- business model of G. Linder and S. Cantrell: at first sight the model resembles a chain of adding value of M. Porter and includes ten blocks such as clients’ needs, goods, value proposition, sales channel, interaction with clients, price formation, production, differences from competitors, financial structure, unique character of profit formula, but the purpose of this model is a creation of competitive advantages and forming significant differences from competitors [9].

Table 1 provides a comparison of the foregoing business models on the basis of compliance thereof with the guiding principles of building models and requirements of a new economic epoch.

**Table 1.** Comparative appraisal of modern business models\*

Principles of business model presentation under conditions of new economic epoch	A. Osterwalder, Y. Pigneur	M. Johnson	H. Chesbrough, R. S. Rosenbloom	D. Abell	G. Linder and S. Cantrell
Clarity of information presentation on basic business elements	+	+	+/-	-	+/-
Availability of reflecting logic of adding and providing value for the parties interested in business	+	+	+/-	+	+
Explicit interrelation of model elements	+	+/-	+	+/-	+
Possibility of revealing and establishing a competitive advantage for business	+	+/-	+/-	+/-	+
Possibility of timely revealing and correcting bottlenecks in business processes	+	-	-	-	+/-
Comprehensible reflection of compatibility and complementarity of all elements	+	+/-	+	+/-	+
Model feasibility	+	+	+	+	+
Ability of taking into account capabilities and restrictions of business environment	+	+/-	+	+	+
Possibility of describing business differentiation and diversification	+	+/-	+/-	+	+
Availability of reflecting sources of getting income for business	+	+	+/-	-	+
Importance of reflecting business investment potential	+	+	-	-	+
Possibility and availability of reflecting business scale	+	+/-	+	+/-	+
Capability of adapting to changing environment conditions	+	+/-	+	+/-	+
Availability of describing transformation of information being received into new knowledge	+	-	+	+	+
Possibility of using new knowledge	+	+	+	+	+
Resulting number of points	15	9.5	10.5	8.5	14

\*Appraisal scale: “+” – compliant (1 point), “+/-” – partially compliant (0.5 point), “-” – non compliant (0 point).

Proceeding from the Table data, one can arrive at a conclusion that the model “Business outline” proposed by A. Osterwalder, Y. Pigneur most fully comply with the present requirements produced to business models. It features availability and clarity of business processes taking place at organization, which help transform resources available with it into sources of profit on the basis of goods proposal, which will be valuable and demanded with target audience and relations with partners.

Every block of business model of A. Osterwalder, Y. Pigneur for construction organization shall answer a clearly raised question: 1) consumer segments – “whose and what problem is to be solved?”; 2) interaction with clients – “how to lay information against target group and get a feedback?”; 3) sales channels – “how to present value?”; 4) key processes – “what is to be done to meet requirements of consumers and attain organization’s goals?”; 5) key resources – “what resources are to be possessed to meet

requirements of consumers and attain organization’s goals?”; 6) key partners – “who can help in to meeting requirements of consumers and attaining organization’s goals?”; 7) income sources and structure of expenditures – “what will be the economic cost when to meeting requirements of consumers and attaining organization’s goals?”; 8) value proposition – “what value will be provided to persons concerned?”.

At the present stage of developing process of construction operations the logic of adding value consists in converting capital of construction organization expresses in the key resources via main business processes into resulting characteristics by means of selling goods with the aim of its capital gain. The authors are of the opinion that the construction organizations shall establish and develop competitive advantages based on 1) saving due to scale (owing to “economical production”, 2) quick access to current assets (due to relations with partners), 3) high level of goods quality (due to using new technologies, materials and tools), 4) offering exclusive properties of goods or service (due to scientific investigations and innovations), and 5) improvement of data processing (due to using up-to-date information-communication systems) under conditions of a new industrial base for providing competitiveness in a long-standing perspective on the market. Proceeding from the above the authors have revealed the basic characteristics of business model of construction organization management provided in Table 2. These characteristics are based on opposing current limitations and possible environment risks and on using positive influence thereof on organization development.

**Table 2.** Basic characteristics of business model of construction organization management under conditions of new industrial base

Environment conditions: Limitations and risks	Business model characteristics	Key business processes of construction organization	Result for organization
Growing prices for resources required for production of construction produce	Providing independence, self-sustainability and autonomy of business model	1. Building inherent logistic and science-and-technology base; 2. Establishment of stable long-standing mutually-advantageous relations with partners	1. Reduction of expenses; 2. Use of new technologies, ideas, developments; 3. Disposal of produced intellectual property
Scantiness of resources of suppliers in volume and in time			
High expenses of searching and changing over to new suppliers of resources			
Increasing requirements to quality of life, changing requirements to construction produce	Capability of business model to forecast environment changes and quickly adapt thereto	1. Building a system of collection and analysis of information about environment; 2. Development of system of using new knowledge	1. Increasing organization competitiveness; 2. Providing “survivability” of organization
High sensitivity to price with consumers			
Increasing intensity of competition and toughening methods of competitive practices			

Environment conditions: Limitations and risks	Business model characteristics	Key business processes of construction organization	Result for organization
Standardization of produce, absence of unique or significant characteristics for consumers therein	Possibility of providing value proposition in business model for parties concerned	1. Satisfying demands of different groups of consumers; 2. Development of unique trading proposition for each of them; 3. Creating competitive advantage	1. Increasing organization competitiveness; 2. Distancing organization and its goods from competitors; 3. Receiving intended and/or required profit
Low level of differentiation of construction produce in the market			
Reduction of investment activity and construction market attractiveness			
Availability of competitors with high level of knowledge and loyalty of consumers	Capability of business model to manage interaction with environment	1. Creative positive image of organization and its goods; 2. Increasing its popularity; 3. Forming loyalty of consumers	1. Increasing organization reputation; 2. Creating and using brand of organization and its goods
Liability of consumers to negative assessment of quality of construction produce, wide-spread opinion about its low quality			

A necessity of clear understanding of the needs and preferences of the partners for any organization of any sphere of activity increases at present, the consumers, suppliers, investors, intermediaries and employees of organization are understood in this case as partners, in whose activity the organization is interested. Therefore, the authors offer in the framework of business model development for construction organization to look for the partners on the basis of marketing tool – model “5W”, which will help not only define their basic needs and interests thereof, which is the basis for value proposition for them, but also distinguish the main channels and methods of interaction with them. As a result, the construction organization will be able to find the market niche, for which its proposed value will surpass the value proposition of the competitors.

A necessity of building correct and efficient system of interaction with the external environment increases under present-day market conditions, it will help not only attract attention of the potential partners but support their interest, establish a necessity of long-standing cooperation. In this regard the authors suggest to develop a system of relations with the partners on the basis of 1) informing about organization’s goods and activity by means of advertisement mainly on Internet, measures on stimulating sales and public relations, 2) arousing partners’ interest through building channels of direct communication, which results in forming a concept of organization, its goods, differences of their goods from those of the competitors’ and on the advantages (value) of interaction with it, 3) forming commitment of the partners to organization, which helps translate its positive image in the external environment. It also shall be noted that owing to organization of system of informing and communication with the external environment it will be possible to collect and analyze the opinions and needs of key partners, which get aggregated from

their search requests in Internet, asked questions to employees during direct contact, discussions in forums and in social media, which will raise the level of organization awareness about their priorities and preferences, it will help get adjusted thereto, increasing by the same the value and forming the competitive advantage on this basis.

Due to development of information technologies the authors offer to pay attention to enabling implementation of interaction and necessary transactions not in the traditional, but in electronic form without direct personal contact by organization employees. The sphere of information technologies forges ahead, owing to this it is necessary to foresee in construction too a possibility of effecting activity both in the internal and external environment by means of “block chain” technology, where the entire process of execution, coordination and approval of the required documents will be performed in electronic form with the use of digital signature and simultaneous entering into necessary registration documents without physical participation of individuals with the transactions being implemented. It will help reduce time for implementation of business processes, simplify understanding thereof and increase controllability thereof.

In order to sum up it may be said that the use of business model of construction organization management under conditions of new industrial base offered by the authors will make it possible for the construction organizations to adapt their business system and strategy to the latest transformations of industrial and economic sphere, select innovations and develop business processes, which will most comprehensively implement the goals of organizations proper and satisfy the needs of their key partners.

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