Conceptual Modeling of Construction Industry Enterprises Management Under Conditions of Economic Instability

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Abstract. The present article addresses the problems of effective management of building contractors under conditions of economic instability. The issue of sustainable development of enterprises is of particular relevance in the aftermath of the global financial and economic crisis, that has hit the world economy and has led to a significant deterioration of the key indicators of global economy, to declining trust in markets sustainable, in solvency of enterprises or even in suitability of economic systems around the world. One of the main reasons for this situation was the inefficient activities of the large enterprises, which assumed excessive risks in core activities, and after that they have hidden their failed results. The transition of the Russian Federation to a market economy has demanded from domestic economic science to review basic provisions of the concept of construction industry enterprises management. This is due to the fact that the unpredictability of rapid changes in the economic environment appeared and is growing at both micro and macro-level of fast-growing market. This resulted in an objective need to develop appropriate management methods for construction companies in conditions of instability and uncertainty engendered by the unpredictable changes of modern market. Complexity and uncertainty of the given problem have led to multifaceted research associated with development of management methods for the complex for socio-economic facilities in conditions of uncertainty of global economics.

1. Introduction

Construction companies are currently operating in an increasingly competitive environment in the aftermath of the global economic crisis. Unstable economic environment, increased consumer demands concerning products and services, development of information technology, the increased role of human capital, greater uncertainty etc. lead to the rethinking of notion of strategic management in sustainable development matters [1-3]. Accordingly, there is a need for an analyses and evaluation of the sustainability of development concerning construction companies in order to determine the impact of the internal development factors of the organization on its position in the external environment, as well
as to decide on a timely reorganizing company management and to develop the strategy for achieving sustainable economic growth [4-5].

2. Relevance, scientific importance of the issue
The increasing globalization of economic relations leads to higher uncertainty of entrepreneurial environment and to intense competition between economic agents. Having faced with the problem of constantly changing external environment most domestic industries in market conditions found themselves unprepared to respond appropriately to these changes. The global financial crisis has negatively affected the Russian economy. The need for embedding crisis response mechanism within the enterprise management cycle has become acute, thus shaping increased theoretical and practical interest in the issue of sustainable development framework for construction industry enterprises in the context of unstable economy [6-7].

Complexity and uncertainty of the given problem have led to multifaceted research associated with development of management methods for the complex for socio-economic facilities in conditions of uncertainty of global economics.

Among foreign scientists researching problems of strategic management are M. Porter, J. Schumpeter, I. Ansoff, P. Drucker, J. Norton, M. Meskon, G. Minzberg, Ph. Kotler, H. Simen, A. Chandler, E. Bowman, S. Dibb, J. Bradley, J. Cahill, A. Thompson, A. Strickland.

A number of authors (J. Schumpeter, E. Korotkov, D. Kovalev, T. Sukhorukova, Z. Korobkova, A. Sheremet) equate economic resilience of enterprise with its financial status, where its running at a loss play a major role, and the bankruptcy shall be considered as one of the institutions intended to ensure the operation of sustainable enterprises.

Relevance of the research is that design and development of management theory and methodology of construction company under uncertainty based on the information concept allows to get methodological support to plan and to make effective management decisions based on incomplete information on economic environmental status. It helps to create more effective and efficient management of construction, which follows the patterns of modern market economy. [8-10].

Academic novelty is the development of theory and methodological basis of new scientific-practical school on the problem of providing the sustainable functioning and development of construction enterprises, aimed at improvement of their activity over the long-term in accordance with the requirements of market economy.

3. Problem specification
The aim of the study is to determine the main components of company sustainable development and to develop the generation algorithms for sustainable development of construction enterprises.

This aim is achieved through undertaking the following tasks:
- to examine theory and methodological basis of construction company management in conditions of instability and uncertainty;
- to study the special aspects of strategic management organization for a construction company under conditions of uncertainty;
- to determine the content and the sustainable development mechanism of construction enterprises;
- to develop a structural and logical framework to create the sustainable development mechanism of construction organizations;
- to make recommendations to enhance sustainability of construction industry development.

4. Research theory
The concept of development is a document that presents overall direction of organization in order to achieve the desired state in the future. It is the outcome of the strategic planning process [11-13]. The concept of organization development is hinged on three basic elements: business environment, strategic
objectives and market needs. Definition of these elements is an integral part of Quality system guidelines.

The concept of company development allows to systematize strategic analysis and planning results. It is putting together all data on compliance with the quality system requirements, related to the development strategy of the company [14–16]. The fundamental purpose of development concept is to ensure the harmonization of available resources and capacities with external and internal environment conditions.

The development concept has to be developed to:
- simplify the company management;
- make well-informed decisions;
- improve cross-level synergies;
- increase employee satisfaction with their work.

This development concept helps to meet many challenges associated with strategic planning process [17]. The concept of company development systematizes the document resources of external and internal environment of the company, of the interested parties list and their needs and of organization’s vision.

5. Practical significance
In experience of international companies and leaders of Russian economy, the target management and use of key activity performance indicators allows companies to be effective and flexible even under difficult economic circumstances.

Thus, some of the essential features of company development identified are as follows:
- reliability and effectiveness of companies operation;
- the competitiveness of a company;
- enterprise flexibility in relation to external environment;
- well-developed social responsibility of the company;
- risk management;

In terms of systemic approach, the company is an open and complex economic system, which is operating in internal and external factors interaction. [18-19]. In this regard, when considering sustainable development of the company it is necessary to determine the external (beyond the control of the company) and internal sustainability level.

External sustainability can be represented as harmonious interaction with external factors, affecting on the company’s activities (political situation, legislation and authorities, ecological environment, social status in the society, economic situation, supplier performance, competition, tax policy, investment activity etc.).

In turn, internal sustainability is coherence of the company subsystems entirety that allows to achieve the set goals and to create conditions for subsequent growth.

In that regard the sustainable company development should be viewed as a multidimensional process, some set of elements and properties, interaction and influence of which is aimed to adapt the company to internal and external change in its environment and to ensure self-preservation of the company in the development process through qualitative changes in production and management [19, 22].

A study of enterprise sustainable development and its sustainability assessment system enable to start creation of company sustainable economic development concept. In order to address this goal have been applied analyses methods of economic status, assessment of financial performance, factorial deterministic analysis, mathematical design and prognostication of economic systems. Modeling results are presented in figure 1.
In light of the foregoing in use of the dynamical theory of sustainable development was developed the sustainable economic concept, which is based on three strategies:

- financial resource management strategy to ensure the sustainable development;
- productive capacity management strategy on the principle of resources optimization;
- Strategy for optimal management decision-making.

The sustainable development concept could be represented as the combined effect of financial, material and manpower resources, as well as of chosen strategies for their management, which influences the final result - product sales volume [20-21]. It is shown, that when assessing the final financial outcome the influence of external factors and internal environment, where the management is related to the use of its own production capacity, should be taken into account. It is defined, that it is necessary not only to adapt to external and internal environment factor, but also, whenever possible, manage them.

6. Conclusions

This concept can be schematically presented as the combined effect of financial, material and manpower resources, as well as of chosen strategies for their management, which influences the final result - product sales volume, operating activities of the enterprise, profit value.

When assessing the final financial outcome the influence of external unmanageable factors (rise in inflation and prices, instability in the tax system, in governing law, decrease in personal income, etc.), as well as of internal factors (excess of acceptable levels of financial risk, inefficient financial strategy, marketing, etc.) should be taken into account.

Generally, the idea of sustainable development management concept is to use such management methods that would best affect the economic condition of enterprise, the final results of its activities and the possibility of achieving these results. The sustainable development management concept should take into account the set of principles and rules of company sustainable development management, which result from matching possibilities of the company and from its ultimate goal.

The implementation of conclusions and proposals based on the application of methodological developments and research results, contributes to enhancing the relevance and effectiveness of
construction enterprise management strategy in the context of unstable economy. Proposed economic crisis management framework for construction enterprises expands and complements existence of materials on this subject.

7. References
[1] H Kerzner 2014 Strategic management Project Management Maturity Model (Moscow: DMK Press) p 320
[2] Kafidow V V 2020 Modern management concepts (Moscow: Kreativnaya ekonomika) p 442
[3] Kiyatkina E P and Akri D F 2017 Methods for assessing competitiveness in enterprises pp 24-9
[4] Zabrodin Yu N 2014 Investment and construction business management (Moscow: Omega L) p 504
[5] Vorontsova N V 2017 Organization of quality management systems for small enterprises Innovative economic development and management strategies pp 47-52
[6] Akri E P and Shiryaeva YU V 2018 Problems of the investment and construction complex of the Samara region and solutions Innovative management development strategies in construction and urban economy pp 122-9
[7] Akri E P and Egorova I P 2018 Economic and mathematical models of investment activity in the housing and construction sector University newsletter pp 114-8
[8] Malyuk V I 2017 Strategic management Organization of strategic development (Moscow: Yurait) p 362
[9] Vorontsova N V 2015 Functioning of the Samara housing market in an unstable economic situation Economic aspects of construction complex management in modern conditions I p 60-4
[10] Kudina M V 2012 Company management Theory and practice (Moscow: MGU) p 328
[11] Grushenko V I 2018 The management strategy of companies From theory to practical development and implementation (Moscow: Infra-M) p 336
[12] Kiyatkina E P and Ushanova N A Formation of an organizational and economic mechanism for long-term investment in solving housing problems in the city (Samara: Samara State University of Architecture and Civil Engineering) p 102
[13] Al'biter L M 2009 Concept of rational management of production infrastructure of industrial complexes (Moscow: Knorus) p 92
[14] Gorshkov R K and Ulyanova A V 2013 Strategic planning and management of construction enterprises (Moscow: MGU) p 182
[15] Kiyatkina E P and Ushanova N A 2011 Methodological bases of modeling the system of investment of funds in solving housing problems (Novosibirsk: SIB-PRINT publishing house) p 175
[16] Korvega S V 2014 Technology and management methods for a balanced development of enterprises (Saarbruecken: LAP Lambert Academic Publishing) p 244
[17] Shirshikov B F 2016 Organization, management and planning in construction (Moscow: ASV) p 528
[18] Vorontsova N V 2016 Prospects of using public-private partnership for housing construction in the framework of increasing housing affordability Economy and entrepreneurship pp 682-85
[19] Kovan S E 2013 Theory of anti-crisis management of socio-economic systems (Moscow: Infra-M) p 160
[20] Lapin A N 2004 Strategic management of a modern organization (Moscow: The magazine “Personnel Management”) p 288
[21] Gumba H M 2009 Effective management of the development of innovative processes in the construction industry (Moscow: ASV) p 137
[22] Gimaltdinov I K, Levina T M, Stolpovskii M V, Solovev D B 2018 Dynamics of the Localized Pulse in Bubbly Liquid IOP Conference Series: Materials Science and Engineering 463 Paper № 022002. [Online]. Available: https://doi.org/10.1088/1757-899X/463/2/022002