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Modeling of Management Processes of Construction Company Business for Increase in its Competitive Stability

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Abstract

The construction organizations lack adaptive infrastructure. It is required to use more intensively SMART-technologies of design and construction. Purposes of this article: a) the system analysis of categories "competitiveness", "stability", "rating of the company" for the construction organizations; b) to construct and investigate economic and mathematical model of competitiveness of the construction organization; c) to determine parameters of self-organization of construction company; d) to construct an identification algorithm for model. These new tasks also answer the purposes of modern construction business, problems of forecasting of its development. Using methods of the system analysis and modeling, in work three levels of the analysis of construction business are considered: macrolevel (level of the state), mesolevel (level of the region) and microlevel (level of the company). For example, 10 various classes of competitiveness of construction companies are offered. It improves the classification used traditionally. The new economic and mathematical model on the basis of production functions of type of Cobb-Douglas is constructed. The algorithm of its identification on the basis of situational scenarios is also developed. The algorithm finds parameters which will allow to define competitiveness of construction company a priori. The offered research has a development, for example, is possible to use for the forecast of adaptation of the enterprise.

Keywords: Construction Company; Competitiveness; Stability; Adaptability; Modeling; Identification; Production Function.

1. Introduction

Management of construction – multilateral process. Modern technologies of construction are not only technology of design, but also and management, marketing, advertising, accounting of consumer preferences [1, 2]. Introduction of innovations (in sphere of events, technologies, materials) in construction is necessary for effective transformation of business processes, production technology solutions.

Construction – a part of production of goods, therefore innovation has to increase efficiency, competitiveness of the construction organization. Innovative solutions have adaptive ability to be applied to the available or expected demand. Factors of quality, innovations, competitiveness need to be considered. For example, construction modular, where self-controllability – not only in sense of the self-organizing organizations, but also in system sense, as a complex system.

Many construction organizations, the companies adapt the infrastructure, processes of management of business, are looking for effective management of the company [3]. For this purpose they use IT, operate SMART-technologies of design and construction. Such approach provides evolutionary ability of the company, its competitiveness [4].

It will save from bankruptcy (on figure 1 – dynamics of the insolvent enterprises in the Russian Federation, 2010-

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