Management Efficiency Building Materials

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ABSTRACT

The main objectives in the field of construction materials management are closely linked to compliance with increasing population demand for building habitat. In order to meet the highest levels of these trends, managers are looking to select the best development strategy of the process of construction and commissioning work of the diversity of construction materials, facilities, equipment, etc., required to put into operation the investment objectives designed. For successful development strategies in the current conditions of increasing complexity, it is necessary to apply some antithetical principles and to deepen the factors that influence the effectiveness of global economic projects and to use mathematical modeling analytical knowledge multidisciplinary and interdisciplinary to contribute to the project. Based on these requirements, in this article, the authors aim to submit a brief description of these principles.

KEYWORDS

Building Materials, Econometric Models, Optimization, Strategy

1. INTRODUCTION

1.1. Applying the Principles Antithetical in Development Strategies

One of the basic antithetical principles applied in development strategies of industrialization of modern building materials, plumbing, installation of equipment etc. is centralization or decentralization, which seeks to enforce uniform or diversified standardization, modeling, norming, established tolerances.

We know that any man-made concept has contradictory properties (Bujoreanu, 2002). Thus, in centralization there is an effect which appears in ensuring a climate of order and discipline, but theories also a negative effect resulted in braking development of creativity and in spreading false mentality - opposed to innovation.

Strategy centralization / decentralization may be applied by managers in a maximum (degree of scope 1) or minimal (level of enforcement 0) extent (Bulz, et al., 2005). This means that the scale of assessment may be 1/0 of all intermediate degree application, which is in the interval (0.1). This strategy is applicable to all industrial activities, more so in the case of construction materials and installation that exceeding large number of types and sizes. Obviously, if it is decided - launching a large number of choices-typo-dimensions – there is a necessity to elaborate soon an accelerated standardization. When applying antithetical strategy - launching a small number of choices-typo-dimensions - then designs a careful program standardization not to risk obsolescence operation benchmarks that have not been designed in the spirit of modern technological innovation trends. If it is found that this negative phenomenon was not significant, one can expand the number of standards. This allows the diversity of number of varieties and thorough knowledge of the advantages / disadvantages of each product assortment that has been produced and used in practice establishment and exploitation of construction objectives, based on studies of the utility of value analysis / value

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engineering, revenue figures etc. Depending on the successes / failures obtained one experiments different type of varieties, the factors of influence. Complement and combine different versions of calculation of global economic efficiency ($E_g$) of construction elements and installations, in various stages of execution, on all phases of execution or even later stages of execution (repairs, upgrades, post-use). It follows a global efficiency of project construction and installation execution ($E_{ge}$), a global efficiency for using design solution ($E_{gs}$) and finally, a global efficiency of the final solution of the project throughout the life of the objective of investment ($E_{gsd}$), which includes post-use. Of the mentioned here, one must pursue systematically, through statistical record, the assessment management efficiency construction materials industry in various forms.

2. MONITORING THE EFFECTIVENESS OF THE TARGETS ACHIEVED BASED ON THE RESOURCES OFFERED BY THE INDUSTRY OF MODERN MATERIALS OF CONSTRUCTION AND INSTALLATION

The progress of building materials and installations, by improving management of the industry (strategic systems), but also through private initiative collateral, is huge. There have also appeared and spread materials and smart devices which, when subjected to a certain disturbing factor, usually external, produce changes in an element of construction, installations which give it new properties, including even the removal of the adverse effects on the building. (Ionita and Moga, 2009; Bulz, 2010) For example, a mass of light ($S$) acts on a construction element ($C$) by warming in a first stage (disturbance). This expansion, if continued, would require the compression element $C$, making it necessary to decrease accordingly, thus increasing operating costs. However, by heating, the color changes, in the sense that it becomes lighter. Light colors do not absorb light, thus heating ceases. With no heating, no expansion occurs, so no compression in the construction element either, and, therefore, there is no additional cost of operation. In this way, a smart material saves an additional cost of exploitation ($C_{se}$) if $C_{mi}$ smart material cost does not exceed that of ordinary material $C_{m0}$, as follows:

$$
C_{mi} - C_{m0} < C_{se}
$$

(1)

The economy performed by the intelligence material ($E_c$) is:

$$
E_c = C_{mi} - C_{m0} - C_{se}
$$

(2)

The economic efficiency of intelligence material (EEI) is:

$$
E_{ei} = \frac{E_c}{C_{mi} - C_{m0}}
$$

(3)

Another source of materials with high efficiency is the building that can be subjected to non-destructive testing. By NDT, one may find some information on the bearing capacity of the structure as a whole, such as:

- Resistance of the material submitted to several requests;
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