The strategy of production targets and the environmental planning in construction

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Abstract. Strategic planning is a set of targeted actions and decisions that are defined by the management of the organization to achieve the desired results, using the base of almost all management decisions and a plan that ensures the implementation of the mission of the construction organization. The article deals with the tasks of strategic planning in construction, which are designed to ensure the effective allocation of resources, adaptation to external factors, controlled coordination of financial and production aspects of activity, organizational strategic foresight. The review of the author's experience in solving the problems of planning using innovative methods and technologies was made.

1 Introduction

The basis of environmental planning of construction is the definition of options for the possible use of natural resources and conditions by comparing the prerequisites for the development of the economy and its limitations for each type of economic activity. In this article we will consider the principles that allow taking into account this factor.

The advancement of information technologies brings about multiple changes such as economic globalization trends, competition among businesses, shorter life cycle of product, time and quality demands, etc to the business medium. The functional targets of the traditional system of production aimed at achieving the harmony in the low price and the higher efficiency will not adapt to the current tendencies. Faster time of production, customization of products, saturation of network production, intellectual production etc make up the basis of the main subsystem of the building contractor that supplies key products to their users to be highly competitive in the market. Therefore, functional objective targeting is critical to the design of the system of building production [1].

A production system is an input system where production resources turn to products or half-made products. The system includes a production process and any related equipment, software, and personnel. The system also includes the whole process or just a part of the life circle of the product, e.g. market analysis, product design, plan of production process, assembly, transportation, marketing of the product, after-sale servicing, residual waste processing etc. Thus, a production system should be treated both as an economical, social, humanitarian medium and also as a huge complex social system [2,3,4]. The principal

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functional targets of the production system should be researching it in terms of time, quality, value, efficiency, and ecology protection.

Analyzing the interdependence between consumer needs, competitive strategy, on one hand, and the system of functional task production on the other, proves the key issue of a production system [7-10].

2 Goal, tasks, methods of study

Numerous researchers view clients from different angles. Like, O.A. Pobegailov [11] believes that the consumer's demand in the building market is the harmonization of the strategy of joint use of benefits and distribution of risks among the sellers and buyers. V.V. Kostyouchenko [7] argues that the clients' demand depends on the aim of investing relevant resources, mainly of time and money, to obtain a product of objective quality and quantity. We maintain that the client's satisfaction and loyalty are the two factors of measuring the consumer's demand to serve as the basis of the contractor's operation.

The competitive strategy here is regarded as the basis to realize the share of the company in the market. The majority of researchers insist that, at the income and outcome points, the supply chains may soften the impact of a marketing strategy by facilitating a better supply efficiency. Organizationally, a complete marketing strategy should include some sales forecast information as well as technological information, sales volume etc. A marketing strategy may be divided into four aspects: the order of processing information, labor information, strategic information, and information about competitors [5-8].

The literature on the subject maintains that the marketing aspect of the strategy possesses the following three aspects: informational, financial, and strategic operations [10-13].

Cost, meeting the clients' needs, flexibility, innovations have always been the key evaluators for manufacturers in evaluating efficiency or operational targets. Traditionally, to evaluate the efficiency of the contractor's operations there are six indexes to be applied: actions ("work"), time, order processing, quality, customization, and customer's satisfaction [14,15]. Operational strategic planning keeps offers the following four types of marketing advantages in order to achieve some higher criteria: cost, quality, time, and flexibility. To impose constructional organization and planning it is essential to analyze cost, quality, flexibility, and innovations. Basing on the analysis the following four variables are shaped up: cost, level of servicing, time, and innovations in order to evaluate the functional objectives of the system [16-19].

The tighter the communication bond between the customer and the contractor, the easier they may exchange information, the better their readiness to modify their inner reinvestment information system is to lower the risk of failure of their information system and to raise the production system potential [20].

Where the contractor's strategy and production system are integrated in an interactive process, a closer contact gets achieved to result in potential customers and higher satisfaction in the prospector's operations. This also applies to environmental planning. We maintain that relations in companies may influence the information flow potential, while the accuracy in determining the customer's needs may assist the company to shape up their competitive strategy and withstand market risks [10].

A production system is a vital means of implementing a marketing strategy that needs to be timely adjusted in accordance with the challenges of the marketing strategy. A marketing strategy may produce a major positive effect on solving some system's functional problems while managing building production.

Consumer demands may produce a strong effect on the production system efficiency. Where the intensity of consumer demands gets more and more dependable on the

production of the system's functional tasks, the production system will show some major changes by achieving capital gains from the main operations. Thus, building up the relations between consumer demand and production system in view of solving functional problems may help increase the level of dependence between the client's satisfaction and effective interaction among the customers and contractors and, further on, increase the operational efficiency of the production system. Thus, customer demands may seriously impact the production of the functional targets of the system[15].

2 Results and discussion

In order to study customer demands and the system of production from the angle of functional targets, the factor analysis is applied. For measuring the customer's satisfaction and demands, 15 elements of customer demands (A1 ~ A15, Table 1) are studied. After processing the results, the factors are analyzed using the software. Calculations start at analyzing some key components: 4 factors having value 1 are studied, then their peak values get systematized with maximal bias from value 1. After the initial factor analysis there comes interpretation of 6 other indices A4, A7, A10, A12, A14, and A15. Next, the rest 8 factors get analyzed (see their qualitative results in Table 2). An analysis of the values of the indices of a contractor under study showed 0.770 where the lowest value equals 0.5 which proves a valuable achievement, i.e. the correlation matrix possesses some common factors in the same field. [14-18].

Table 1. Problem of consumer demand.

Index	Problem
A1	Compliance with the amount of demand \ expectations
A2	Customer expectations of the product reliability and quality of services
A3	Informing customers on the quality of common value of product and service
A4	Requirements of estimating the scope of customer's satisfaction
A5	Customer's estimation of product and service reliability
A6	Evaluation of the level of apprehension of cost in view of cost policy
A7	Desired charge
A8	Comparison between client's apprehension and expectations
A9	Customer's claims
A10	Expectations of customer's loyalty and second sales
A11	Charge value in a reported period
A12	Steps taken to increase marketability
A13	Working cost
A14	Preliminary sales and after-sale servicing
A15	Safety indexes

A study of the key component of analyzing the elements of marketing strategy shows the importance of adequate understanding of those customer's demands at level 0.821 that exceed level 0.5.

Table 2. Analysis of the factors customer demand.

Index	Satisfying customer's needs	Customer's loyalty
A6	0.875	
A1	0.802	
A2	0.777	
A5	0.700	

A3	0.687	
A13		0.813
A9		0.736
A11		0.701
A8		0.684
Variations %	43.787%	27.306%
Total changes %	43.787%	71.086%

Table 3. Description of marketing strategy.

Factor	Problem
B1	Effects of the previous strategy
B2	Their dependence on environment
B3	Risk attitude
B4	Time strategy
B5	Strategy of quantitative operations
B6	Style of decisions
B7	Stability of strategic development
B8	Overcoming drawbacks
B9	Priority values at planning the development strategy
B10	Inter-culture conflict
B11	Potential competitors
B12	Competition and political environment

Table 4. Analysis of Marketing Strategy Factors.

Factor	Performance	Strategical information	Financial information
B5	0.852		
B6	0.791		
B 2	0.760		
B8	0.691		
B1	0.589		
B11		0.815	
B12		0.750	
B9		0.689	
B3		0.675	
B10			0.872
B4			0.800
B7			0.649
Explained variations %	29.186%	22.104%	18.861%
Total changes%	29.186%	51.290%	70.151%

The factor analysis (Tab. 3-4) shows that the functionality of the development of strategic planning directly depends on the operational evaluation of the customer's satisfaction obtained by means of monitoring. The company's position in the market of construction industry and technologies also depends on this [18].

Table 5. Problems of production and functional task consistency.

Factor	Problem
C1	Technologies
C2	Technological innovations
C3	Product quality control function
C4	Guarantee of work quality
C5	Mechanism of coordinating ecological impact of production system
C6	Production capacity
C7	Production continuity
C8	Production system (scale and volumes)
C9	Systems compatibility
C10	Client focus
C11	Stability
C12	Marketability
C13	Functional flexibility
C14	Innovativeness
C15	Efficiency
C16	Prime cost control
C17	Level of requirements to the production system
C18	Quality guarantee
C19	Planning
C20	Level of material-and-equipment availability
C21	Software products

Studying reliability is a further way of proving the reliability of the research and the efficiency of strategic planning. We accept the factor of reliability by applying the Kronbach method, widely described in the literature. As a rule, the factor less that 0.3 shows a crisis system, from 0.5. to 0.7 proves average stability, while 0.7 up to 0.9 indicates a high level of stability. As seen in Tab. 6, the Kronbach values applied to a variety of factors and variables show the scale of stability [13].

Table 6. Reliability by Kronbach.

Cost	Factor	Kronbach values		Variable	Kronbach	factor	
Functional targets	Charge	0.8177	0,8460	Info exchange	Info on operation completion	0.8541	0.8239
	Quality	0.8005					
	Efficiency quotient	0.7058			Financial info	0.7863	
	Services	0.7146					
	Flexibility	0.6912			Strategic info	0.8801	
	Environment	0.7031					
Customer demand	Satisfaction	0.8414	0,8219				
	Loyalty	0.7834					

Satisfaction about information exchange, such as operational efficiency, financial and strategic information results in a substantially positive effect that means a higher customer's satisfaction and contractor's stability in the building market. Moreover, the level of loyalty also affects the strategic efficiency of competition most positively.

3 Summary

The research presented here confirms that both a customer's demand and a marketing strategy produce a vital impact on building production in the process of solving the system's functional problems. Thus, keeping the customer satisfied and raising the key competence of the managerial staff should be vital for improving the functional targets of a production system. Environmental planning taking into account new information systems in construction allows achieving development harmonious relationship between Nature and Society. Moreover, the levels of satisfaction and loyalty of the customers' demand produce an important positive effect on the operations of strategic planning and quality control of building production.

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