

STRATEGIC DEVELOPMENT MANAGEMENT OF INDUSTRIAL ENTERPRISES FROM THE PERSPECTIVE OF A DEGREE PERFECTION INCREASE OF TECHNICAL SYSTEMS

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In the condition of increased competition, the main task is strategic enterprise management.

In this article based on the degree perfection increase of technical systems, the technique of identifying strategic directions related to the development of the enterprise is proposed. A universal approach to determining development goals of industrial enterprises: continuous increase of the perfection degree is formulated. Various strategies for the development of industrial enterprises are considered, and recommendations for its applying for different types of enterprises are provided.

Keywords: strategy, strategic management, decision-making, laws of development systems.

Introduction

In the strategic management of the enterprise, one of the main concepts are “strategic planning”, “strategic development”, “enterprise strategy”, however, both in the foreign and the Russian literature there is no the unified approach to the essence and content of these concepts. According to O.V. Vihanskii the strategy is the long-term development direction of the enterprise, concerning the sphere of the enterprise activity, web of relationships inside the organization, as well as the organization position leading the organization to its objectives in the external environment [1].

E. Korotkov supposed the strategy is the development program and a set of points of references and constraints that determine the development direction of the company in accordance with the company goals [1]. R.A. Fathudinova thinks the strategy is the program, the plan, the course of management subject to achieve strategic goals in any field of an activity [3].

In above-mentioned definitions, there are general aspects regarding goals or development directions of the company though there is no tools for determining such goals and directions.

Turn to the term “development” to find a tool to implement the strategic management of the industrial enterprise development. According to the philosophical dictionary “development” is irreversible, directed, natural change of material and ideal objects [4]. In D.N. Ushakov’s defining dictionary, the term “development” is the process of transition from one condition to better condition. [4]. In D.N. Ozhegov’s dictionary, “development” is the process of regular changes, transition from the old to the new quality, from simple to complex, from lowest to highest [6].

For practical use, the term “development” should be concretized, firstly, to define by what regularities the enterprise follows, secondly, to define what means “better”, “more qualitative” system condition.

For these purposes, we consider the enterprise as a complex technical system. It is known that the development of technical systems follows the certain laws [7]. G.S. Altshuler who studied technical systems had formulated one of such laws: development of all systems is to increase the degree of the system [9]. The degree of the system perfection is the following ratio:

$$I = \frac{\sum_{i=1}^{\infty} F_i}{\sum_{j=1}^{\infty} P_j} \rightarrow \infty,$$

where F_i – a set of useful features (functionality), P_j – total cost.

The indicator “degree of the system perfection” (I) approaches to infinity that reflects the ability of unrestricted development. In an extreme case, the function will be realized and there will not be cost of

its implementation. For example, shops with sellers are replaced by self-service shops, wire communication are replaced by wireless, good delivery – by 3D printing of these goods (additive technology), etc.

At a specific historical time horizon, the task of strategic management is to find the maximum value of the function restricted by the current level of scientific and technological development. In this case the indicator “degree of the system perfection” (I) will approach to the maximum.

It seems to apply this law in the strategic management of industrial company development.

During its development, the company is improving the degree of the perfection; there are five variants of system behavior (Table 1).

Table 1

Development strategies of industrial enterprises from the perspective
of the degree of system perfection increase

№	Strategy	Functionality (F)	Expenses (P)
1	Perfect strategy	↑	↓
2	Functionality development	↑	const
3	Cost reduction	const	↓
4	Significant functionality development	↑↑↑	↑
5	Significant cost reduction	↓	↓↓↓

In perfect strategy, the enterprise should provide the functionality by reducing expenses and improving functionality. This strategy is difficult for the implementation that’s why the strategy of maintaining the current level of expenses (strategy 2) or reducing costs at the same level of enterprise functionality (strategy 3) is chosen. The third strategy is typical for “old” enterprises making products, traditional for the entire industry-commodity company, metallurgy, agriculture, etc.

There are such variants that associated with a significant increase in functionality, accompanied by increasing costs (strategy 4). This strategy is typical for new innovative enterprises, as well as new industries. Approaching the limit of its functionality, these enterprises follow the ways to reduce cost.

Sometimes it is appropriate to simplify the activity (reduce functionality), while expenses are sharply reduced that will lead to an increase of the degree of perfection. This strategy is chosen by enterprises increasing volumes of production. They unify their product (economy of scale).

The strategic development management should be continuous. Enterprises maintaining the certain degree of perfection inevitably lose in competition due to the constantly replacing some technologies by other on the market.

In 1920-s Kondratiev described fluctuating economic cycles [10], later explained by the occurrence of new technology. Currently, this conception is called as a technological mode conception [11, 12]. Technological mode (wave) is a variety of technology that are specific to a certain level of production development; due to scientific and technological progress there is a transition from lower to higher progressive modes [13]. The effectiveness of technology is constantly increasing that is approximated through S-shaped logistic curve or P.F. Verhulst’s curve [14], which is a monotonically increasing dependence of the characteristics from the time.

Thus, the strategic development management of the industrial enterprise should be continuous that is the enterprise is improving its degree of perfection in order to maintain a stable competitive advantages on the market.

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СТРАТЕГИЧЕСКОЕ УПРАВЛЕНИЕ РАЗВИТИЕМ ПРОМЫШЛЕННОГО ПРЕДПРИЯТИЯ С ПОЗИЦИИ ЗАКОНА ПОВЫШЕНИЯ ИДЕАЛЬНОСТИ ТЕХНИЧЕСКИХ СИСТЕМ

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В условиях усиления конкурентной борьбы на первый план выходит задача стратегического управления предприятием.

В статье на базе закона повышения идеальности технических систем предложена методика определения стратегических целей развития предприятием. А также сформулирован универсальный подход к определению целей развития промышленного предприятия, как непрерывное стремление к росту степени идеальности. Рассматриваются различные стратегии развития промышленного предприятия с позиции закона повышения идеальности системы, даются рекомендации об их использовании для различных типов предприятий.

Ключевые слова: стратегия, стратегическое управление, принятие управленческих решений, законы развития систем.

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