

## Place of Manufacture Diversification in Cyclical Development of the Enterprise

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### ABSTRACT

The relevance of the researched problem is caused by the fact that diversification is one of the best options for reforming enterprises. The aim of the research: to consider changes in production of outputs in development cycles of the enterprise. This will help to reveal the nature of manufacture diversification. The leading method to the research of this problem is the system approach, which allows to elicit factors promoting formation of business mechanism of manufacture diversification under the conditions of volatile economic environment. The results of the research are: it is offered to enhance the existing classification of enterprises by nomenclative and technological characteristic, taking into account the specific nature of processing capacity. The materials of the research can be useful for control bodies of enterprises when taking constructive steps in the sphere of manufacture diversification and strategy development.

### KEYWORDS

Cyclical pattern of development, manufacture diversification, resource base of enterprise, nomenclative characteristic, processing capacity

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## Introduction

### *Establishing a context*

Adaptation of manufacturing corporations to a new phase of economic development is a complicated process, which requires market industrial engineering techniques and considerable financial expenses. Earlier the main direction of reforms was change of the external environment of functioning of enterprises. Now the question of reforming of enterprises is in the center of

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attention. And diversification of business processes is one of the best options for reforming.

Manufacture diversification is one of the tools allowing to increase efficiency of enterprise management over the long-term perspective. Manufacture diversification provides an opportunity to decrease the extent of risk. This stabilizes the financial situation, expands scales of production on the basis of occurrence of synergism, and increases flexibility of response to changes of market uptake.

In terms of the research of perspectives of diversification, consideration of branch development cyclicity is of great interest. It is caused by fluctuations of request. Taking into account the cyclical pattern of development, it can be noted that production experiences the sequence of changes of tranquility at various values of prices and volume of output of lineages. The classical concept of life cycle of the organization is very similar to the theory of life cycle of a product. It has 5 main successive steps of business development: startup, growth, maturity, recession and revival of the company. In this regard it is possible to assume that the life cycle of production includes cycles of high-quality renewal of manufacture on long periods and cycles of the current quantitative regulation on short periods.

In terms of manufacture diversification, long-term cycles are of special interest.

### Literature Review

The term "diversification" is treated rather widely in the scientific literature. F. Kotler (1996) speaks about diversification as means or a way of penetration into new branches. According to M. Gort (1962), diversification can be considered as division of invested or loanable monetary capitals between various objects for the purpose of decrease of risk of possible losses of the capital or income from it. When entering a new branch, company management finds out that arising problems are similar to the previous in many respects. As a result, there is an additional effect connected with management of diversified manufacture - a management synergism (Ansoph, 1999). From the perspective of the Japanese researchers, the diversification is any change (increase, reduction) in number of activity categories, i.e. it is treated more widely (Yoshinara, Sakuma & Kami, 1979). While studying the diversification, it is necessary to separate the following notions: branch of enterprise activity and branch of productive activity of an enterprise. The first one is used for characterization of various spheres of functioning of an enterprise: production, on securities market, in construction, etc. The second notion is for description of different types of productive activity, on various branch markets. The diversification, as an economic category, characterizes the depth of change of economic relations and formulates the essence of productive process while manufacturing competitive products. Technological and productive capacity of an enterprise is also taken into consideration (Plotnikov & Pavlov, 2016; Zavodchikov et al., 2016). According to the economic content, the diversification should be a tool of transformation of proportions of reproductive performance, a method of redeployment of resources between types of production or a method of reprofiling (partially or completely) (Prudsky, Elokhov & Kovshov, 2007).

The questions connected with the research of manufacture diversification in cyclical development of enterprises are considered in different works. The model of L. Greiner (1998) is one of the most quoted works about life cycle of organizations. This model was originally published in the magazine Harvard Business Review in 1972. L. Greiner (1998) opined that the company during its existence consistently passes through 5 stages of growth: growth through creativity, through management, through delegation, through coordination and through cooperation.

The concept of life cycles is a certain model of company development; it gives a chance to make a forecast about future events and its occurrence. In other words, it provides an opportunity to be prepared to this sort of situations. Also this model helps to observe what occurs in a company, to find deviations, which give the chance to a manager to solve real problems.

The conditions of competitive environment require constant updating of products and technologies. This leads to change in tranquility in relation to enterprises, branches and national economies on long periods. Gradual saturation of market by certain outputs, and improvement of ways of its manufacture results in change in current tranquility for certain producers on short periods. In the course of changes, postponement of process beginning; unforeseen prolongation of implementation and other difficulties take place. These complications slow down changes and increase expenses in comparison with planned (Kalimullin, 2015; Ashmarina, Streltsov, Dorozhkin, Vochozka & Izmailov, 2016).

### *Establishing a research gap*

In spite of the fact that a large number of works are devoted to the questions, connected with diversification processes, the study of activity of the Russian businessmen showed that there is no complex understanding of the core of manufacture diversification. The existing manufacturing techniques and substantiation of projects of diversification do not provide rather exact information for long-term decision-making. This causes need for their improvement. Practice shows that there is no complex of organizational measures for attracting investments. Not always adapted foreign methods of assessment of efficiency do not correspond to specific features of diversification projects. The existing approaches to formation of diversification strategy, performance evaluation of its projects, attraction of investments, the organizational mechanism of stimulation of investment activity do not interest enterprises in accomplishment of manufacture diversification, in increase in volume of accumulation, growth of injection in real business assets from financial structures. As a result the Russian enterprises suffer from lack of operating capital and high degree of wearing of capital equipment. And imbalance on different types of markets grows. The conditions of competitive environment require constant updating of products and technologies. This leads to change in tranquility in relation to enterprises, branches and national economies on long periods. Gradual saturation of market by certain outputs, and improvement of ways of its manufacture results in change in current tranquility for certain producers on short periods. In this regard we can assume that life cycle of production includes cycles of high-quality renewal of manufacture on the long periods and cycles of the current quantitative regulation on the short periods.



### ***Aim of the study***

The aim of the research is to consider changes in production of outputs in development cycles of the enterprise. This formulation can serve as an integral part of formation of business mechanism of manufacture diversification under the conditions of volatile economic environment.

### **Methods**

#### ***Research methods***

The following methods were used in the course of the research: theoretical (analysis; synthesis; concretization; generalization; analog method; modeling); diagnostic (decomposing, competitive analysis); empirical (observation, comparison, study of manufacturing corporation work experience, research of the regulatory documents, graphic); experimental (stating and formative), methods of mathematical statistics (ranking method, definition of a rating, group of territories) and graphic representation of the results.

#### ***Experimental research base***

The machine-building complex of the Samara region is the experimental basis of the research.

#### ***Investigation stages***

The research of the problem was conducted in three stages:

at the first stage there was the theoretical analysis of existing methodological approaches of economic literature and researches, dedicated to problems of management of manufacturing corporations, thesis research on the issue, the problem, the aim, and the research methods are identified; the plan of the investigational study was drawn up;

at the second stage the model of formation of the factor system, determining functioning of the business mechanism of manufacture diversification under the conditions of volatile economic environment, was developed;

at the third stage the analytical work was completed, the theoretical and actionable conclusions were specified, the received results were generalized and systematized.

While studying the diversification, it is necessary to separate the following notions: branch of enterprise activity and branch of productive activity of an enterprise. The first one is used for characterization of various spheres of functioning of an enterprise: production, on securities market, in construction, etc. The second notion is for description of different types of productive activity, on various branch markets.

Having all basic notions, which are necessary for the further analysis, it is possible to characterize development cyclicity of branch uptake in details.

Any enterprise, their set (branch) tends to maintain correlation of offer with external request. However, during certain periods of time imbalance between offer and request can occur. This situation can be corrected only by means of measures of state regulation. Analyzing request, we can note that overabundance of production arises in some periods of development. This happens because of cyclical pattern of request. During these periods enterprises

feel urgent need of manufacture diversification. It is possible to call this time the crisis periods of branch development.

Various factors, for example obsolete stock, business competition, market saturation, can be the reasons for emergence and increase of crisis tendencies.

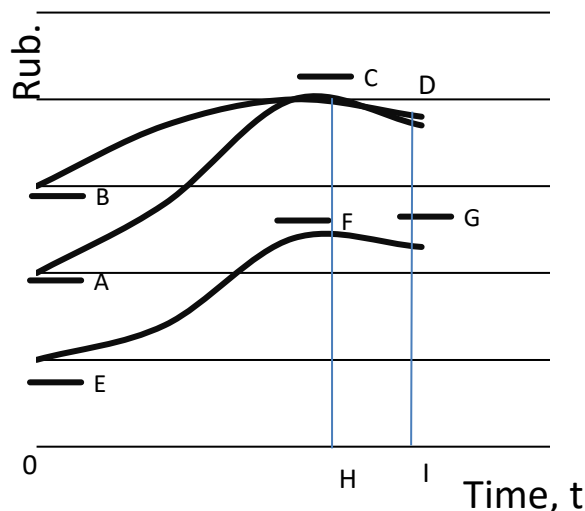
In other periods of development production deficit takes place. During these periods preference at enterprises is given to specialization in production. If market has similar branches to antiphase changes of request of the considered branch, then manufacture diversification will allow the enterprise to avoid sharp fluctuations of request for outputs in general and to preserve its financial and economic sustainability regardless of request fluctuations.

For defining the essence of manufacture diversification it is important to consider changes in production of outputs on an enterprise and its development cycle.

2.1. For this purpose it is necessary to define indicators, useful for description of changes in productive process in these cycles. It is possible to make use of total value of manufacture of outputs, its cost value, profits, and also market volume on certain items. These indicators cover adequately the results of enterprise activity, its efficiency in various instants in time on different cycle stages, and external factors.

2.2. An enterprise exists and acts in aid of satisfaction of consumers and profit taking.

In the furtherance of its goal, it should make good use of limited economic resources and manufacture maximum possible volume of production. Let us assume that an enterprise started functioning at the moment of  $t_0$  with entry level of production of outputs (fig.1). The arc BD characterizes changes in market volume on a certain item, which corresponds to the cycle of branch request.



**Figure1.** Development of the manufacturing process of outputs at the enterprise in the course of time

Source: it is drawn up according to the statistical reporting material of the enterprise of machinery-producing industry in the Samara region.

Production of outputs develops incrementally. This corresponds to the jog AC in the figure 1. It reaches the maximum of market volume at the point C, at a later stage it repeats tendencies in changes in market volume as consistent with dynamics of branch request. The arc EFG characterizes the change in product cost, which increases on the jog EF in relation to flow growth, in stabilizes on the interval FG and drops a little in accordance with changes in business capacity.

At the time interval OH, an enterprise can increase its profit in two ways: firstly, by enhancing quantity of output, secondly, by reduction expenses for a production unit (on account of semi-fixed costs). At the time interval HI possibilities of increasing profits considerably decline. The enterprise can not enhance quantity of output, that is why margin can grow only by means of cost saving. For this reason in order to save the existing rates of increase in earnings in the time point H, a number of measures should be implemented. It can be achieved by the following ways: by introduction of new technology and equipment, allowing to turn out the same goods, but at lower cost; by upgrade of produced units; and also to enter new markets with produced goods or approach new markets with new goods. There is also a separate way – full exit from the existing market for the purpose of entering more prospective markets. However until the enterprise continues to get profit, being at the rather sustainable stage of the branch cycle, such behavior will hardly be appropriate.

Consequently, it can be noted that at a certain point development of the manufacturing process at the enterprise, faces the need of implementation of some transformations, one of which is the manufacture diversification. However, there are other possible options. To state the reasons for choosing the manufacture diversification, it is necessary to consider the resource base of the enterprise in more details. This determines the enterprise manufacturing capabilities.

2.3. All the resources used in product release can be classified by various characteristics. From the point of view of reforming the enterprise, all of them can be divided into two big groups: being in a rather resilient form and immobilized. In other words, these are enterprises, which are not capable to be reoriented quickly on releasing new products. Financial and labour resources fall into the first group. Used capital funds, which find expression in the processing capacity, belong to the second group. The manufacturing capacity in particular determines the assortment of produced commodities, as manufacturing characteristics are closely connected with the processing capacities. Therefore, it is possible to draw the conclusion that possibilities of the enterprise to transformation of its economic activity are defined by the specific nature of the manufacturing capacity. The last is shown through the range of products, its qualitative and chain parameters that are determined by the production methods.

That is why when developing measures, allowing to increase profits, a lot of attention should be paid to the analysis of nomenclative and technological features of production in close interrelation with the specific nature of the manufacturing capacities.

The significance of the nomenclative and technological component, when transforming enterprises, has sharply increased now. It is connected with the fact that market choice is put into the range of production. These are benefits or

a set of consumer properties, which the enterprises are going to provide to the consumer. The interrelation the product - the market influences on functioning of the enterprise. When the request for production turns down, falling of all technical and economic indicators is inevitable. The technological component in interrelation with processing capacities determines the possibilities of changes in the product mix, and also define the efficiency of various transformations at the enterprise.

There is no unity in definitions of "the technological potential" and "technological level" of enterprise development in general and special literature (Tatarskikh & Fyodorov, 2016).

Now there are various ways of grouping enterprises by the nomenclative and technological characteristics. There are mononomenclative, dominant-grocery, diversified, marketing types of enterprises (Kleiner, Tambovtsev & Kachalov, 1997). For example, according to this grouping, the enterprise falls into the mononomenclative type, if over 90% of sales volume can be attributed to the output of one type, the enterprise is relevant to the dominant-grocery type—if not less than 70% and no more than 89% of sales accounts for goods of one type. If any of the listed conditions is not fulfilled, the enterprise can be classified as diversified.

## Results and Discussions

Without denying this classification, it is possible to note that for the purposes of development of measures for reforming enterprises according to cyclical changes of branch request, it is necessary to alter it a little. Its current state does not allow to define the main directions of transformations in case of stabilization or decrease in branch request. For example, it is not clear: if the enterprise belongs to mononomenclative type - whether it is allowed to implement manufacture diversification and in what cases it is necessary to choose specialization.

According to our reckoning, it is useful to create classification by a nomenclative attribute.

It is appropriate to update this classification with accounting of technological features of production, subsequent upon specific nature of processing capacity. For this purpose it is important to divide all set of enterprises into three groups:

- technological type;
- market type;
- integrated type.

Enterprises of technological type are characterized by use of extremely specialized production methods. This results in mononomenclative volume of sales. At these enterprises the possibilities of resource manoeuvre are significantly limited, and market part of development strategy is responsible for decision-making concerning the choice of structure and forms of interrelations with consumers, competitors, suppliers. Transformations of nomenclative and technological parameters of productive process should be focused on cost management that will give an opportunity to lower expenses and to increase profits. It can also be targeted at implementation of the "technology gaps" allowing to achieve notable advantages over competitors in production of



outputs. It is possible to subsume enterprises of truck, airplane industry to technological type. The existing definition of the technological level of the machinery-producing industry does not always allow to estimate objectively reserves of increase in this level and to formulate recommendations on its growth (Tatarskikh & Fedorov, 2016).

Enterprises of market type have processing capacities capable to come quickly to terms with changes in market uptake. That is why replacement of existing production methods (and/or range of commodities) and manufacture diversification can be possible variants of reorganization.

It is also important to emphasize enterprises of the integrated type for several reasons. It makes sense to consider the specific nature of a number of industrial branches. For example, in the machinery-producing industry separate stages of engineering procedure (blank production, turnout of component parts, assembling of assembly components, final assembly of a product, etc.) are divided into various legally and economically independent enterprises. Change of manufacturing range, their partial or full reprofiling can infract functioning of not only assembly facility, but also the technological chain. Therefore possible options of transformation at these enterprises are the variants recommended to the market type. However, some of them can be accepted with some restrictions for the purpose of maintenance of unity of the technological chain.

V.V. Trubchanin (2013) states that the mechanism of the manufacture diversification is a system, which defines the order, the content and interrelation of the procedures, elements and methods of organizational support and flows. They are oriented to implementation of production of new outputs. M.E. Konyavskii (1997) and I.M. Kublin (1997) specify that diversification is a process of organizational, production, design, technological, social and economic transformations of production for partial or deep re-orientation in order to release other products. In our opinion, it is necessary to consider technological features of production, specific nature of processing capacities - especially in machinery-producing industry.

## Conclusion

To sum up, on the basis of the conducted analysis it is possible to draw the conclusion about the place of the manufacture diversification in the cyclical development of the enterprise. It is one of the possible options of production transformation for the purpose of increasing profits at the stages of stabilization or recession of the development cycle of branch request for the enterprises of market and integrated types.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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