IDENTIFICATION OF STRATEGIES FOR THE DEVELOPMENT OF CREATIVITY

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Abstract. There are many views on the concept of creativity, but so far it has not been possible to group all the variety of approaches to its definition on various aspects. The purpose of the article is to clarify the concept of "development of creativity" and identify strategies for the development of creativity on the example of machine-building enterprises. Methodology. The approach to the study and understanding of creativity (as a result, as a process, as an ability (property) of a person and a characteristic of the "creative environment") is considered as a 4P – model of creativity. The matrix is built on integral indicators, which are obtained by the method of multiplicative convolution. The proposed partial indicators were substantiated using the method of multivariate factor analysis, which allowed us to choose the most significant of them. For further analysis of integral indicators we used the improved Harrington scale and determined the level of company's creativity development according to its creative potential and dynamic abilities. Results. In the context of the study, creativity is a process, it is about its development in dynamics. Therefore, the development of creativity is a factor of innovation, which changes in dynamics and considers four components: personality, process, result and climate (or environment), which characterize qualitative change. Having obtained the value of the level of creativity development in the creative and dynamic areas, a strategy for increasing the development of creativity of the enterprise in accordance with the values of integral indicators, based on reasonable indicators, was designed and planned. Having received integral indicators of the level of creativity development in terms of creative and dynamic approaches in quantitative and qualitative dimensions, the determination of strategies for further development of creativity of industrial enterprises was carried out. The coordinates of the positioning of enterprises in the matrix of strategies are integral indicators, and the distribution of the matrix by quadrants is carried out in accordance with the improved Harrington scale. The positioning of the studied enterprises is presented in the form of a matrix. Practical implications. By constructing a matrix of strategies for the development of creativity of machine-building enterprises for 2020, it was concluded that all of the analyzed enterprises have high creative potential and mostly low dynamic capabilities (PJSC "Kharkiv Machine Tool Plant", PJSC "PIVDEKABEL PLANT", PJSC "Kharkiv Electrotechnical Plant "Transvyaz", JSC "Ukrainian Power Machines", PJSC "Kharkiv Electric Equipment Plant", PJSC "Kharkiv Bearing Plant", SSE "Association of Communards" – they are characterized by the traditional strategy). For PJSC "Kharkiv Tractor Plant named after S. Ordzhonikidze" and PJSC "FED" appropriate strategy is offensive. Among the analyzed enterprises in 2020, only PJSC "Electromashina" corresponds to a synergistic strategy, ie has high and dynamic abilities and creative potential. Value/originality. Development of a theme of work solves very important scientific and practical problem – perfection of offers on definition of development of creativity of the industrial enterprises and revealing of strategy of development of creativity of the enterprises. Having defined the strategy of development of creativity of the enterprise, there is a basis for formation of the plan of tactical and strategic actions on development of creativity for the concrete, analyzed enterprise.

Key words: development strategies, creativity development, machine-building enterprises, creative potential, dynamic abilities, matrix of strategies.

JEL Classification: C69, L19, O12
1. Introduction

In the conditions of modern globalization the main competitive advantage of each enterprise is the innovative orientation of its activity. The modern market requires companies to innovate in all areas. Organizational changes in enterprises, arising in response to the new business environment, cause a corresponding restructuring of approaches to personnel management, which are based on determining the place of individual labor potential in the innovation process of enterprises and should be aimed at ensuring innovative transformation. In this regard, one of the main ways to increase the impact of personnel is the development and use of latent abilities of the individual, which can include creativity. The main factor determining innovation is the creativity of managerial decisions. The carrier of creativity is the personnel of the enterprise, creative displays and creative approaches which promote increase of innovativeness. Therefore, managers of enterprises and scientists face the problem of defining the essence of the concept of creativity development and revealing strategies of enterprise creativity development.

The study of such a phenomenon as creativity is in the center of attention of foreign and domestic scientists. The issues of creativity development have been studied by Mazurenko V. P., Kopiika D. V., Merzhvynska A. M., Pakulina A. A., Bielohlazova K. V., Pakulina H. S., Posnova T. V., Khytoroda O. P., Tershak N. A., Pulina T. V., Sotnikova Yu. V., Timonin O. M., Ushkarenko Yu. V., Chmut A. V., and Syniakova K. M., Shumpeter Y. A., Yastremska O. M., Tershak N. A., Pulina T. V., Sotnikova Yu. V., Bardadym O. I., Yamnenko H. etc. However, among scientists there is no consensus on the definition of creativity and the identification of creativity strategies of the enterprise, which creates an objective need for continued research.

There are many views on the concept of creativity, but so far it has not been possible to group all the variety of approaches to its definition according to different aspects. Therefore, the purpose of this article is to clarify the concept of “creativity development” and to define strategies for creativity development on the example of machine-building enterprises.

2. Analysis of the concept of creativity development and strategies

Nowadays creativity as a way of implementation of new techniques or approaches in this or that sphere of activity is considered not as a peculiarity of individuals, but as a property of any person. There are more than 70 definitions of creativity (Mazurenko, Kopiika, 2018; Ushkarenko, Chmut, Syniakova, 2018), which should be divided into 4 groups.

The definitions assigned to the first group relate to the characteristics of the subject, the second group to the characteristics of the process, and the third group to the characteristics of the results of creativity. These three groups define the three main aspects of creativity, which are defined in the literature as Person, Process, and Product. In addition, there is a fourth group that focuses on the aspect of creativity related to the environment (context) of creative activity – Press (climate or environment). These aspects are universal and common points for creativity in science, art, technology, entrepreneurship and other fields.

This approach to the study and understanding of creativity (as a result, as a process, as abilities (properties) of the individual and the characteristics of the “creative environment”) should be considered as a 4P – model of creativity (Timonin, Syvash, 2016).

The highlighted aspects are closely connected with each other. Thus, creative abilities depend on the characteristics of the environment in which they are realized, and the results of individual creative activity, in turn, change the surrounding organizational context. Thus, it is possible to determine (and the experience of studying creativity confirms it) that the final results of labor, including creative activity, influence both individual-psychological and professional qualities of the worker, and the characteristics of the enterprise where he works.

On the basis of the analysis of various approaches to the definition of “creativity”, it was clarified. Thus, creativity is a factor of innovation, taking into account four components: personality, process, result and climate (or environment) (Pakulina, Bielohlazova, Pakulina, 2019).

But in the context of research creativity is a process, it is about its development in dynamics. Therefore, the development of creativity is a factor of innovation, which changes in dynamics and takes into account four components: personality, process, result and climate (or environment), which characterize qualitative change.

Having obtained the importance of the level of creativity development in creative and dynamic areas, it is possible to design and plan a strategy for the development of creativity of the enterprise based on reasonable indicators.

Thus, determining the level of development of creativity in terms of creativity and dynamic abilities can be carried out in the following steps (Mazurenko, Kopiika, 2018; Merzhvynska, 2019):

1. Determining the value of partial indicators to analyze the development of enterprise creativity in terms of creativity and dynamic abilities.
2. Calculation of integral indicators of creative potential and dynamic capabilities of the enterprise.
3. The choice of strategies for the development of creativity of the enterprise according to the level of
integral indicators of creative potential and dynamic abilities of the enterprise in accordance with the matrix of strategies.

In the transition period in Ukraine, the main goal of the vast majority of enterprises is to adapt to the conditions of increased dynamism of the external and internal environment. Therefore, companies need an appropriate development strategy, which would be the basis for effective management decisions. The preliminary research (Posnova, Khymoroda, Tershak, 2018) allows to reasonably determine the level of development of enterprise creativity, which becomes the first step in formulating a strategy for further development of enterprises.

Today, in connection with the concept of dynamic competences, it is necessary to use such characteristics as creativity and abilities directly, based on the types of development and innovation strategies, to determine the creative development strategies.

Modern scientists (Pulina 2016; Yastremska, Bardadym, 2013) believe that development can be considered in two directions: both positive and negative. Regarding positive development, two types of strategies can be considered: the strategy of reverse vertical integration, the strategy of direct vertical integration.

Analyze the existing development strategies according to the two main types of development strategies (Sotnikova, 2017):

1. The strategy of reverse vertical integration is aimed at developing the enterprise by acquiring or strengthening control over suppliers. The enterprise can create subsidiaries or join companies that already supply. Implementing a strategy of reverse vertical integration can give the company very favorable results, making it less dependent on component price fluctuations and supplier requests. Moreover, supply as a cost center of the company can become a source of income.

2. The strategy of direct vertical integration is the development of the enterprise by acquiring or strengthening control over the structures between the enterprise and the end consumer, namely the distribution and marketing systems. This type of integration is extremely advantageous if the intermediary services are significantly expanded due to the high level of work.

The first group of strategies of reverse vertical integration includes a strategy of diversified development, which is implemented when the company no longer develop in a given market with a given product in a given area.

The main strategies of diversified development include (Posnova, Khymoroda, Tershak, 2018):
- strategy of centered diversification, based on the search and use of additional opportunities for the production of new products in the developed market.

That is, existing production remains at the center of the business, and new production arises from existing technologies using a specialized distribution system;
- horizontal diversification strategy, which seeks opportunities to develop in the existing market through new products that require new technology. According to this strategy, the company focuses on producing non-technologically related products that would take advantage of the company’s existing capabilities, such as in the supply chain. The new product should be focused on the consumer of the main product, accompanying the quality of the already produced product. An important condition for the implementation of this strategy is a preliminary assessment of the company’s own competence in the production of the new product;
- the strategy of centralized diversification consists in the fact that the company expands by producing technologically new products, unrelated to those already produced, which are sold in new markets. This is one of the most difficult development strategies to implement, since its successful implementation depends on many factors, including the competence of existing personnel and especially managers, the seasonality of the market, the availability of necessary financial resources, and much more.

According to the allocation of destructive development, it is possible to consider strategies to reduce the company, indicating a qualitative change, but subject to a decrease or decrease in the values of key economic indicators.

Note that enterprise downsizing strategies are used for targeted curtailment of production. There are four types of enterprise downsizing strategies (Pulina, 2016):
- the liquidation strategy is a particular case of the closure strategy, which is carried out when the company cannot continue its activities;
- harvest strategy – allows to abandon the long-term view of the business in favor of maximizing income in the short term. This strategy applies to unprofitable businesses that cannot be sold profitably but can generate income during the "harvest". This strategy reduces purchasing costs, wages, and maximizes income from the sale of existing products while reducing production;
- downsizing strategy is when a company closes or sells one of its divisions in order to make a long-term change in the boundaries of the business. This strategy is often used by diversified companies when they need to raise funds to develop a more promising or start a new business that is more in line with the company’s long-term goals;
- cost reduction strategy – this involves looking for opportunities and taking appropriate measures to reduce costs. It focuses on eliminating small sources of costs, and its implementation is temporary or short-
term in nature. The implementation of this strategy involves reducing the cost of production, increasing productivity, reducing hiring and even firing personnel, discontinuing the production of non-commercial goods, and closing non-commercial facilities. It can be assumed that the cost reduction strategy transitions to the previous reduction strategies when the sale of units and fixed assets begins.

At the initial stage of forming an innovation strategy, a company must determine its type. There are several types of strategies, and different economists define them differently. According to the classification (Ushkarenko, Chmut, Syniakova, 2018), there are five types of innovation strategy of the enterprise: offensive, protective, imitation, traditional, synergistic. These five types of innovation strategies should be used in further research.

Innovation strategy, which is part of the overall strategy of the enterprise, is a purposeful activity to determine the most important areas, the choice of priorities for the future development of the enterprise and the development of a set of measures necessary to achieve them. Innovative development of the enterprise begins with formation of management strategy.

In most developed countries, such a strategy covers the stages: innovation plan, innovation project, innovation plan, which are used to obtain information support for innovative development.

An effective innovation strategy for the development of an enterprise involves the evaluation of all forms of innovation activities of the enterprise. In practice, compliance with this provision is quite difficult, because it means that the innovation process of the enterprise should cover all aspects of economic activity, integrating into all divisions of the enterprise.

Innovation strategy of the enterprise is determined by the following main components: the object and nature of the resources that the enterprise has (or plans to obtain), as well as market positions and overall economic structure (controlled market share, access to finance and raw materials, competitiveness) (Ushkarenko, Chmut, Syniakova, 2018).

3. Forming strategies for the development of entrepreneurial creativity

Since the strategies of creativity development are considered, it is advisable to synthesize the analyzed development strategies and innovation strategies in terms of dynamic abilities and creativity and include them in the proposed matrix, which is built on these two criteria. The paper does not use the strategies of downsizing of enterprises, as they do not consider the development in terms of destructive. Table 1, which characterizes the matrix, shows the generalized strategies of creativity development of industrial enterprises, which are based on the existing level of development of the creative potential and dynamic abilities of enterprises.

Next, it is useful to describe each quadrant of the strategy matrix.

Protective strategy. The company has a low level of creativity. It is necessary to gradually take measures to develop each component of the creative potential and the dynamic component, and it should start with the improvement of human resources and innovation potential.

Centralized diversification strategy. The company has a low level of creativity. To improve the indicator, attention should be paid to dynamic abilities, especially creativity.

Traditional strategy. The company has a satisfactory level of competitiveness in the short term. It has enough opportunities to implement ideas, but there is absolutely no innovation. Therefore, it is necessary to attract more qualified personnel to innovative research and implementation of innovative projects, as well as to increase funding for these activities.

Strategy of direct vertical integration. The company has a low level of creativity. It is potentially ready to develop innovative projects, but it lacks resources. Therefore, it is necessary to develop its personnel and production potential.

Horizontal diversification strategy. The company has an average level of creativity. Therefore, it is necessary to develop each component of creativity and dynamic abilities in a harmonious way.

Offensive strategy. The company has an above-average level of creativity. On the background of the creative potential the dynamic abilities are insufficiently developed. It is recommended to take specific measures to intensify the implementation of innovative developments at the company.

Reverse vertical integration strategy. The company has a satisfactory level of creativity. It has well-developed dynamic capabilities, but it lacks the

<table>
<thead>
<tr>
<th>Dynamic abilities</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative potential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td>Protective strategy</td>
<td>Centralized diversification strategy</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>Strategy of direct vertical integration</td>
<td>Horizontal diversification strategy</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td>Reverse vertical integration strategy</td>
<td>Imitation strategy</td>
</tr>
</tbody>
</table>
resources to implement ideas. There is a need to increase creativity, starting with the internal component, namely the provision of fixed and working capital.

Imitation strategy. The company has an above-average level of competitiveness. The weak point is the resource potential. It is necessary to pay attention to the improvement of the external component of the creative potential, aimed at intensifying the interaction with the agents of the external environment.

Synergistic strategy. The company has a high level of creativity. Therefore, in order to achieve a sustainable competitive advantage in the strategic aspect, it is necessary to develop each component of creativity and dynamic abilities evenly.

The application of this matrix in the process of formation of the development strategy of creativity of industrial enterprises will allow to take into account the factors of the internal environment of the enterprise, to determine the dynamic abilities and creative potential of the enterprise, and most importantly – to make reasonable decisions.

The matrix is built on integral indices, which are obtained by the multiplicative convolution method. The integral indicator of creativity includes: the share of marketing costs in total innovation costs; the share of investment in intangible assets in the total value of assets; the equipment flexibility factor; the share of costs for participation in exhibitions and other image events in the total value of sales; profitability of equipment; profitability of employees; share of costs for the development of information support in total costs; coefficient of liabilities to credit and financial institutions; coefficient of provision of units with technical means; production growth rate; growth rate of market share; coefficient of actual capacity utilization; coefficient of workplace organization; coefficient of timely payment of wages to enterprise employees. And the integral index of dynamic capabilities included: the growth rate of the number of implemented innovative processes and projects; coefficient of orientation of the organizational structure to the market. The proposed partial indicators are justified using the method of multivariate factor analysis, which allowed us to choose the most significant of them (Yastremska, Syvash, 2018).

For further analysis of integrated indicators, it is advisable to use the improved Harrington scale (Pulina, 2016) and determine the level of creativity of the enterprise by its creative potential and dynamic abilities (Table 2).

**Table 2**

**Improved Harrington scale**

<table>
<thead>
<tr>
<th>The level of integrated indicators of creative potential and dynamic abilities</th>
<th>The value of the coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0 – 0,27</td>
</tr>
<tr>
<td>Average</td>
<td>0,27 – 0,51</td>
</tr>
<tr>
<td>High</td>
<td>0,51 – 1</td>
</tr>
</tbody>
</table>

Having received the value of the level of creativity development in the creative and dynamic areas, it is possible to develop and plan a strategy for increasing the creativity of the enterprise on the basis of the values of integral indicators (Table 3), relying on justified indicators.

Thus, having received integral indicators of the level of creativity development in terms of creative and dynamic approaches in quantitative and qualitative dimensions, we move on to the definition of strategies for further development of creativity of industrial enterprises.

Since the coordinates of the positioning of enterprises in the matrix of strategies are integral indicators, and the division of the matrix into quadrants is carried out according to the improved Harrington scale. The positioning of the studied enterprises in the matrix is given in accordance with Table 4.

**Table 3**

**Results of the analysis of the level of creative potential and dynamic abilities in 2020**

<table>
<thead>
<tr>
<th>№</th>
<th>Name of Company</th>
<th>Creative potential</th>
<th>Dynamic abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PJSC “Electromashina”</td>
<td>0,96</td>
<td>high</td>
</tr>
<tr>
<td>2</td>
<td>PJSC “Kharkiv Machine-Tool Plant”</td>
<td>0,98</td>
<td>high</td>
</tr>
<tr>
<td>3</td>
<td>PJSC “PIVDENKABEL PLANT”</td>
<td>0,95</td>
<td>high</td>
</tr>
<tr>
<td>4</td>
<td>PJSC “Kharkiv Electrotechnical Plant “Transvyaz””</td>
<td>0,82</td>
<td>high</td>
</tr>
<tr>
<td>5</td>
<td>PJSC “Kharkiv Tractor Plant named after S. Ordzhonikidze”</td>
<td>0,96</td>
<td>high</td>
</tr>
<tr>
<td>6</td>
<td>JSC “Ukrainian Power Machines”</td>
<td>0,96</td>
<td>high</td>
</tr>
<tr>
<td>7</td>
<td>PJSC “Kharkiv Electric Equipment Plant”</td>
<td>0,84</td>
<td>high</td>
</tr>
<tr>
<td>8</td>
<td>PJSC “Kharkiv Bearing Plant”</td>
<td>0,73</td>
<td>high</td>
</tr>
<tr>
<td>9</td>
<td>PJSC “FED”</td>
<td>0,71</td>
<td>high</td>
</tr>
<tr>
<td>10</td>
<td>SSE “Association of Communards”</td>
<td>0,96</td>
<td>high</td>
</tr>
</tbody>
</table>
Having constructed a matrix of strategies for the development of creativity of machine-building enterprises for 2020, we can conclude that all analyzed enterprises have high creative potential and mostly low dynamic capabilities (PJSC "Kharkiv Machine Tool Plant", PJSC "PIVDENKABEL PLANT", PJSC "Kharkiv Electrotechnical Plant "Transvyaz", JSC "Ukrainian Power Machines", PJSC "Kharkiv Electric Equipment Plant", PJSC "Kharkiv Bearing Plant", SSE "Association of Communards" – they are characterized by a traditional strategy). For PJSC “Kharkiv Tractor Plant named after S. Ordzhonikidze" and PJSC "FED" appropriate strategy is offensive. Among the analyzed enterprises in 2020, only PJSC "Electromashina" corresponds to a synergistic strategy, i.e. has high and dynamic abilities and creative potential.

4. Conclusions

The development of the theme of the work solves a very important scientific and practical issue – the improvement of proposals for determining the development of creativity of industrial enterprises and the identification of strategies for the development of creativity of enterprises. On the basis of the conducted research the following conclusions can be made:

Thus, the research process developed the concept of creativity as a factor of innovation, which changes in the dynamics and takes into account four components: personality, process, result and climate (or environment), which characterize qualitative changes. Having obtained integrated indicators of the level of creativity development in terms of creative and dynamic approaches in terms of quantitative and qualitative dimensions, strategies for further development of creativity of industrial enterprises were identified and it was established that PJSC "Kharkiv Machine Tool Plant", PJSC "PIVDENKABEL PLANT", PJSC "Kharkiv Electrotechnical Plant "Transvyaz", JSC "Ukrainian Power Machines", PJSC "Kharkiv Electric Equipment Plant", PJSC "Kharkiv Bearing Plant", and SSE "Association of Communards" are characterized by the traditional strategy. For PJSC "Kharkiv Tractor Plant named after S. Ordzhonikidze" and PJSC "FED" appropriate strategy is offensive. Among the analyzed enterprises in 2020, only PJSC "Electromashina" corresponds to the synergistic strategy, i.e., it has high and dynamic abilities and creative potential.

The prospect of further research is to improve the process of assessing and motivating the creativity of employees of mechanical engineering enterprises.

References:


