SYNERGETIC MANAGEMENT AS A MANAGEMENT TECHNOLOGY OF ENTERPRISE INNOVATIVE DEVELOPMENT

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Introduction

The activation of innovative development of the socio-economic systems is possible in the conditions of synergetic management, due to positive synergistic effects in business processes, which aim at a large-scale innovation breakthrough and an exploration of the opportunities of a new technological paradigm. Synergetics is an area of scientific research, studying the basic laws of self-organization in complex systems of any nature, or "science of interaction" (Hake, 2003).

The research on innovation development, initiated in the works of Austrian economist J. Schumpeter, was developed in the works of domestic and foreign economists. Most researchers (see in Klymenko, 2012; Kurnosova, 2012; Shamray, 2012; Shkuratova, 2012) have concluded that the goal of innovation development of an enterprise is to gain such competitive advantages that would create real opportunities for market conquest. So, according to Ilyashenko (2005), the goal of innovation development is to ensure the high rates of sustainable economic development by gaining a larger market share. Fedulova et al. (2016) point out that the choice of the target orientation, strategy of innovation development and improvement of organizational structure are in the basis of innovation.

In the context of strategic changes, the enterprise management system must promptly respond and timely adjust the development vectors.

Study Results

Recently, there is a significant complication of enterprise resources, with the leading role being played by intangible assets and their reproduction (Zang, 1999). Innovative development of an enterprise is possible only if there is a certain level of innovative development potential that should be considered as a complex of interrelated resources, competencies in innovations and institutional organizational capabilities for their realization. The potential of innovation development, which represents the synergistic effect of all components (resources, competencies, innovative and institutional organizational abilities), determines the ability of a dynamic management system to align with external, internal capabilities of innovation development through continuous search, use and development of new areas and methods of effective realization of existing and prospective market opportunities (Figure 1).

As practice shows, innovative development is a complex and long process of innovation transformations in the enterprise, which includes a set of goals, planned activities, a system of motivation and ways of financing. Synergetic management becomes an instrument for ensuring the formation and implementation of the enterprise development potential. The process of forming and using the potential of enterprise innovation development, as a set of of successive integration stages is presented in Table 1.
From the standpoint of economic synergetics, development management is the management of the process of forming synergetic effects. The synergetic effect is the result of the coherent effect of the constituent components of the economic system, which causes mainly qualitative changes in its state and maintenance on a steady development direction, despite the effects of exogenous and endogenous fluctuations. Realization of synergetic effects of the company is based on creation of positive feedback, which provides the opportunity to provide technical, technological, innovative (Drachuk et al., 2016), scientific, technical, economic, environmental (Tache et al., 2013), managerial (Korsikova and Todorova, 2013), social effects as a single system:

- organizational foundations of innovation development, characterized by complexity, systemicity, orientation in the nonlinear future;
- institutional forms and relations that stimulate and realize the ability to sustainable development;
- leadership and synergy of interactions through self-organization as an internal system process and benchmarking.
<table>
<thead>
<tr>
<th>Stages of Enterprise Innovative Potential Development (IPD)</th>
<th>Components of stages</th>
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</table>
| 1. Defining the goals of innovation                       | 1.1. Definition of the IPD development tasks.  
1.2. Definition of the innovation objectives, mission and business model business of an enterprise. |
| 2. Identification of the current innovation development strategy | 2.1. Identification of the current innovation development strategy goals.  
2.2. Determining ways to achieve goals.  
2.3. Construction of a strategic map. |
| 3. Compilation and selection of the innovative projects lists necessary for the implementation of the innovation development strategy | 3.1. Definition of a set of possible innovative projects.  
3.2. Selection of priority innovative projects.  
3.3. Planning of alternative scenarios.  
3.4. Prediction of possible effects.  
3.5. Elimination of negative deviations. |
| 4. Evaluation of the IPD in the context of the need to achieve the goals of innovation activities, the nature of the strategy and existing innovation projects | 4.1. Collection and analysis of relevant information.  
4.2. Selection of IPD evaluation method.  
4.3. Establishing the base assessment period.  
4.4. Determination of the criteria for assessing the IPD status.  
4.5. Analysis of the innovation activities resource support.  
4.6. Identification of innovative, organizational and institutional capacity and competencies in the innovation. |
| 5. Development of programs for resources, competences and opportunities (IPD development program) | 5.1. Determination of the dependence degree of each innovation project on the quality of resources, knowledge, experience, skills, quality of business processes.  
5.2. Comprehensive evaluation of the resource base, competencies and capabilities of the organization for the successful implementation of innovation projects.  
5.3. Developing an innovative "road map" for innovative development.  
5.4. Training of personnel and its involvement in the process of innovative development and implementation tools. |
| 6. Formation of the innovation development business model | 6.1. Adaptation of the principles of information exchange and models interaction to the goals and objectives. |
| 7. Analysis of the innovation development goals achievement | 7.1. Degree of the innovation objectives achievement.  
7.2. Evaluation of implemented innovative projects effectiveness.  
7.3. Development of corrective measures. |
| 8. Evaluating the effectiveness and results of synergistic management | 8.1. Definition of the criteria of efficiency and effectiveness of synergistic enterprise management.  
8.2. Evaluation of key performance indicators of the company, CRI.  
8.3. Linking Strategies and Perspective Plans for own development and related documents at the macro- and meso levels. |

Synergistic management has the following main characteristics:

1) a heterogeneous structure embracing heterogeneous elements of the economic system - technology, organization, environment, mentality, psychology, politics, security, as well as all kinds of resources and links between them;

2) orientation to the positive synergistic effect through the principles of self-organization and the influence on the control parameters of the system with the imperative to identify sustainable paths of development (attractors);

3) fixed parameters of synergetic control, determined in the corresponding spatial, temporal and resource coordinates, which take into account the boundary of the
synergetic approach, adequate mission, purpose, potential of the enterprise, as well as opportunities and threats of the environment;

4) unique architecture, since each specific case of the implementation of synergistic management is not a standard algorithm or template phenomenon, but focused on a creative approach with a set of development elements (investment, intellectual, technological, product resources that form the synergistic effect of the potential of innovation development);

5) the task of top management is to capture nonlinear signs of the synergetic market, and, making positive feedback, create the preconditions for the transition of the system to a new quality that meets the requirements and image of the "future".

Synergetics is a key approach in understanding the mechanisms of intellectual leadership and innovation. Today it is an important aspect of the formation of creative thinking. The control system has the property of an emergent (ie, a sudden occurrence). This means that as a result of synergy from the interaction of resources, competences and dynamic capabilities, new qualities of the system, which become the basis of economic growth based on innovations, spring up. Synergistic Management Concept, proposed by Kuznetsov (2003), is aimed at implementing synergistic effects of innovations.

The basic principles of synergetic management are presented in Table 2.

One of the parameters governing the business system, through which one can achieve a positive synergistic effect, is benchmarking (Goncharuk et al., 2015) as a modern methodology of innovative creative behavior of an enterprise that effectively studies and develops best practices. Benchmarking is a continuous process of searching, researching and implementing advanced technologies for the work of reference organizations, subdivisions, and individual specialists in the practice of the investigated enterprise in order to form its sustainable development through the improvement of business processes (Sherstobitova and Geraskina, 2013).

Benchmarking allows you to systematically approach the identification of key development benchmarks (attractors) and contributes to enhancing synergistic management, leading the organization to bifurcation status. As a direction, it represents a merger of methods and technologies of management-marketing, and as the most important structural "technological link" in the system of modern management promotes the effective detection of risks and business opportunities, which should be taken into account when constructing the organization's strategy. The latter is closely linked to benchmarking; they mutually influence each other.

On the one hand, a comparative analysis of business processes clarifies and adjusts the strategy (Goncharuk and Getman, 2014), and on the other the strategy and mission of the company determine the set of key indicators of benchmarking. Therefore, within the framework of synergetic management, it is expedient to develop a benchmarking strategy geared towards the advance development of the management object, which envisages the direction of activity in the field of continuous search for the best methods of organization and conduct of business in order to achieve the goals and positive synergetic effects.

The synergetic aspects of benchmarking are as follows:

1) for those who want to take advantage of it, the best practices always include an unobvious clue that defines the direction of further development;

2) If the manager can see more than he is offered, he will complete the
benchmarking task. It is based on the completeness of information, without which it is impossible to "see more than is proposed", and the basic components are innovative behavior and comparative analysis.

Table 2. Principles of Synergetic Management

<table>
<thead>
<tr>
<th>Principles</th>
<th>Essence, content</th>
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<tbody>
<tr>
<td>System (unity)</td>
<td>Management at the enterprise should be of a systemic nature. The set of elements having ordered interaction in space and time is characterized by a single strategic direction</td>
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<td>Openness of a System</td>
<td>The fundamental property of complex systems. Enterprise development should contribute to the decentralization of power and information flows. Possession of reliable information allows employees to respond quickly to changes and deprives the manager of the need to process a continuous flow of information</td>
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<td>Coherence</td>
<td>The coordinated activity of all elements of the system in pursuit of a strategic goal</td>
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<td>Focus on synergistic effects</td>
<td>Synergistic effects can occur in the following forms: efficient use of resources and potential; creating preferences with the coherence of the terms of individual projects; quality improvement; growth of consumer confidence; diversification, gradual and discontinuous changes; modification of a business portfolio, etc.</td>
</tr>
<tr>
<td>Scientific substantality</td>
<td>Management should combine managerial process with maximum use of scientific approaches and methods: application of modern information technologies, progressive procedures and planning methods</td>
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<td>Sustainability</td>
<td>The idea of sustainable development of an enterprise requiring containment of extensive growth is aimed at bringing the various flows that support the existence of the system to an acceptable level: moderate consumption, resource efficiency, recycling and use of secondary raw materials, increasing the life of commodities of mass consumption, etc. In this context, resource-efficient energy-efficient business projects are relevant</td>
</tr>
<tr>
<td>Information in time</td>
<td>Time is a system-forming factor, a possible source and the root cause of self-development. In order to make constructive managerial decisions it is extremely important that you receive the necessary information in a timely manner</td>
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<tr>
<td>Democratization</td>
<td>The role of the manager should be as follows: to be responsible for creating and maintaining conditions conducive to rapid adaptation to changes without increasing control over people; to form an enterprise as a whole, to encourage benchmarking and training; to identify and support intrapreneurship, to cultivate positive and to weaken negative feedback</td>
</tr>
<tr>
<td>Communicativeness</td>
<td>With coherent and cooperative activity (or in the process of benchmarking interaction), the staff of the enterprise is capable of a high degree of creativity and innovation</td>
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<tr>
<td>Innovation</td>
<td>Scientific and technological integration, increasing the innovation activity of enterprises and the emergence of new business projects</td>
</tr>
<tr>
<td>Convergence</td>
<td>The driving factor of interaction, prepares the business to effectively mastering the mutual experience of the competing parties.</td>
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<tr>
<td>Desire to bifurcation states</td>
<td>Bifurcations arise when the system is &quot;on the verge of chaos&quot;. In a state that is most ready and able to change. The latter proceed easily and spontaneously, and small intensives can cause great changes. Excessive chaos is capable of destroying any system. So the chaos from the outside world should be allowed into an enterprise to the extent that it is able to cope</td>
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</table>

Benchmarking, in addition to the economic semantic load, is still philosophical, revealing its essence “learn from others”. Often, in practice, benchmarking strategy results in positive synergistic effects (when the result of benchmarking exceeds the properties of the reference business process), which makes it possible to verify the synergistic properties of benchmarking, focused on generating specific effects: emergence, animation and synergy for intensifying the revolutionary, qualitatively
improved system.

Table 3 outlines synergistic benchmarking effects that stimulate innovation in systems.

**Table 3. Effects of Synergistic Benchmarking that Stimulate Innovation in Systems**

<table>
<thead>
<tr>
<th>Effects</th>
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<tr>
<td>Cognitive effect</td>
<td>Identification, collection and processing of information is the basis for the emergence of knowledge that makes possible explosive leap-like innovative development. Synergistic benchmarking is a system for effective search, analysis and use of information for enterprise development purposes.</td>
</tr>
<tr>
<td>Preventive effect</td>
<td>The potential of enterprise innovation development depends on the ability to predict changes and react to them in a preventive way. Synergistic benchmarking helps to create and implement &quot;standards of the future&quot;, which determines the success of the enterprise in the long run.</td>
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<tr>
<td>Communicative effect</td>
<td>New knowledge is created and stored in networks and communications, the level of development of which determines the susceptibility of the enterprise to innovation. Synergistic benchmarking creates new effective communications with the external environment</td>
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<tr>
<td>Transaction effect</td>
<td>In the conditions of post-industrial development, the reduction of transaction costs leads to a sharp increase in the efficiency of the enterprise. Synergistic benchmarking aims at reducing transaction costs by exploring examples of successful transactions and institutions in all systems.</td>
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<tr>
<td>Emergency effect</td>
<td>In the process of synergistic borrowing benchmarking and the combination of best practices of many organizations, it promotes the emergence of qualitative new properties at the expense of the system sum of innovations</td>
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<tr>
<td>Multiplicative effect</td>
<td>In synergetic benchmarking, the widespread dissemination of excellence in one economic system to a multitude of systems allows for additional synergistic effects</td>
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<tr>
<td>Creative effect</td>
<td>The non-trivial experience of synergetic benchmarking contributes to the personal development of researchers, which is further expressed in the nonlinear growth of the productivity of mental labor of specialists.</td>
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</table>

The purpose of synergistic benchmarking is the development, justification and application of methods that facilitate the emergence of synergistic effects in the subsystems of benchmarking. Synergy, implemented in the form of partnerships, cooperation, mergers and ongoing interaction, is seen as a driving force for economic development much less than competition. Implementation of the organizational and economic mechanism of the economy sustainable development is possible by creating innovative industrial complexes (clusters, technopolises, technoparks) in the regions (Vakaliuk, 2014), which carry out special programs initiated by business and the state. This approach becomes a starting point for synergetic management and is oriented towards the advanced development of the management object by integrating the potential of scientific organizations, higher education institutions and manufacturing enterprises.

**Conclusions**

Thus, the synergetic approach in management allows a new approach to the problem of effective management and the formation of enterprise development strategy. It is oriented not on external influence, but on the internal self-organization of the system, on its own laws of evolution and self-organization, which need to be determined and improved in the direction necessary for the organization.
Without seeking an original innovative solution, the system will move toward a loss of efficiency. Synergetic benchmarking has the necessary theoretical basis for solving this kind of problems. It is a traductive tool for knowledge of complex systems in the economy and uses a synergistic approach, universal mechanisms of self-organization and the phenomenon of ultrafast process development based on nonlinear positive feedback to create conditions for intense explosive qualitative development of systems.

Therefore, it is strategically important for domestic science-intensive industries to strategically develop a benchmarking and synergistic development strategy with the definition of the main breakthrough and synergistic directions, using the concept of driving forces. It is important not only to correctly predict them, but also to determine their interconnection and possible consequences.

References
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Abstract
The paper substantiates the use of synergetic management in the management of innovative development of an industrial enterprise. Using the dynamic model of a potential of innovation development the author considered synergetic management based on which synergistic effects is managed. Synergistic benchmarking and its effects as a synergistic management tool are suggested.

Keywords: synergetic management, innovative development, synergistic benchmarking, synergistic effects