

Strategic Management of the Innovative Activity of the Enterprise

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Abstract

Effective innovative activity of enterprises with the dynamic economic development is possible under the conditions of timely implementation of innovative projects that satisfy and meet the requirements of the external and internal environment and contribute to building up their own potential with the orientation of the enterprise activity on the long-term prospect of development. This contributes to higher importance and role of strategic management of innovation activity of domestic enterprises. Therefore, the purpose of the article is to provide methodological and practical recommendations for the development and implementation of the strategic management system of innovative activity of the enterprise. In order to achieve this goal, the stages of the strategic management process have been specified, which are grouped into three stages: preparation for strategic management; ensuring the strategic management process; control over strategy implementation. The relationships between the stages have been described, as well as the components, the features of the activities and the sequence of actions for each of the stages. The researches were carried out using the following methods: analysis; modeling; empirical research; systematic approach; generalization. The effectiveness of the proposed recommendations for the formation and use of strategic management of innovation activities has been confirmed by the activity results of the enterprises (Horodok Mechanical Plant PJSC, Ozon LLC, Zakhar Berkut Ski Resort), which provided a sustainable long-term competitive position in the market at the expense of the timely and correct identification of emerging strategic problems at the early stages of innovation activity.

Keywords: Balance, Directions of activity, Innovative activity, Integrated systems, Models of the management decisions making, Strategic management, Stages

1. Introduction

The innovative activity of the enterprise is a component part of its general activity, focused on the development and production of new products at the specific stage of the innovative process life cycle, improvement of the existing products, works, services, techniques and technologies, as well as appearance of the additional results of activity related to it (discovery, theoretical development, novelty, invention, innovation), their implementation at the market and/or the use for own needs, considering own possibilities and requirements of the external environment aimed at own capacity-building activity of the enterprise (Solovii, 2012). Thus, it is a driving force of the enterprise development, its main competitive advantage, which provides winning of the attractive position on the market. The strategic management is a pledge of this position maintenance for the long-term perspective under conditions of the dynamic changes of the external and internal environment. Therefore, a successful long-term development of modern enterprise requires the correct formation and optimal use of the effective strategic management system of its innovative activity.

The purpose of the article is to develop the theoretical statements, methodological and practical recommendations

for the formation of the strategic management system of the innovative activity of the enterprise.

For the achievement of the goal there were set the following tasks: To improve the model of the strategic management of the enterprise in order to provide the possibility of its application to the innovative activity; To offer the methodological approach to the formation of the indices system for the “step by step” integrated assessment of the innovative activity of the enterprise for the adoption of the managerial decisions at different stages; To provide practical recommendations for the operational management of the strategy implementation process, using the improved managerial decision-making model.

2. Problem Formulation

2.1. Literature review

The strategic management is widely described in the scientific literature, which, along with classic approaches to its formation (Babenko, 2019; V. Kozyk, Zalutskaya, H., 2017; Markiewicz, 2011; Meskon, 1992; Popov, 1999) considered and practical recommendations for implementing this process at given the current conditions of their operation (Babenko et al., 2020; Dyczkowska, 2015; Iancu, 2009; Kunanatt, 2016; Mironova, 2014; Velichko Alexander & Velichko Ludmila, 2019; Vihansky,

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2000; Yurchenko, 2016). Basically strategic management is a process that researchers across different components stages (Tromp et al., 2020; Meskon, 1992; Popov, 1999). The generalization of the above-mentioned approaches allows presenting the strategic management process as a successive performance of the administrative functions at the strategic analysis stages, strategy formation and its implementation.

At the strategic analysis stage the key management personnel of the enterprise keeps a close watch on and analyses the most possible factors of the external and internal environment that are the most important for its development (strategic factors), which are highly possible to be implemented and a high degree of influence on the enterprise operation. The received results allow forming the possible variants of the further development of the enterprise, which are evaluated at the stage of the strategic choice of direction of the enterprise development and there is selected the best strategic alternative for the desired goal achievement. The selected general development strategy of the enterprise is the basis for the performance of the business activity, therefore its implementation requires adaptation to the internal conditions of the enterprise, namely a corresponding organizational structure, managerial system, certain personnel level and effective use of the available or accessible resources etc.

Thus, the pledge of the successful strategic control is a distinctly justified effective development strategy of the enterprise, the system of indices for the integrated assessment of the chosen strategy selection and implementation processes, correctly formed, appropriately informed, worthily motivated team and optimally built managerial subsystems.

However, the innovative activity is the component part of the general activity, which is focused on the provision of the enterprise activity in the internal and external enterprise correspondingly, by means of production of the rival products and building the results of other kinds of activity. Thus, the effective innovative activity is possible in case of correct consideration of the external environment needs (the appearance of new unmet needs, innovations, ideas, competitors' activities etc.) and optimal use of the possibilities of the enterprise (appearance of byproducts, residues of the raw materials at a certain production stage etc). That is to say, the innovative activity is a boundary between the external and internal environment of the enterprise, search and striking a balance between which is the task of competently developed system of the strategic management.

Besides, the formed system of the strategic control of the innovative activity should provide the possibility for the decisions making etc: the further implementation of the specified innovative project and strategic measures related to the elimination of the appeared problems at the initial stages of activity; timely entry into a market; optimal moment for the termination of investment etc. It is stipulated by the considerable extent of expenditures for the performance of the innovative activity and high risk

level regarding the final result of the projects, which seem to be promising at first glance.

Thus, the adaptation of the strategic management to the innovative activity of the enterprise requires specification of the process of its implementation, considering the peculiarities of the innovative activity and measures for the successful implementation and use of the strategic management by foreign and domestic companies.

2.2. Materials and methods

In order to achieve this goal, the stages of the strategic management process have been specified by means of analysis, modeling and methods of empirical research, taking into account the peculiarities of innovation activity and conditions of using strategic management of domestic and leading foreign enterprises. Using the methods of systematic approach and generalization, the selected stages of the strategic management process of innovation activity have been grouped into three stages: preparation for strategic management; ensuring the strategic management process; control over the strategy implementation.

3. Problem Solution

Taking into consideration the practice of the strategic management application at the foreign enterprises (Gorski, 2008), the peculiarities of the innovative activity (V. Kozyk, Ivanova, O., 2009; Ramazanov et al., 2019) and conditions of the innovative enterprises functioning, in Figure 1 there has been depicted the process of the strategic management of the innovative activity of the enterprises.

The offered strategic management process consists of three stages: preparation to the strategic management; provision of the strategic management process»; control over strategy implementation.

At the «preparation to the strategic management» stage, a director of the enterprise builds a business team from among the enterprise employees, explains them the necessity of the strategic management and communicates to them the core of changes that are possible due to the communicative strategy formulation.

At the second stage there has been foreseen the fulfillment of the tasks, which provide the effective implementation and resultative use of the strategic management of the innovative activity of the enterprise: working out of the strategic development of the enterprise; formation of the system of indices for integrated assessment of the innovative activity of the enterprise; planning of the values of the main evaluating indices; establishment of communication of indices with business processes of the enterprise; policy-making. The main task of this stage is the formation of the system of indices for the integrated assessment of the innovative activity and implementation of the corresponding enterprise development strategy.

As long as the expenditures for the innovative activity may be quite high and risky, it is important to form such system of indices for the integrated assessment, which would enable the decision –making on expediency of the innovative activity starting from the early stages. For this

purpose, we offer to divide the innovative activity of the system separately for (Solovii, 2012): the preparatory stage; “production” stage; “implementation” stage. The effectiveness of the innovative activity of the enterprise considerably depends on the integrated assessment of the preparatory stage, as long as it coincides with the general current activity of the enterprise. Correspondingly, the preparatory stage evaluation results, by means of striking a balance between the internal possibilities and external needs, allow determining the successful commercial range of goods at the enterprise. For the formed system of the strategic management of the innovative activity could provide the balance between the

enterprise into three stages and form the indices evaluating external (needs and risks) and internal environment (strong points and possibilities) it is necessary to group all the key factors of the enterprise activity at each stage of the innovative activity in the corresponding directions. It will allow considering and reflecting the peculiar features of each direction better and more completely in the course of the strategy and indices evaluation system formation, as well as simplifying the managerial process by means of specialization of the specified directions, and in such a way provide a prompt and operative search of the optimal balance line at each stage of the innovative activity and the activity of the enterprise in general.

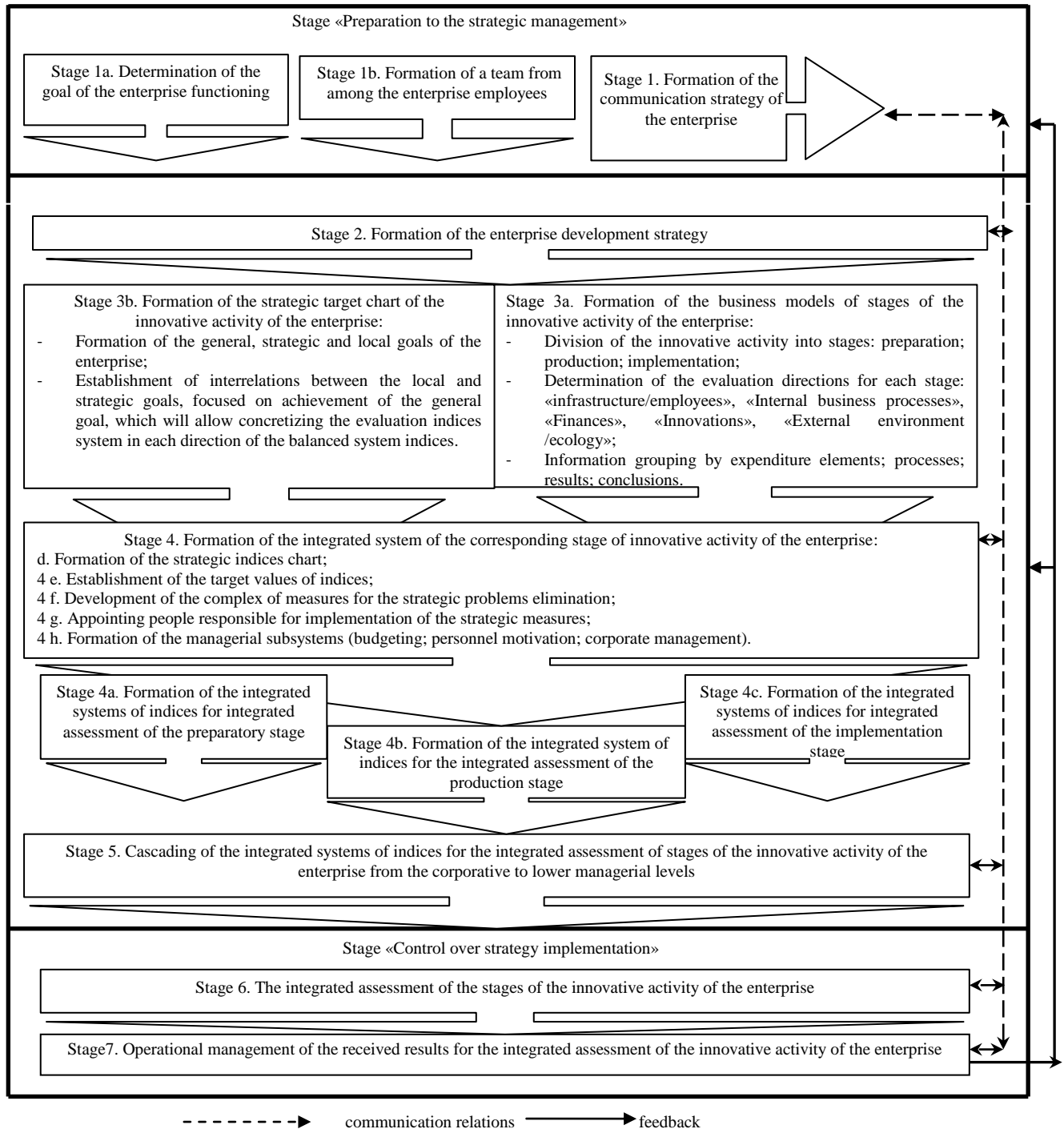


Fig. 1. The process of strategic management of the innovative activity of the enterprise* self-design project

By way of example (Solovii, 2012) there may be offered the following directions of the enterprise activity: «Infrastructure/employees (training and development)», «Internal business processes», «Finance», «Innovations», and the component parts of the external environment (macro-environment and micro-environment factors) should be united and detached to a separate block «External environment/ecology».

Movement towards “Innovation” is the basic component of the enterprise activity, which will allow equating the external environment factors in the direction of «External environment/ecology» (market needs) and internal environment in the directions of «infrastructure/employees; internal business processes; “finance» (possibilities of the enterprise). The received results of comprehensive assessment in all the directions will be the basic data for the evaluation of the “Innovative” direction and target values of its indices, which will allow choosing the most effective novelty for the enterprise, providing it with a high level of the competitiveness and a high percentage of the market.

For the thorough comprehensive assessment of the enterprise activity, with the purpose of selecting a correct optimal strategy of its innovative development and effective implementation of the information to each of the above-mentioned directions there should be gathered and duly formed estimates according to the following elements: expenditures; processes; results; conclusions (Solovii, 2012).

It is clear that the balance between the external and internal factors may be maintained only in case of use of the accounting equation for the comprehensive assessment of the innovative activity of the enterprise: quantitative and qualitative indices; leading indicators that reflect the desired results, and factors, which have the effect on their achievement with event indicators, which have already took place (lagged indicators), which provide the commitment to the short-term (and indices for their measurement) and long-term goals; according to the external evaluation indices of the enterprise activity (in finance and customers’ components), and the internal ones (in the components of the internal business processes, development and training).

The systems of the comprehensive assessment indices at each stage of the innovative activity of the enterprise are integrated as long as they contain two blocks of the balanced indices: the evaluating indices of the innovative potential of the enterprise; evaluating indices of the innovative processes at the enterprise.

The algorithm of the indices system building for comprehensive assessment of the innovative activity of the enterprise is as follows:

- to divide the innovative activity of the enterprise into stages: preparatory; production; implementation;
- to form the business models of stages of the innovative activity of the enterprise (Solovii, 2012);
- to form the system of the evaluating indices for each business model by means of:

a. Formation of the strategic target chart of the innovative activity in accordance with the general strategy of the enterprise development, the evaluating indices within the limits of the local targets;

b. Establishment of interrelations between the indices of each stage of the innovative activity (form a strategic target chart), target values of the formed indices in accordance with the established goals, the relation of the indices with business processes of the enterprise (determination of the remuneration amount and distribution of possibly required resources etc.);

c. development of complex of measures for the strategic problems elimination;

d. appointment of the responsible people.

The goals the enterprise wants to achieve, the indices by means of which it is possible to measure the success of the achieved goals, the target values of the indices which are indicative of the achievements (failure to achieve) the desired goals, as well as the strategic initiatives should be formed in accordance with each component in certain direction at the particular stage of the innovative activity of the enterprise.

As long as in case of top down approach the corporate strategy extends into all control levels, correspondingly the indicators, strategic goals, target values and strategic measures are concretized and transfer from upper to lower managerial levels of the enterprise, which makes the evaluating and strategies implementation process more clear and acceptable for all its employees.

The formed system of indices of the innovative activity of the enterprise based on the offered algorithm allows evaluating each stage of the innovative activity in an integrated and flexible manner, receiving the possibility of direct revealing of the problem and its elimination without undue expenditures, wasting time, employees’ work. It is confirmed by the results of their application in order to evaluate the preparatory stage of the innovative activity of some enterprises (see Table 1).

In order to achieve the main goal, PJSC Horodok Mechanical Plant, taking into consideration the received evaluation results (see Table 1), namely the indices values: «The level of satisfaction of market demand for the innovative products», «The correlation of the size of the standard products demand and nonstandard ones», «Specific weight of the radically new products», «Marketing prospects coefficient», «Novelty coefficient», «Volume of production, which lies at the warehouses of the enterprise for a long time over the norm», «Level of products quality», «Power reserve», «Flexibility of the production process», «Shift system factor», «The correspondence of the employees qualification to the degree of complexity of works performed by them», reviewed its assortment policy and reduced the productivity output in the direction of «bread baking equipment» (which proved to be lacking in prospects) in favour of production of goods in the «crane unit» direction «etc».

Table 1

Evaluation results of the preparatory stage of the innovative activity of the domestic enterprises*

Name of the evaluating indices according to the corresponding directions of activity	Indicator values of the specific enterprises*											
	PJSC «Horodok Mechanical Plant»**					Ozon LLC***				Mountain Ski Resort «Zakhar Berkut»****		
	2009	2010	2011	2012	2013	2012	2013	2014	2015	2014	2015	2016
Direction: «Cooperation with the contractors»												
The level of satisfaction of the market demand for the innovative products	1	1,3	1,1	1,2	1,4	1,7	1,5	1,6	1,9	0,56	0,74	0,8
The correlation of the size of the standard products demand and nonstandard ones	22,2	48,6	10,1	6,7	33	2,5	5	3,2	2,3	0,4	0,5	0,54
The effectiveness of the i th supplier's delivery	1	1	1	0,8	1	0,85	0,9	1	1	1	0,9	1
Own and purchased developments ratio	9	20	17	15	4	1	1,3	1	1,42	1	-	2
Direction: «Finance»												
The level of equipment and material procurement	0,7	0,7	0,7	1	0,7	0,9	1	1,2	1,25	0,4	0,35	0,48
The level of expenditures efficiency for the equipment rebuilding	-	-	-	0,55	-	-	-	-2	-1,98	-	-	0,9
The effectivity of own inventions in relation to the purchased ones	3,4	8,7	9,4	25,2	6,3	-	2,3	-	10,5	1,6	-	1
Business profits	(250)	(149 5)	74	(408)	520	514, 8	876, 7	1009	1194 ,8	806, 7	2160 ,2	2446 ,1
Autonomous financing ratio of the innovative activity of the enterprise	1	1	1	1	1	1	1	1	1	1	1	0,62
Direction: «Internal business processes»												
Level of products/services quality	0,96	0,98	1,1	1,2	1	1,5	1	1,01	1,1	0,83	1,1	1,12
A part of technically and economically obsolete equipment in the general fleet	0,6	0,6	0,6	0,6	0,5	0,03	0,03	0,02 5	0,01	0,64	0,65	0,57
Power reserve	0,76	0,4	0,56	0,68	0,9	0,73	0,89	0,9	0,9	0,5	0,64	0,86
Flexibility of the production process	0,45	0,45	0,45	0,45	0,45	0,4	0,4	0,33	0,3	0,7	0,8	0,86
Shift system factor	0,15	1	0,73	0,56	0,1	0,33	0,33	0,5	0,5	1	1	1
Direction «Infrastructure/Employees»												
The correspondence of the employees qualification to the degree of complexity of works performed by them	1	1	1	1	1	1	1	1	1	0,33	0,6	0,6
Inventive activity	0,04	0,04	0,06	0,08	0,08	0,03	0,1	0,04	0,15	0,03	0,06	0,06
The innovative activity general stimulation efficiency ratio	0,1	0,05	0,12	0,26	0,07	0,45	0,5	0,93	1,26	0,3	0,3	0,37
Direction «Innovations»												
The correspondence of the old technical equipment to the requirements for the production (improvement) of the new products	100	100	100	90	100	100	100	75	90	50	60	65
Specific weight of the radically new products	-	-	-	0,46	-	9,1	11,9	8,5	11,3	0,25	0,1	0,12
Marketing prospects coefficient	0,65	0,64	0,77	0,8	0,63	0,78	0,9	0,82	0,9	0,54	0,73	0,58
Novelty coefficient	1,3	1,23	1,47	1,6	1,32	1,69	2	1,53	1,84	0,81	0,93	1,1
Volume of production, which lies at the warehouses for a long time	35	133	103	49	17	233	104	76	-	-	-	-
The annual economic effect of the new technical equipment	-	-	-	-	-	-	-	0,6	0,8	-	-	-
Specific weight of the resources-saving technological processes in the general amount of the implemented innovative processes	-	-	-	-	-	0,6	-	-	0,54	-	-	0,2

Note: *calculated according to the formulas presented in the paper (Solovii, 2012) based on the data provided by the specific enterprise; **formed based on (Solovii, 2012); ***calculated based on data provided by the enterprise; ****formed based on data provided by the enterprise and paper (V. Kozyk, Zalutska, H., 2017).

The transfer to the production of the «crane units» guaranteed PJSC Horodok Mechanical Plant: the decrease of the volume of production, which lies at the warehouses of the enterprise for a long time over the norm by 17 units; the growth of the index value «Marketing prospects coefficient» up to 0,8; the increase of the index value «Quality level» up to 1,3; lowering of the index value «Power reserve», which made 0,86; growth of the enterprise profit by 7 000 UAH; growth of the index value «Shift system factor» up to 0,6, which increased the level of the employees employment and correspondingly did not require them to be discharged from employment; the

reduction of expenditures by 13 600 UAH due to termination of manufacturing the products in the bread baking equipment direction.

Ozon LLC, considering the following indices values «The level of satisfaction of market demand for the innovative products», «Marketing prospects coefficient», «Volume of products, which lies at the warehouses of the enterprise for a long time over the norm» (the value of which is low enough and not durable), as well as absence of the available power reserves for additional manufacturing of products, impossibility to increase the shift system factor (as long as the enterprise is operating on a three-shift basis), increase of the expenditures for constant

transportation of additionally required raw materials, low innovative activity of the employees etc., instead of construction of a new production department built the whole complex. The component parts of the constructed complex were as follows: the departments for the production of the new kinds of goods, for which there was purchased new equipment, as long as the indices values show «The correspondence of the old technical equipment to the requirements for the production (improvement) of the new products», «The level of expenditures efficiency for the equipment rebuilding», that it is cost-prohibitive to repair the old equipment, and the one, which is worth repairing is almost fully involved in production of other kinds of goods; the innovative active employees have been established a lucrative compensation for their work; warehouse premises both for the storage of raw materials and finished products; a vehicle fleet for the transportation of the raw materials and finished products; brand shop.

Due to the effected arrangements at Ozon LLC: the assortment was supplemented by approximately 20 more kinds of cobblestone with absolutely new configurations and rich color gamut; there has been broadened the range of vibrating boards, now it consists of 4 models (there were only two before now); there was increased the «Marketing prospects coefficient» index value due to the appearance of practical suggestions related to the selection, laying technology, cobblestone maintenance and installation of the kerb and kerbside at their web site; there have been opened some representative networks in different regions of Ukraine.

The use of this evaluating system by Mountain Ski Resort «Zakhar Berkut» timely demonstrated that the selected by them synergy strategy implementation at the corporate level provided a significant increase of not only the enterprise profit but also the general image of the resort, the extent of services rendered in relation to separate business units, positive and repeated visiting by the clients, business services range expansion in relation to the specific business units, the service quality due to the purchase of particular kinds of new equipment. The formed synergy effect achieved by strengthening one business units by means of the other ones allowed increasing the loading of the mountain ski resort objects, which may be seen from lowered «Power reserve» index value.

The received positive result favored the formation of the synergy effect by the Mountain Ski Resort at all levels of administration, which allowed: optimizing the number of those employed, forming not seasonal but full-time team due to the employees interchangeable strategy, topping up their qualifications, which allowed increasing the inventive activity to 1 and number of own inventions, their marketing prospects to 0,92, and significantly increasing the business profits, which in 2017 made 8381,43 thousand UAH, improving the equipment and material procurement level, having revised the peculiarities and conditions of the existing and potential suppliers.

The third stage foresees the control over the strategy implementation. At the corporate level there is exercised control over the evaluation results in all the directions of

the enterprise activity and there are taking the strategic measures for the elimination of the problems encountered regarding one component part of innovative activity of the enterprise («Infrastructure/employees», «Internal business processes», «Finance», «Innovations», «External environment/ecology») by means of advantages of the other one. At the corporate level – in all directions within the limits of specific stage of the innovative activity of the enterprise. At the functional level there is exercised control over each stage of innovative activity of the enterprise within the limits of a specific direction of activity.

The control over the strategy execution is performed with the use of the model which was offered in the course of work (Solovii, 2012) for the adoption of particular managerial decisions subsequent to the evaluation results. The essence of the model comes to revealing and elimination of the strategic problems in the particular direction of activity at the particular stage of innovative activity of the enterprise, which makes their transfer to the next stage impossible, providing more effective performance of the innovative activity of the enterprise. The elimination of the strategic problems encountered is carried out by taking of the strategic measures within the limits of the indicated (acceptable) variations.

However, the application of the above-mentioned model by the enterprises under study caused the necessity of their specification in the direction of decisions making regarding the interrelated indices of different aspects («Infrastructure/employees», «Internal business processes», «Finances», «Innovations», «External environment/ecology») and stages of the innovative activity of the enterprise. The truth of the matter is that in accordance with the offered model, the decision on elimination of the problem encountered or continuation of the strategy process execution subsequent to the evaluation result was carried out only by comparing the received evaluation results with the regulated (target) values of the corresponding index for all managerial levels (corporate, business, functional, operational). In other words, there was disregarded the necessity to set up a correspondence of the obtained values with the regulatory value of the related indices at the corporate and business levels. The setting up of such correspondence could allow shortening time, money, effort by avoiding the performance of addition part of works focused on the strategic problems decrease or elimination according to the indices, which do not favour satisfaction of local goals of the components in other directions and stages of the innovative activity of the enterprise, but immediately taking the decisions regarding the elimination of the causes of such a state. The comparison of fragments of the existing (for the functional managerial level) and the offered model (for the corporate and business managerial levels) for the managerial decisions-making was presented in Figure 2.

From Figure 2 it is seen that there are available the following directions of activity for the decisions making subsequent to the evaluation results:

- 1) when the obtained results for evaluation of the innovative activity according to the specific index of the

particular component in a certain direction of the corresponding stage of the innovative activity meet the local goals of this component, then we may pass to evaluation and taking of the corresponding decisions in the following direction of the same stage or related to this other stages of the innovative activity of the enterprise;

2) when the obtained results for evaluation of the innovative activity according to the specific index of the particular component in a certain direction of the corresponding stage of the innovative activity do not meet the local goals in relation to the component, then we will see if they correspond to the evaluation results and local goals of elements of the related to them directions of other stages of the innovative activity: 2.1. if they correspond to both the evaluating results and local goals, then we pass to the evaluation and adoption of the corresponding decisions in the following directions of the same stage or related to it the rest of the stages of the innovative activity of the

enterprise; 2.2. if they correspond neither to the evaluating results nor to the local goals, then there should be taken the elimination measures to the certain direction of the corresponding stage of the innovative activity the index refers to; 2.3. if they do not meet the evaluating results in relation to the interrelated indices, however, are within the limits of the local goals of the components these indices relate to, we will see if the obtained evaluating results meet the limits of the strategic goals of the interrelated directions at different stages of the innovative activity: 2.3.1. if they meet, then we pass to evaluation and taking of the correspondent decisions in the following directions of the same stage or related to it rest of the stages of the innovative activity of the enterprise; 2.3.2. if they do not, then we take the elimination measures and for the direction of the specific stage of the innovative activity this index refers to and for the directions of the rest of the stages related to it.

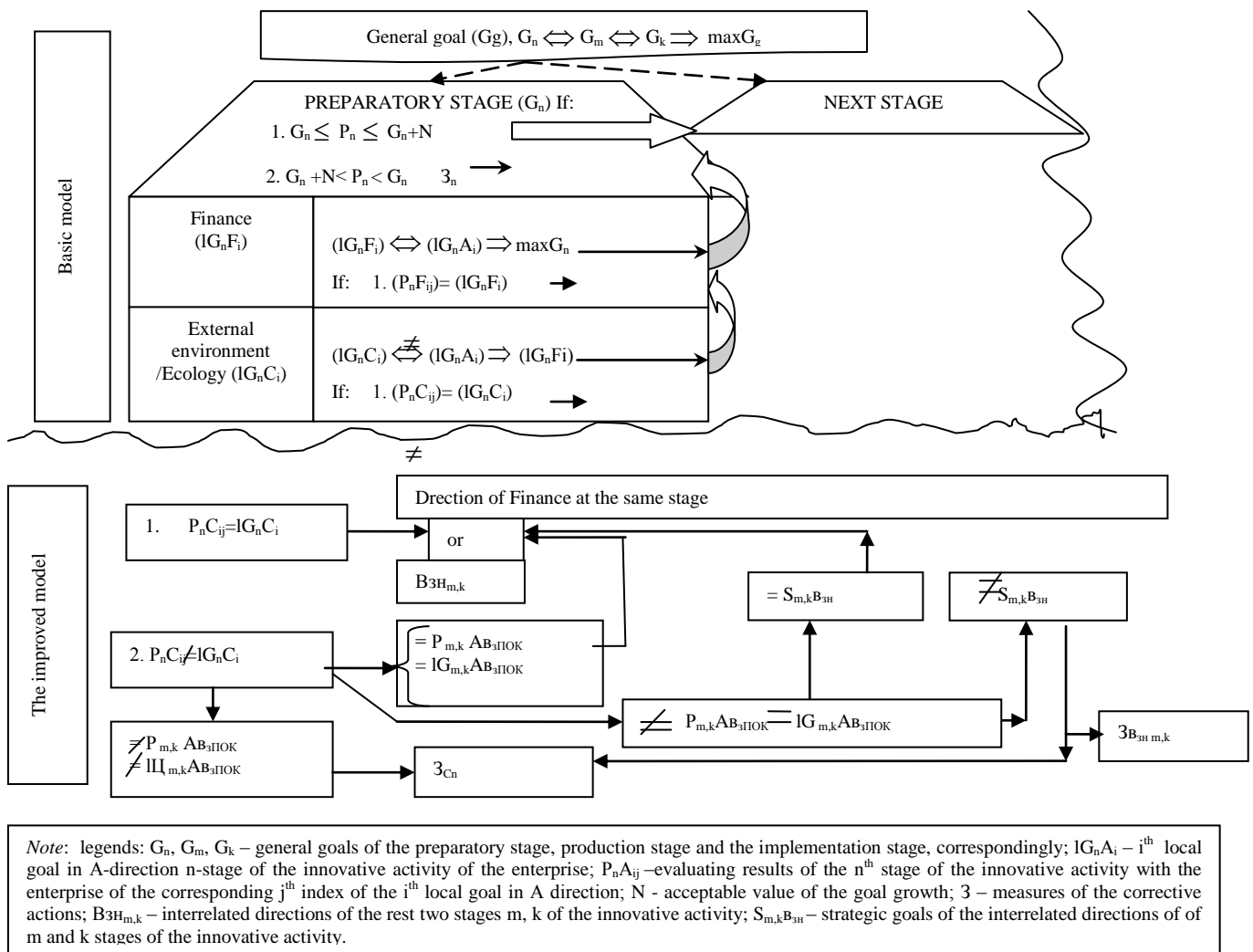


Fig. 2. Fragments in relation to the base and improved specific managerial decision-making models* self-design project

Thus, the use of the modified managerial decision-making model will allow simplifying the managerial process, implementing the chosen development strategy by means of taking the operative managerial decisions on the

elimination of really optimal strategic problems arising at the specific stage of the innovative activity of the enterprise without any efforts.

There also exists a backward communication at the third stage, which provides the possibility to correct, if required, the works of the previous two stages.

Due to the offered strategic management process, the implementation of the business strategy turns into the systematized operational sequence clear to every employee, the execution of which can be controlled at different managerial levels, evaluating personal contribution of each employee in the process of achievement of the strategic goals.

4. Conclusion

As a result of the undertaken studies:

1. there was improved the process of the strategic management of the innovative activity of the enterprises, which foresees the successive execution of the analysis stages that precondition the strategy formation, strategy selection and its implementation at the stage of preparation to the strategic management; provision of the strategic management process and control over the execution of the strategy. The preparatory stage to the strategic management is meant for the creation of the due preconditions for the execution of the following stages. The «provision of the strategic management process» stage provides the formation of the evaluating indices system for each stage of the innovative activity of the enterprise, and the «control over the execution of the strategy» stage is meant for the implementation and application of the formed indices systems in the enterprises activity by means of the improved model of the specific managerial decisions-making.

2. There was offered the model of the indices system formation for the comprehensive assessment of the innovative activity of the enterprise. In order to simplify the evaluation and control processes it was offered to divide the innovative activity into the preparatory stage, production stage and implementation stage for which there were formed their own integrated indices systems. The integrated indices systems at each stage of the innovative activity were formed according to the accounting equation: internal and external environment factors; quantitative and qualitative indices; advance and lagged indicators; evaluating indices of the innovative potential and the innovative processes at the enterprise.

3. Control over the strategy implementation and operative administration measures are reflected in the improved specific decision-making model subsequent to the results of the comprehensive assessment of the innovative activity stages at all managerial levels.

Formed in such a way system of the strategic management of the innovative activity of the enterprise allows promptly revealing the hotspots and immediately taking the corresponding elimination measures and does not require extra time and work of the employees, which is extremely important for the effective innovative activity, as long as the loss of time may lead to the production of the same goods by a competitor, which will provide him with the substantial competitive position.

References

- Babenko, V. (2019). Formalization of the Model of Management of the Technological Innovations. *CEUR Workshop Proceedings*, 2393, 595-602.
- Babenko, V., Pravotorova, O., Yefremova, N., Popova, S., Kazanchuk, I., Honcharenko, V. (2020). The Innovation Development in China in the Context of Globalization. *WSEAS Transactions on Business and Economics*, Vol. 17, 2020, Art. #25, pp. 523-531. doi: <https://doi.org/10.37394/23207.2020.17.51>
- Dyczkowska, J., Dyczkowskii, T. (2015). *An Influence of Strategic Awareness on Management Control: Evidence from Polish Micro, Small and Medium-sized Enterprises*. In T. Dyczkowskii (Ed.), (Vol. 23, pp. 3-31).
- Gorski, M., Gershun, A. (2008). *Gold Pages: The best examples of balanced system indicators introduction*. In A. Gershun (Ed.): Moscow: ZAO "Olympus – Business".
- Iancu, A., Tomiță, V. (2009). *Management strategical model*. In (Vol. 15). Timișoara: Editura Eurostampa.
- Kozyk, V., Ivanova, O. (2009). Formation of the estimated figures system for the innovative activity of the domestic enterprises. *Problemy nauky - Scientific problems*, 2, 9-15.
- Kozyk, V., Zalutskaya, H. (2017). *Formation of the interaction of diversified companies because of their strategy to conduct business units*. In *Formation and development of innovation infrastructure interaction of theoretical and applied aspects* (pp. 111): Lviv: Raster-7.
- Kunnanatt, J. T. (2016). *3D Leadership - strategy-linked leadership framework for managing teams*. In (Vol. 3): New York: Addleton Academic Publishers.
- Markiewicz, P. (2011). *Change Management in the Strategy Implementation Process*. In (Vol. 5): Vilnius: Mykolas Romeris University.
- Meskon, M., Albert, M., Hedouri, F. (1992). *Fundamentals of Management*. In: Moscow: Delo.
- Mironova, N. (2014). *"Soft" management - strategies for relations management*. In (Vol. 1): Burgas: Burgas Liberty University.
- Popov, S. (1999). Strategicheskoye upravleniye: 17 – modul'naya programma dlya menedzherov "Upravleniye razvitiyem organizatsii". In *Strategical Management: 17 - moduls program for managers "Management development organization"* (Vol. Module 4): Moscow: INFRA-M
- Ramazanov, S., Antoshkina, L., Babenko, V., & Akhmedov, R. (2019). Integrated model of stochastic dynamics for control of a socio-ecological-oriented innovation economy. *Periodicals of Engineering and Natural Sciences*, vol. 7, no. 2, pp. 763-773. doi: <http://dx.doi.org/10.21533/pen.v7i2.557>
- Solovii, H. (2012). Formation and use of balanced scorecards innovation enterprises. In *Candidate's thesis. Lviv National University "Lviv Polytechnic"*.

- Tromp, J.G., Le, D.- N., Van Le, C. and Babenko, V. (2020). Enterprise Innovation Management in Industry 4.0. In *Emerging Extended Reality Technologies for Industry 4.0* (eds J.G. Tromp, D.- N. Le and C. Le). doi:10.1002/9781119654674.ch9
- Velichko Alexander, & Velichko Ludmila, B. M., Khalatur Svetlana. (2019). Modeling of strategic management decisions in the enterprise marketing logistics system. *Innovative Marketing*, 15(2), 58-70.
- Vihansky, O. (2000). Strategicheskoye upravleniye. *Strategical management*. In: Moscow: Gardarica.
- Yurchenko, Y. (2016). Protses stratehichnoho upravlinnya diyal' nistyu budivel' nykh pidpryyemstv. The strategic management of construction enterprises. *Ekonomichnys visnyk Derzhavnoho vyshchoho navchalnoho zakladu "Pereiaslav-Khmelnytskyi derzhavnyi pedahohichniy universytet imeni Hryhoriia Skovorody - Pereyaslav-Khmelnytsky: State higher education institution "Perejaslav-Khmelnytsky State Pedagogical University"*, 31.

Khrystyna, Z., Kateryna, P., Olha, M., & Olena, D. (2021). Strategic Management of the Innovative Activity of the Enterprise. *Journal of Optimization in Industrial Engineering*, Special issue 2021, 95-103.

http://www.qjie.ir/article_677838.html
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