

The Strategic Management of Innovative Development

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Abstract: *First of all the intensive development and modernization of enterprises associated with an innovative strategy, the relevance of which is determined by the necessity to plan long-term directions of innovative development. Use of project management for the planning of innovation strategy allows to minimize deviations at the innovation planning stage, to substantiate each innovative project as an appropriate projection of innovative goal. Moreover, each such project accompanies by the development of an appropriate set of documents, by defining of the necessary amounts and sources of funding and identifying the structure of innovation project and scheduling of it implementation.*

Article is devoted to the formation of innovation strategies on the basis of a combination of strategic, innovation and project management. The methodology of project management involves the development, implementation and development project as a complex system in a dynamic external environment that reproduces the stages of innovation strategy. Moreover this approach allows to conduct on the distribution of resources according to the planned strategy of innovative development, because the methods of project management as a specific form of public management are aimed at the taking into account existing constraints in the management process. The authors are proposing an approach to the interaction of stage of innovation strategy, than includes the stage of modelling, implementation, management on the correlation with the innovation goals, innovation projects, correction process management, impacts of environment.

Keywords: *Innovation, strategy, project management, innovative strategy, projects.*

Introduction

In the conditions of globalization and rapid development of technologies enterprises need to prevent static, inert behavior and to change dynamically. Due to the fact that innovations play a priority role in forming of the competitive enterprise development, innovative enterprises development – it is a key of competitive benefits, long-term profitability and high growth rates. In such cases the innovative development of enterprises depends on various innovations that can cover all areas and cause technical, organizational, economic and administrative changes, different from current practice.

However, the instability of the external environment, inadequate management companies become the cause of slowing the innovation activity. Under these conditions, innovation remains a source of risk and loss. In this case, the strategic management of innovative development of the enterprises is particularly important.

Based on the process of prediction, control and adjustment the strategy of innovative development is the foundation of success of innovation. Due to the fact that only "the strategy of relentless innovation gives chance not only to maintain but also to improve the position of the company" [1], we want to decline that the strategic approach differs from everyday activities in the aspiration to achieve the goals, in the subordination to the current goal of the ideal development, in the selection of the optimal scenario and the ability to switch from one scenario to the next in the most favorable time. This strategy provides forward-looking development and increasing the benefits of enterprise. Under conditions of constant risk and changes the strategic view of innovation will allow to react to changes and run exactly the technology that will bring significant advantage and superiority in the market.

Thus, we are talking not only about a single use innovations to achieve instant benefits, but about the continuous, strategically planned in detail innovative development which requires the formation of the methods and models of managing innovation.

1.The Project Management and the Strategy of Innovative Development

Implementation of innovative strategies in management innovation occurs by the innovative transformations, which combines the methods of strategic, innovative and project management (Figure no. 1).

In this case, each innovative goal supported by managerial component of the relevant innovative project, which can be described as a set of research, industrial, institutional, financial, commercial and other activities organized and executed with a set of documentation and provided effective solutions of specific scientific and technological tasks (problems), expressed in quantitative terms, leads to innovation [3, p. 164].

The use of project management allows to provide compliance with the strategic goals of the enterprise and the project, to perform only strategically important activities and to avoid costs with limited resources on strategic insignificant goals.

Besides, the project basically already has an element of innovation without creating internal semantic conflict, and its principles (originality, dedication, hierarchical, multiplicity, system, complexity) does not contradict the methodological methods and rules of innovation management.

The importance of consideration of innovative strategy as a complex project is implied by the simultaneously achieve the best economic, financial and other results, described the stages of innovation strategy, and the presence of multiple sets of projects. These innovative projects are responsible for the implementation of relevant innovation objectives and building a portfolio of innovative projects, which are realized in the conditions of resource limits to achieve their own strategic goals [2]. The formation of the stages of innovation strategy into portfolio provides a synergistic effect of innovation in which the value of realization project portfolio exceeds the value of the individual innovative projects.

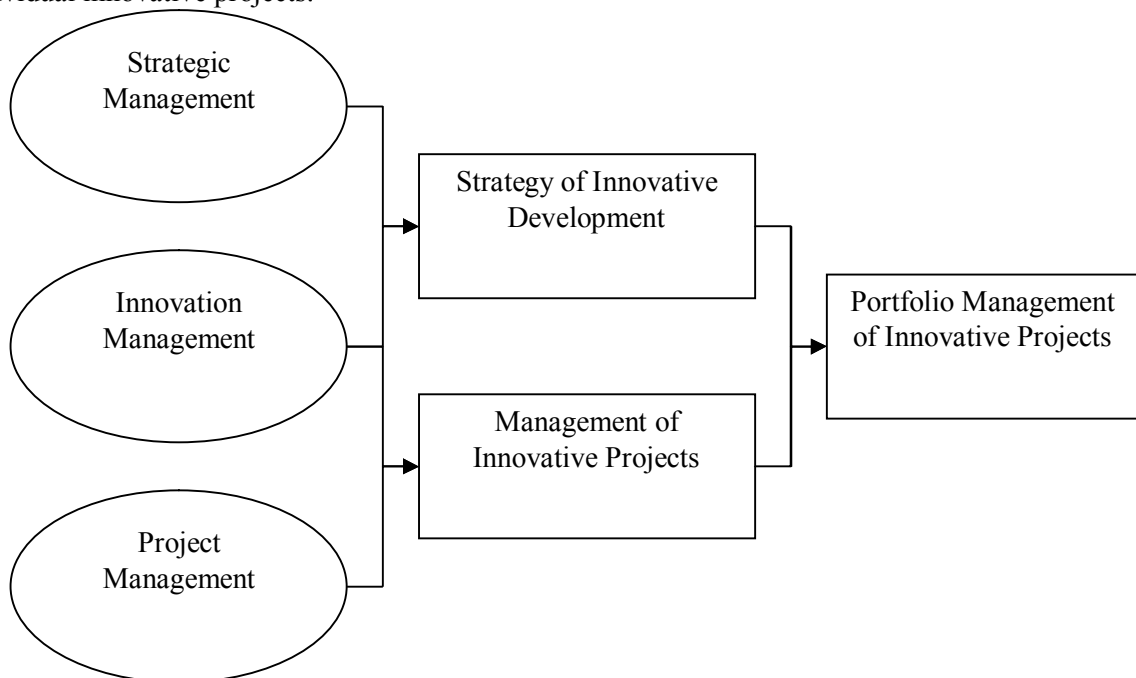


Figure no. 1 The relationship between the strategy of innovative development and project management

Under these conditions, the formation of the mechanism of the innovation strategy will be supplemented by additional inputs, whose appointment is in modification purposes pursuant to the reaction to innovations and the time factor that forms a real-time dynamic system.

2. Model of the Innovation Strategy

Using the methods of strategic, innovation and project management the process of achieving the strategic innovative goals can be represented as an optimal solution in the condition of limited

development resources. Innovation strategy (portfolio of innovative projects) forms certain requirements for its implementation, which are associated with the need to use unified methods of managing the complex planned innovations and should be linked to the specific of enterprise's activities.

The maintenance requirements are set by combining the characteristics of management, formally described as a tuple $\langle \Omega, X, U, T, Y, \rho, \gamma, \xi \rangle$. Then the content of an optimal control problem is to find a optimal solution $u \in U$ in which the terms of set criteria $\{K\}$, nominated by managers, provided the object's transfer into a new state with the maximum satisfaction of requirements of set priorities:

$$P: K \times K \rightarrow L,$$

where L – lattice;

Ω – the characteristic, which, due to the uncertainty of the environment reflects the set of states of the system, generated during the implementation of innovation strategy;

X – the input parameters, which represent a set of tools selected innovation projects;

U – the set of processes of implementation of innovative projects;

T – the time;

Y – the area of the source data, related to the innovative transformation of the enterprise;

$\rho: (\Omega \times T) \times U \times T \rightarrow \Omega$ – reflection that describes the dynamics of subject area, the dynamic response on the impact;

$\gamma: \Omega \times T \rightarrow Y$ – output reflection, that describes the process control functions;

ξ – factors, that are not amenable to change, but bearing on the dynamics managing process.

Thus, the implementation of innovation strategy shall transfer the enterprise into the new state. Such approach is associated with the formation of the relationship between model of innovation strategy and the implementation portfolio of innovative projects (Figure no. 2), which corresponds to the representation as a special form of input data is not modified and transformed in the course of their functions and usually can be appear as rules, norms, laws, procedures and standards.

The scheme shows the relationship of process modeling and process of the implementation the innovation strategy as purposeful system that provides enterprise goals, according to the Figure no. 2.

The set of innovation goals X reflect the strategic vision of the future development of enterprise and disclosed in the model-level design. Taking into consideration the impact of the environment the model generates a detailed action plan for achieving the goals and means $\Omega(T)$ necessary for the project: work, resources, results, risks.

At the input of the implementation the innovation strategy according to modeled transformation is the vector of optimized innovation projects $X(T)$, the vector of the impacts of environment ξ and the criterion vector system K . The process of implementation going through the planned management U at some level of innovative change $\Omega(T)$.

The information about the dynamics of change and monitor the management object is used for the correction of administrative actions, in accordance with the principle of closed management.

The adequacy of connection "model innovation strategy - implementation of model" provided by the transformation of the initial model parameters on the characteristics of management (the set of innovation goals becomes a set of innovative projects, the formed rule or resource allocation provided by the existing innovative potential), by adjustment goals and means to achieve them in accordance for change impacts, criteria estimation of results and enterprise's reaction P on the change in the current time T .

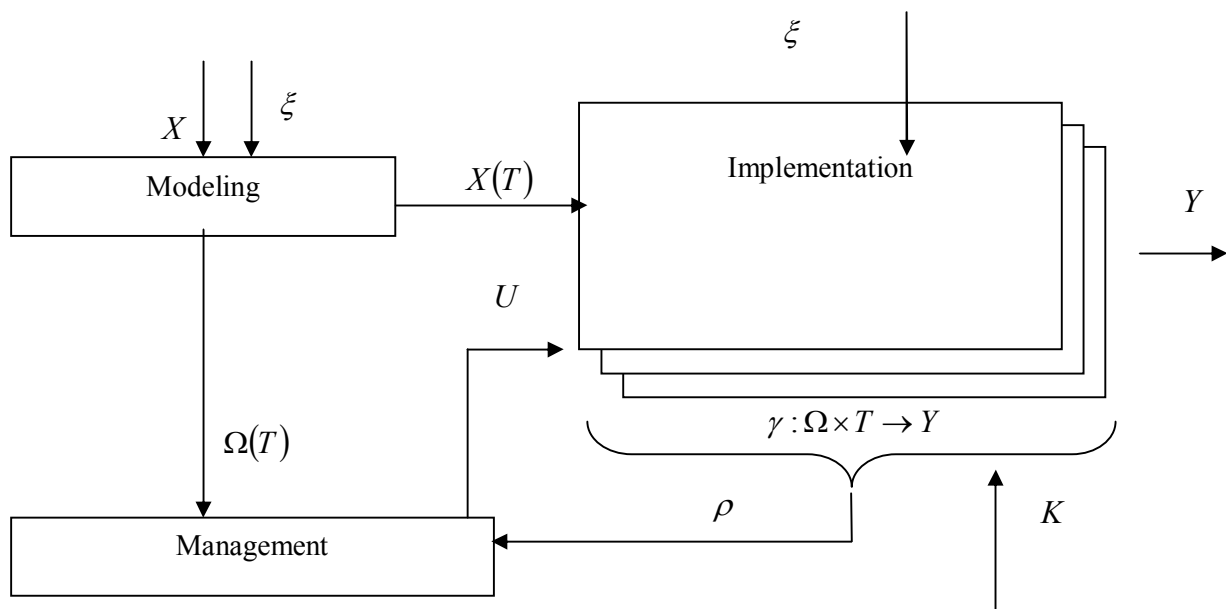


Figure no. 2. Interaction scheme of strategy processes

Value P can have significant or insignificant deviation from the plan. Depending on the value P , in the management process initial model parameters and management tools can be corrected.

Input parameters control have their own characteristics and depend on the specifics of the enterprise and its environment. That is the definition of such characteristics as $X(T)$, ξ , K shall be consider relevant for business process management.

Conclusions

Every modern enterprise is faced with the need to implement innovation, so the question of portfolio of the innovation projects is very important. Innovation managers are need to create portfolios to help them attain optimal returns while choosing the right level of risk for all innovation projects. Among the causes of analyze the innovative strategy as a complex portfolios of innovation projects also we can determine: the importance of analyze the innovative strategy as a single complex project, the need to simultaneously achieve the best economic, financial and other results, that are described as stages of innovation strategy, and the presence of multiple sets of projects that are responsible for the implementation of relevant innovation goals.

Besides such representation allows to consider fuzzy description and uncertainty of characteristics of innovations that and caused a number of reasons related to the complexity of objects and subjects of innovation management:

- the complexity of the innovation strategy as a system with many connections and relationships that should cover all the processes of innovation in the enterprise;
- the complexity of functional description of the enterprises of consumer cooperation as a multilevel hierarchy, which must consider the impact of all previous levels, communications, social and market needs and more.

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