

# MANAGING INNOVATION PROJECTS USING DISTRIBUTION LOGISTICS

**Erika Loučanová**

Department of marketing, trade and world forestry, Technical University in Zvolen, T.G. Masaryka 24, 960 53 Zvolen, Slovak Republic, loucanova@tuzvo.sk

**Keywords:** innovation, project management, innovation management, distribution logistics, logistics

**Abstract:** A significant part of innovation projects management is the distribution logistics. From the point of view of time and material content, the properly chosen way of distribution is one of many factors for success of the project and innovation creation itself. The paper points out the fundamental basis of innovation management in the stage of its realization referring to the importance of distribution logistics in this part of innovation project management. Distribution logistics in the project management provides comprehensive solutions to efficiency of tangible relocating processes in all connections and mutual relations of project in order to maintain compliance between economy and business when implementing innovations.

## 1 Introduction

As stated by Chudada a Tarabová [1], in today's uncompromising competition, successful may be only the one, who puts the emphasis on continuous development and improvement of its products by innovations. Innovation of products is closely related to the market and its orientation towards the customer. Nowadays, a project is considered to be the main tool for achieving this change (innovation), because as stated by Filo [2], the current state – new state = change; change = plan + realization and plan + realization equals to the project. In case that this change is positive, for society it represents an innovation as such. Realization of the project for creation of innovation represents an implementation of project plan based mainly on organizing resources, more specifically human, material, financial and also information resources. This task in the project management for creation of innovation is then represented by distribution logistics, which searches for the optimal topologies of distribution network for the project and the actual implementation of innovation.

## 2 Use of distribution logistics in the project management of innovation

Success of implementation of the project is to a considerable extent dependent on the quality and competences of a project team as well as on ability to communicate within an open system of innovation process with respect to its more initiative environment. Regarding more pulse environment arising from its open innovation system, it is necessary to have all activities of the project within its implementation organized and it is necessary to create a summary of tasks related to logistics and measures related to the environmental factors such as production program, space, demand, supply, transportation availability, time etc. From the perception of project management for creation of innovation the

distribution logistics fulfills two basic tasks from economic point of view. The first one is related to the creation of innovation value itself, i.e., creation of quantitative or qualitative special – purpose change. The second task is focused on realization of distribution flows in the project, creating the balance between demand and supply, i.e., in project management it is realization of the flows between resources and consumers. Finally, an implementation of the project and distribution logistics fulfilment of mentioned tasks are ensuring deliveries at the right time, in the right place and exactly with what is expected by the market. This ability is called FIT, i.e., meaning that the project team should be flexible, innovative and it should implement its activities at the right time. The functions of distribution logistics for implementation of project innovation in space, time, quantity and quality are flow of real outputs of individual activities of the project, flow of nominal outputs and flow of information. Flow of real outputs of individual activities of the project represents the movement of these outputs from one place to another, or as an output of one activity representing input of other activity of the project. Considering the time, the flow of real outputs represents organizing inventories, respectively, outputs timing for their entry into another activity of the project for creation of innovation. At the flow of nominal outputs, from the perspective of the function of distribution logistics at innovation projects at space, logistics represent the transfer of financial resources from place to place, respectively, among the activities of the project, and from the viewpoint of time it comes to refinancing of these activities and a proper organization of financial coverage of project's activities (e.g. loans and others). Similarly, also the information plays an important role in project implementation and innovations, where the function of the flow of information within the distribution logistics ensures also the flow of information within the project's activities from place to place and from time point of view

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storing and making a backup. All outputs of above – mentioned functions of distribution logistics in managing innovation projects must be at required quantity and quality. Parameters of quality and quantity may differ

according to the type of project’s activities, type of projects and, of course, type of innovation (Figure 1) [3], [4], [5].

*Table 1 Matrix of length  
Source: Loučanová by Straka [4], [5]*

The functions of distribution logistics	Space	Time	Quantity	Quality
Flow of real outputs of individual activities of the project	The movement of outputs from one place to another, or as an output of one activity representing input of other activity of the project	Organizing inventories, respectively, outputs timing for their entry into another activity of the project for creation of innovation	Required quantity	Required quality
Flow of nominal project outputs	The transfer of financial resources from place to place, respectively, among the activities of the project	Refinancing of these activities and a proper organization of financial coverage of project’s activities	Required quantity	Required quality
Flow of information in the project	The flow of information within the project’s activities from place to place, or as an output of one activity representing input of other activity of the project	Storing and making a backup a information	Required quantity	Required quality

Comprehensively, in order for project management in conjunction with the management to successfully compete with the fierce competition it must satisfy the requirements of the market by delivering:

- the right innovation,
- in the right quality,
- in the right quantity,
- in the right place,
- at the right time,
- at the right price,
- and in the proper package.

This set of requirements known as "7 S Logistics" model, also used in the distribution logistics projects, represents an increase and optimization of the performance of the project for the implementation of innovations [6].

When talking about the current distribution logistics, it does not end by binding the innovations to the market, but it continues until the end of their life cycle. Because of this reason, we might talk about the next „S“ of logistics in innovations, which provides service of this innovation until the end of its life cycle.

In addition to what was already stated, the innovations, within the distribution logistics, are also focusing on elimination of wastes, where eco - innovations enter the innovation process, whose mission is ecological disposal of used product, which is replaced by new one, respectively, increase of quality by innovations by reducing their impact on environment.

Even though there are many things changing according to a new perception, there are still some parts of them, which maintain their importance in their original perception, and in such case there is currently a new term entering the innovation management called retro – innovations, which partially slow down fast trend on the market and prevent from the shock from the future. By keeping the original essence of the product they are decreasing the pressure on all participating entities on the market emphasizing the innovation trends as well as increasing the level of customer service or lowering the expanses and some other trends and priorities. Malý states these trends in distribution logistics:

- global orientation,

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- shortening the life cycle of the products by innovations, or by their re – innovation and creation of retro – innovation,
- lower level of inventories and orientation to just – in – time,
- electronic data processing and storage,
- market orientation,
- and waste elimination, where eco – innovations come to the fore [1], [8], [9].

When resulting from the global trends, it is possible to characterize also a new way of distribution based on the factors such as:

- stable demand and supply – for optimization of time structure,
- growth of transportation infrastructure – for optimization of space structure,
- formation of new time structures of pulse character, so called Boom of transportation market,
- formation of transportation waves, not reacting to each other – for creation of clusters increasing efficiency by cooperation,
- formation and creation of spires and hypercycles – for creation of consecutive development of logistics and creation of re – innovations, respectively retro – innovations,
- and creation of deterministic chaos [6], [7], [8].

All stated factors are referring to the actuality that there are always changes and pressure affecting innovation process from the market, customers and also investors. All participating entities are increasing the pressure in order to make all activities in the area of innovation more efficient and thus the pressure on innovation process is constantly growing and is increasing. Therefore, in order to make the innovations on the market successful, within the global optimization of innovation process and realization of the project, it is

necessary to search for the optimal topologies of distribution network on known operating space.

By topology of distribution network in the innovation process in realization of the project we are clarifying and exploring the idea of connection within the intuitive cognition of fundamental characteristics of space and time for fundamental meaning of cognition of innovation realization. Therefore, for achieving competitive advantage through the application of all available methods and applications through distribution logistics for innovation realization, as a competitive advantage on the market, it is possible only in case of detailed analysis of the current state and subsequent confrontation of requirements of all participated entities [1], [6], [7], [8], [10], [11].

System analysis uses the principle of system research, systems theory and cybernetics to solve comprehensive technical, economic and organizational problems. System analysis methods are based on mathematical modelling, probability theory, operation analysis, graph theory and other exact methods. Studied case pays attention only to one coherent logistic operation for the project’s activity. Securing logistics of the whole project is an inevitable binding of larger number of logistics operations of project’s activities for realization of the innovation itself. Their bonds can be captured in network diagrams and the methods of analysis, known from graph theory, can be used. In these charts logistics activities of the given operation act as a whole. Critical Path Method - CPM or Program Evaluation and Review Technique – PERT are the methods, which are chosen very often for the network analysis [10].

Project for innovation realization represents the complex logistics system in space and time, by organizing the resources and except organizing of human resources within individual activities of the project and also the project as a whole, by which there is created so called concentrated market (Figure 2).

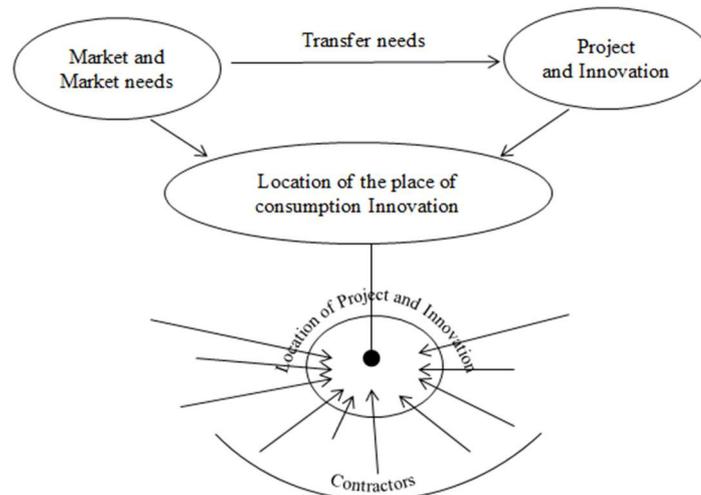


Figure 2 Concentrated market  
Source: Loučanová by Filo [2]

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In case of projects within the distribution of mentioned flows, there is used tiered distribution of resources as Filo [2]:

- the first stage – represents connections of the project team with a bearer of needs, i.e. ordering party of the project. This stage represents pseudo – distribution where the provider of the project is connected with the receiver (customer) of the project itself,
- the second stage – flow of information, human and other resources necessary for the project,
- the third stage – flow of project users to the place of realization,
- the fourth stage – movement of the project team to the place of preparation and consequent realization of another project.

Within all stages of resources distribution for the project it is necessary to observe them by measurable parameters as intensity of distribution of resources in volumes, performance, supply and distribution variance, i.e. the number of starting places from where and where to the flow of resources is ensured and where and which methods of distribution are used, for example, as just-in-time states.

**Conclusions**

Logistics is now an important efficiency tool of the organization of individual project's activities for realization of innovations. Effective operation of the market cannot be considered without well-organized logistics network within the unified innovation process in the enterprise. Well-organized logistics chains in innovation projects represent higher chance of survival in the hyper-competitive environment by means of innovation.

From the above it is clear that the main integrating task of distribution logistics in the project management for realization of innovations is to ensure comprehensive solutions of physical processes transportation processes in all respects and mutual relations of the project, and maintain consistency between the economy and business.

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**Review process**

Single-blind peer reviewed process by two reviewers.