Chapter 4

Multiplex Waves in the Planning of Innovation Processes in Business Systems

Mishail Mokiy  
*State University of Management, Russia*

Vladimir Godin  
*State University of Management, Russia*

Pavel Gureev  
*State University of Management, Russia*

Veronica Filonchik  
*Russian Presidential Academy of National Economy and Public Administration, Russia*

**ABSTRACT**

This chapter aims to outline the methodologies for solving the most important challenges in the field of innovation management – assessment of innovative events and activities and selection of optimal calendar periods for carrying them out. A transdisciplinary approach is used as a way of solving this problem. Basic principles of this approach, principles of building transdisciplinary models of informational and temporal order units will be covered, thereby making it possible to represent development as a multiplex or a totality of M-waves. Use of such models allows to offer special methodologies - an innovative chart of business system development. Results of a retrospective analysis of several enterprises are shown, which confirm the effectiveness of this methodical technique, and an example of building an innovative chart of development is presented, including the calculation of schedule periods for development and implementation of investment, as well as mandatory critical points and control points in the future development of business systems.

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INTRODUCTION

Business development suggests constant change to improve the business situation or enhance its effectiveness. However, there are problems that make achieving this goal much more difficult. According to the results of the PDMA (Product Development and Management Association) research, only one out of nine business development concepts becomes commercially successful. Furthermore, according to the same studies, “Approximately 40% of all innovations fail to start-up or even to be in distant approaches to the market - on testing or creating pilot sampling stages. Practically a half of the company resources directed to the development of new products is expended to the unsuccessful projects”(Cooper). Taking into consideration that the volume of investments to the innovative development of only the first 1000 of the most advanced companies in the world in 2014 make about $425 billion, the losses caused by unsuccessful innovations are very significant.

Therefore, subject to presence of the required amount of resources for implementation of innovative activities, success depends on the factors such as:

- Quality of innovation itself (ideas, design, charts and the like), i.e. sense of innovation;
- List of activities to implement innovation in business practices;
- Justification of selection of time period for execution of measures.

In other words, effectiveness of the innovation process depends on at least the answers to two questions:

1. What needs to be done?
2. When does it need to be done?

Essentially, in this chapter the authors will reveal these issues and a transdisciplinary based approach to their solutions.

BACKGROUND

The answer to the first question “What needs to be done?” assumes an understanding of the terms “innovations” and “innovation management”. This is one of the most discussed issues of the last quarter of a century. In spite of the wide discussions within the framework of GLOBELICS (Oslo Manual, 2005) and inclusion of a definition in the regulatory documents, discussions are still continuing. However, issues of ontologic nature still remain and we fully share the opinion in the Economist: “Over the past decade, innovation has emerged from the shadows to become a new industrial religion, worshiped by public figures, investors and businessmen alike. Around the world, the rhetoric of innovation unites politicians on the left and right, having replaced the post-war language of welfare economics. Board members see it as the key to increasing profits and market share. Governments hurl money at it when trying to fix failing economies. But despite being responsible for something like half of all economic growth, and the topic of countless government studies, innovation remains essentially black magic”(Improving innovation).

This chapter doesn’t imply carrying out an analysis of various points of view on this issue, identification of the definitions of the term “innovation” and the results of innovative development. However, the results of such analysis, previously performed (Gureev & Mokiy, 2015) allow us to state that the