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## АНАЛІЗ ТЕОРЕТИКО-МЕТОДИЧНИХ ПІДХОДІВ ДО МАРКЕТИНГОВОГО ТЕСТУВАННЯ ТОВАРНИХ ІННОВАЦІЙ

### ANALYSIS OF THEORETICAL AND METHODOLOGICAL APPROACHES TO MARKETING TESTING OF PRODUCT INNOVATIONS

**Summary.** The theoretical and methodical approaches to the procedure of product innovations marketing testing are analysed in the article. The basic provisions of the various testing models are characterized. The advantages and disadvantages of reviewed models of marketing testing are specified. The author's approach to the procedure of marketing testing of product innovations is formed.

**Keywords:** innovation, innovative activity, innovative cycle, marketing testing, marketing filters, filter criteria, business analysis, performance.

**Introduction.** In the modern world innovations and innovative activity are of great importance as they are an important part of the process of the successful development providing and long-term operation of the enterprise. However, official statistics points out at low innovation activity of domestic industrial enterprises (in 2015 only 17.3% of enterprises were engaged in innovations). In addition, the effectiveness of this small innovative activity is at a quite low level. For comparison, in Ukraine only 0.5% of projects get commercial implementation, while in the US the index is 22%, in Europe it is 18% [1]. These and other reasons prevent an effective process of practical innovation development. A low percentage of domestic innovations commercialization requires an examination of the place of marketing in the process of innovations development. In the innovatively active countries it is practiced a procedure of marketing testing that solves an urgent problem concerning enhancing the efficiency of enterprises innovation activity, that is why it is important for the implementation into activities of domestic industrial enterprises.

**Latest research and publications' analysis.** In literature sources it is given insufficient attention to the marketing testing procedure. You can select scientific works of S.N. Illiashenko [2], Y.V. Karakay [3], V.M. Shcherban [4], R. Cooper [5], N.I. Chukhrai [6], O.M. Hotyashcheva [7], P. Kotler [8], P.G. Pererva [9] etc. Domestic and foreign scholars have widely disclosed some theoretical and methodological aspects of marketing testing at different stages of innovation cycle through certain indicative criteria (or filtering criteria), but questions concerning its complex conducting were ignored. Besides the introduction of this procedure at early stages of the product development innovation cycle remains disregarded. There are not many works concerning marketing testing in public sources because they can provide tangible benefits to certain companies.

**Statement of the task.** The study is an analysis of theoretical and methodological approaches of foreign and domestic scientists to test treatments marketing product innovation and development on this basis of the author's approach to its

implementation, which should be integrated at every stage of the innovation cycle of the product.

**Key research findings.** From numerous literary sources it is known that an innovation cycle consists of certain consecutive stages [2]: beginning with the formation of the purpose and idea generation and ending with trial run and introduction of new products to market.

A consistent flow of the innovative idea through every stage of the development cycle with the application of the marketing testing procedure is the guarantee of a successful innovative activity of the company. Therefore, let us consider different evolutionary approaches of domestic and foreign scientists concerning marketing testing procedure on the whole, and its elements that occur at certain stages of the innovation cycle.

Karakay Y.V. [3] considers marketing testing at the stage of innovative ideas generation and selection. He proved the expediency of factorial approach to eliminate ideas with no prospect and ideas that should be improved. Analysis of environmental factors impact allowed dividing them into three groups that form specific "filters", which give the opportunity to accept or reject innovative ideas. A consistent analysis of conformity ideas to each group of factors gave the opportunity to offer the model of "three filters". The first filter includes social, market and environmental factors (factors of macroenvironment). The second group of factors (the second filter) includes: business risk, competition, conformity to law and safety consumption (factors of trade priority justification). The last filter consists of factors that determine the possibility of implementing of innovation projects: production capacity, functional completeness, required investment, payback period, profitability, market size and others (factors of commercial activities evaluation).

According to Shcherban V.M. [4], marketing testing must be performed in two stages. The first stage is a concept testing that is checking the impact of innovative product concepts on the group of target consumers. It can be presented as a description, a prototype or virtually. The second stage is the prototype testing. Here the author identifies two approaches:

1. Technological testing. It shows how far conditions of technical specifications are realized in the prototype. This type of testing can be performed both in laboratory conditions, with the participation of professional engineers, and in real-life conditions with the assistance of consumers.

2. Product test in market conditions. It is an imitation of the company introduction into the market with a new product. The purpose is to determine the chances of a new product and marketing strategy for the market success. The author offers the following methods: prototype test by the use of market model and test marketing with its various options.

There is quite an interesting approach suggested by Cooper R. [5, p. 438-455]. In the process of the innovative product creating it is essential to identify "critical points", i.e. moments when it is necessary to decide what to do with the project development (to continue or terminate it). These are peculiar ways to reject unsuccessful projects:

1. Elimination at the business analysis stage. Making a decision concerning the necessity to spend resources on the project.

2. Elimination during making the decision about the transition to the development stage that is the signal for the start of full-scale product development.

3. Elimination during decision-making concerning the start-up into the commercial production.

4. The final critical point that is a retrospective analysis of what have happened and what conclusions can be made. It is conducted after the start-up that signals about the end of the project.

The list of decision-making points is complemented by the necessary reporting, selection criteria, in order to ensure that only the best projects are moving up to the next stage of the development process.

The model of innovative product development that takes into account the elements of a marketing testing is called as "critical points" or "gates" for the rejection of unsuccessful projects.

At the stage of innovation ideas selection Chukhrai N.I. [6] offers to apply "a control filter" that allows evaluating ideas on the basis of customer satisfaction level. As a result of this "filtering" ideas are distinguishing into those that have no prospects, far-reaching ideas and perspective ideas. Further it is calculated the perspective ideas qualitative index and occurs the final ideas' selection according to cumulative criteria that characterize the scientific and technical level and strategic attractiveness of the supply: product quality, patentability, qualification of personnel.

At the stage of prototypes creating the author proposes to conduct a functional innovation test with a view to ascertain its conformity with the requirements of the market. It is possible that test marketing stage can be conducted.

At the stage of new product idea generation Hotyacheva O.M. [7] offers to create the system of a complex use of all possible innovation sources that makes it possible to accumulate a large number of alternative proposals and allows testing ideas rationality in terms of their coincidence according to different sources. At the stage of ideas' selection occurs a two-level evaluation of alternatives. Firstly, it is performed an internal idea evaluation according to two directions: conformity of the idea to the corporate marketing strategy and assessment of technological opportunities of the enterprise. An external evaluation includes trial ideas sales through marketing research.

At the business analysis stage the author also offers to test a prototype of marketing program; at the stage of product development it is necessary to provide laboratory testing of prototypes; at the stage of testing under market conditions it is essential to provide testing in exploratory and manufactured markets.

There is quite an interesting model of marketing testing offered by a generally known expert in the field of marketing

Kotler P. [8]. According to this model testing occurs at the levels of an idea, a concept and a prototype of an innovative product.

The filtering of innovation ideas occurs in three stages. First, the maximum number of generated ideas undergoes a "rough" filter, and its result is the classification of ideas into perspective, acceptable and prospectless. Then all perspective ideas are tested by various criteria and according to their results it is forming a set of selected ideas and they are liable to full-scale check at the last stage of filtration. According to the results of innovative product concepts testing occurs its admission to the category of win-win, ineffective or unsuccessful. The stage of prototypes testing is implemented in the form of alpha- and beta-testing. Alpha testing is the probation on the manufacturer's stands concerning technical capacity to develop and produce a product of a specified quality level; functional and technical tests; production tests. Beta testing is the probation involving target customers to determine their response, consumer qualities, the intention to make purchases and the valuation of the commercial profitability of the project and its market chances. Positive results of prototypes testing are a signal to start the final test that is test marketing (or marketing testing) with its different variants.

Pererva P.G. [9] proposes a two-level procedure of ideas selection. At the initial stage of the idea selection they are filtered according to general, marketing and production criteria. During the implementation, these criteria are specified and detailed to examine the most perspective ideas. At the second stage the author offers the following rejection criteria: market, scientific and technical, financial, manufacturing, external, economic and criteria related to the objectives of the corporation. The procedures of ideas' assessment are performed by the methods of standard forms, check lists, evaluation scales, analytical network expertise, rating calculating of the product idea and probability of the new product success. At the stage of product conception development production and consumer tests are necessary. To assess the market adequacy of the product it is offered to apply marketing researches, analytical assessment of subjective quality of the product, and multidimensional computer simulation.

Thus, none of these models of marketing testing is different by the complexity, and provides for action only at certain stages of the innovation cycle of product development. The absence of complexity demand indicates a high probability of making a mistake during the design and development of innovative products that will eventually lead to the appearance in the market of products that will not meet the needs and demands of consumers.

That is why we offer the author approach to conducting the procedure of marketing testing, where the complexity requirement should be followed.

Marketing testing is a complex process of selection, evaluation and choice of the marketing approbation subject conducted at every stage of the product creation for gradual and general definition of the success level of innovative products in the market and in the eyes of target consumers and also the stage of product readiness to enter the market. The subject of testing can be directions of innovative development of the company, ideas sources, ideas, conceptions, prototypes of innovative production and its market attributes and also marketing strategy as a whole.

Let us briefly consider every stage of the product development process and determine which types of marketing testing take place here (table 1).

We offer various marketing filters to reject innovative ideas through them being at every stage of the innovation cycle, before one of them (the most perspective idea) will be embodied into innovative production:

Problems that marketing testing solves at stages of the product development innovation cycle

The stage of product development innovative cycle	Type of marketing testing	The main problems (tasks) that are solving
Analysis of conformity of internal development opportunities to external ones	Testing of directions and types of innovation activity	Testing how far the existing directions and activities of the company meet modern conditions; analysis and evaluation of directions and variations of market development opportunities that have the enterprise
Ideas generation	Testing of ideas' sources	Determining target customers and their needs; evaluation and selection of optimal sources of ideas innovative production and methods of ideas generation within the framework of selected ideas sources; formation a "matrix of ideas" of innovative production
Selection of ideas	Testing of ideas	Determination of criteria for ideas selecting; criterial assessment and selection of optimal ideas of production; testing of opportunities to bring the idea to the level of new technologies, designs, products, decisions; preliminary evaluation of ideas market perspectives; determination of the idea novelty level and consumer attractiveness; risk assessment
Development of product concept and its verification	Testing of product concept	Investigation of product concept by target consumers; analysis, evaluation and selection of optimal from possible alternatives of innovative product conception; assessment of market perspectives of the conception and innovative potential of the concept developer; determination of the level of the concept novelty; risk assessment
Market research and development of marketing strategy	Testing of marketing strategy	A detailed analysis of existing and potential customers' needs, and in case of need to develop measures for their formation; analysis of the potential market and situation of its development; analysis and selection of the optimal marketing strategy; test of market attributes
Business analysis	Testing of intended purposes and opportunities	The analysis and evaluation of intellectual, scientific and technical, manufacturing, marketing opportunities and resources' provision for innovations embodiment into products under development; evaluation of economic efficiency of production and products realization
Product development	Testing of a prototype and manufacturing process	Definition of consumer attitudes to the proposed prototypes; assessment of the quality level of the test sample in comparison with the analogues or competitors' products, if any; choice of the best prototype from several versions; laboratory and consumer tests of prototypes; production test; analysis of versions of working documentation and production technical preparation; assessment of novelty level; risk assessment
Market testing of the production	Testing of the market (test marketing)	The final market evaluation of developed innovative production and its marketing support: testing of the price, sales network, sales incentives etc.; analysis of developed product positioning in relation to similar production of competitors and own product portfolio

1. Analysis of conformity of internal development opportunities to external ones. At this stage methods of portfolio analysis can be applied (SWOT, PEST, BCG, GAP, MKGE).

2. Ideas generation. The instruments are marketing researches of consumers and traditional and non-traditional methods of ideas generating.

3. The selection of acceptable ideas that are methods of control questions, filtering criteria, portfolio methods, method of analytic network evaluation and also a consistent analysis. Besides, it is advisable to calculate the conditional index of the idea quality, the idea rating, the probability of idea's success, the level of idea innovation.

4. Development of a new product plan and its testing that are: the method of control questions, the method of scores evaluation, methods of predictive value of consumers' stated intention to make a purchase, joint analysis. At this stage it is necessary to test the conception with the participation of target consumers.

5. Market analysis and development of marketing strategy. Methods of market researches are: forecasting of quantity demanded; market segmentation; development of commodity, marketing, pricing and communication policy.

6. Assessment of possibilities to achieve goals of marketing strategy. Methods of functional cost analysis, technical and economic analysis, methods of economic efficiency evaluation (break-even analysis, risk analysis, NPV, IRR).

7. Development of a new product. Design and technological approaches, approaches to the organization of the production process. Laboratory and operational tests of the prototype, production tests.

8. Testing in market conditions. Consumer and market tests of the new production. Methods of test marketing.

**Conclusions.** Marketing testing is the assessment of market success of the product innovation and its marketing strategy, and ultimately it is an increase of the activity level and results of innovative activity of the company. With its assistance it is possible to make a reasonable decision about the continuation of works over the innovation or stopping them. Further researches should be directed to the development of theoretical and methodological foundations of the mechanism for implementing a product innovation marketing testing into the practical activity of industrial enterprises.

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**Анотація.** У статті розглянуто наявні теоретико-методичні підходи до проведення процедури маркетингового тестування товарних інновацій. Охарактеризовано основні положення різних моделей тестування, що виділяються науковцями. Зазначено переваги та недоліки розглянутих моделей маркетингового тестування. Запропоновано авторський підхід до проведення процедури маркетингового тестування товарних інновацій.

**Ключові слова:** інновація, інноваційна діяльність, інноваційний цикл, маркетингове тестування, маркетингові фільтри, критерії фільтрації, бізнес-аналіз, результативність.

**Аннотация.** В статье рассмотрены существующие теоретико-методические подходы к проведению процедуры маркетингового тестирования товарных инноваций. Охарактеризованы основные положения различных моделей тестирования, которые выделяются учеными. Указаны преимущества и недостатки рассмотренных моделей маркетингового тестирования. Предложен авторский подход к проведению процедуры маркетингового тестирования товарных инноваций.

**Ключевые слова:** инновация, инновационная деятельность, инновационный цикл, маркетинговое тестирование, маркетинговые фильтры, критерии фильтрации, бизнес-анализ, результативность.