**ІННОВАЦІЙНО-ІНВЕСТИЦІЙНА
ПОЛІТИКА**

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SCIENTIFIC AND METHODOLOGICAL APPROACH TO DETERMINING THE OPTIMAL COMBINATION OF TOOLS FOR IMPLEMENTING AN INNOVATION PROMOTION STRATEGY

The article presents the results of research on the innovation promotion strategy toolkit. In the enterprise management system, the optimal combination of innovation promotion strategy tools is aimed at creating, supporting and developing competitive relations in the market environment through a correctly defined and effectively functioning marketing interaction system. It is proven that the integration of the innovation promotion strategy into the management system directs enterprises to long-term promising functioning in a changing market environment, thus, the management system is oriented towards the use of certain promotion tools that should be used within the boundaries of an effectively functioning enterprise management system. Consideration of the application of the innovation promotion strategy toolkit at the enterprise through the prism of a process approach to management can be implemented through the analysis of consistently performed management functions. It is substantiated that determining the optimal combination of innovation promotion strategy tools in the enterprise management system will provide an opportunity to solve the following tasks: to organize marketing intelligence information, to create and develop databases in the field of marketing; implement a methodical and regular analysis of the requirements and requests of the key interaction subjects; formulate strategic, tactical and functional goals; trace the life cycle of effective goods or services, which will provide enterprises with additional competitive advantages, will allow them to serve the target interaction subjects better than competitors; choose and implement in practice strategies for promoting innovations; make sound management decisions in terms of the priority of the subjects of relations.

Keywords: brand; innovation; innovative approach; innovation promotion; innovation commercialization; promotion strategies; technology transfer.

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НАУКОВО-МЕТОДИЧНИЙ ПІДХІД ДО ВИЗНАЧЕННЯ ОПТИМАЛЬНОГО ПОЄДНАННЯ ІНСТРУМЕНТІВ СТРАТЕГІЇ ПРОСУВАННЯ ІННОВАЦІЙ

В статті представлено результати досліджень щодо інструментарію стратегії просування інновацій. В системі управління підприємством оптимальне поєднання інструментів стратегії просування інновацій спрямоване на створення, підтримку і розвиток конкурентних відносин в ринковому середовищі за допомогою вірно визначеної і результативно функціонуючої маркетингової системи взаємодії. Доведено, що інтеграція стратегії просування інновацій в систему управління спрямовує підприємства на довгочасне перспективне функціонування в змінному ринковому середовищі, таким чином, система управління орієнтується на використання певних інструментів просування, що повинні бути використані в границях результативно функціонуючої системи управління підприємством. Розгляд застосування інструментарію стратегії просування інновацій на підприємстві через призму процесного підходу менеджменту можна реалізувати за допомогою аналізу

послідовно виконаних управлінських функцій. Обґрунтовано, що визначення оптимального поєднання інструментів стратегії просування інновацій в системі управління підприємством надасть можливість вирішувати такі завдання: упорядкувати інформацію маркетингової розвідки, створювати і розвивати бази даних у сфері маркетингу; реалізувати методичний і регулярний аналіз вимог і запитів визначальних суб`єктів взаємодії; формулювати стратегічні, тактичні і функціональні цілі; простежувати життєвий цикл результативних товарів або послуг, що надасть підприємствам додаткові конкуренті переваги, дозволить їх обслужувати цільових суб`єктів взаємодії краще, ніж конкуренти; вибирати і реалізовувати на практиці стратегії просуванн інновацій; приймати обґрунтовані управлінські рішення у розрізі пріоритетності суб`єктів відносин.

Ключові слова: бренд; інновації; інноваційний підхід; просування інновацій; комерціалізація інновацій; стратегії просування; трансфер технологій.

Problem statement. An innovatively active enterprise, creating new products in a certain market segment, does not face situations where sales of a commercialised innovation do not grow and the planned volume of its sales is not achieved.

Unsolved parts of the problem. An analysis of surveys of managers of companies that have been producing innovations for a long time found that 32% of failures to market a new product are caused by underestimating market requirements, and 13% by mistakes in the company's sales policy. In case of underestimation of market requirements by market research preceding product development and lack of actions to promote innovation, analysis and correction of development errors is the only task of an effective sales policy.

The purpose of the article is research to determine the optimal combination of tools for the innovation promotion strategy.

Analysis of current literature. The analysis of literature sources has revealed that when a new product is launched, it is proposed to use the tools of the "push" strategy to accumulate goods in the distribution network, and then, changing the impact of communication tools, to use the tools of the "pull" strategy.

Adherence to one of these strategies for a new product can lead to risky consequences: accumulation of stocks in distributors' warehouses and refusal to sell the product if consumer awareness is low.

The scientific and methodological approach to selecting the optimal combination of instruments of the promotion strategy will allow completing the first stage of the innovation promotion complex and, on its basis, developing a system of measures to inform potential target consumers.

An important stage in the formation of the innovation promotion complex after the decision to determine the promotion strategy is the development of effective tools for its implementation.

In order to achieve a synergistic effect and solve the tasks set at the first stage of the innovation promotion complex to achieve a certain number of trial purchases and the time required for their implementation, it is necessary to determine what basic tools are needed to implement the strategy and how best to use them.

The next step is to consider the role of promotion, which is to establish communications using direct and indirect tools to ensure the planned sales of new products.

Determining the ways to achieve the set tasks – the necessary, optimal and sufficient amount of costs for each tool of the promotion strategy for an existing product – is possible using several existing methods, in particular.

According to F. Kotler [4], several factors should be taken into account when developing a promotion complex:

1) type of product and market;

2) the strategy of 'pushing' or 'pulling'

3) the stage of the life cycle;

4) the degree of readiness of the buyer (depends on awareness).

Other domestic and foreign scholars take into account factors related to the marketing strategy of the enterprise, the consumer, the product and all elements of its 'marketing decoration' when forming adequate and effective means of product promotion.

The authors of the above sources study models of communication budget allocation based on information on

- number of contacts (the number of contacts of the target group with the media carrier or their probability)

- the weight of contacts (assessment of media in terms of their suitability for achieving the communication goals of the enterprise).

In our opinion, formalised developments of the definition of adequate forms of information transfer by T.O. Prymak deserve more attention.

T.O. Prymak [5] used Markovian random processes to model the distribution of funds for marketing communications by components, according to which she developed a random process of making purchases by consumers under the influence of individual tools. Further, the author developed a system of decisions based on previous experience of using the tools of the promotion complex, without which it would be impossible to determine a formalised method of allocating the marketing budget to the costs of its component tools.

In their work, E.V. Rayevneva and K.V. Toneva, solving the problem of determining the appropriate amount of allocations for advertising and the effective distribution of this amount, define the model of the effective amount of allocations for advertising as follows [6]:

$$\begin{cases} \sum_{i=1}^{n} r_i u_i \to \max \\ \sum_{i=1}^{n} c_i u_i \le A^{eff} \\ u_i \le a_i \\ u_i \ge 0 \end{cases}, \qquad (1)$$

where u_i –volume of the advertising medium, units, $i = 1,n$;

r_i – coverage by the advertising medium, number of people;

c_i –cost per unit of advertising medium, UAH;

A^{eff} – effective amount of allocations for advertising, UAH;

a_i – limitation of the volume of an advertising medium in a given advertising medium.

However, the disadvantage of this approach, in our opinion, is the subjectivity of the company's managers in the selection of media that serve as input information for building the model.

We believe that the general disadvantage of all the above methods of determining the share of each instrument in the communication mix is the fact that they do not take into account the peculiarities of innovative goods.

Only J. Rossiter and L. Percy in their work [7] recommend using the method of goals and objectives for the optimal allocation of the marketing budget separately for a new product in an existing product category, and the Peckham method as an additional one.

The main difficulty in determining the costs of each individual marketing communication tool for promoting innovative products is that, as a rule, there is no history of previous sales of similar products, which is an important starting point for calculating the distribution of the media budget.

An analysis of many theoretical and practical works has shown that there is a relationship between the amount of the marketing budget I and the number of trial purchases N that were made under the influence of the marketing strategy tools. Scientists define this relationship as an S-shaped curve described by a logarithmic or polynomial (2nd order parabola) relationship.

When considering an existing product on the market, the author [6] chooses a logarithmic curve because it differs from the parabola in terms of more accurate results (the intensity of dependence is not symmetrical to the axis) and has one to three inflection points that accurately describe the saturation of the market with marketing communications, which may eventually affect sales volumes.

In the analysed case of a new product, when the target market is not yet saturated, the search curve can be considered on a short segment. This is due to the time constraints of the innovation promotion complex at the 'launch' stage of the life cycle. In our opinion, the saturation of marketing communications at the first stage of the life cycle, provided that the communication campaign is properly structured and the amount of funds allocated for promotion is much higher than necessary, can lead to a rapid increase in volumes and a transition to the growth stage. Thus, there will be no saturation of marketing communications at the stage under consideration. In addition, given the distrust of marketing and the limited budget of domestic producers for product promotion, the likelihood of such a situation in the Ukrainian market is reduced to zero.

Thus, to optimise the costs of communication tools, we further use a second-order parabolic curve.

Considering an already existing product on the market, the functional dependence of product sales Qp on promotion costs I is defined as follows [6]:

$$Qp = aI^2 + bI + c, \qquad (2)$$

where Qp – sales volumes for previous periods, units;

I – total costs of promotion of a new product, UAH;

a, b, c – coefficients of dependence determined by the data of previous periods. They can be found by the method of least squares [6, p. 272].

Meanwhile, all of the above functions and factors relate to an existing product on the market, while we are interested in the impact of marketing tools on a new product. In this case, both the factors and the shape of the curve change.

Let's define the market factors that influence the dependence of the volume of sales of new products on the use of the strategy for implementing the tools of the promotion complex:

- knowledge of the brand or manufacturer of the new product;
- risk of not accepting the new product;
- consumers and partners getting used to the existing product;
- intensification of producers of substitute goods.

Taking into account the above factors, function (2) will take on a different form, and the sources of information for finding the dependence coefficients will change accordingly. Assuming that one buyer purchases a unit of goods:

$$N(I) = Qp = aI^2 + bI + N_0, \qquad (3)$$

where N_0 – the number of people who made a trial purchase of a new product without the influence of the promotion complex, people;

$N(I)$ –the number of buyers of the new product, people.

Function (3) can be used for a single marketing instrument provided that:

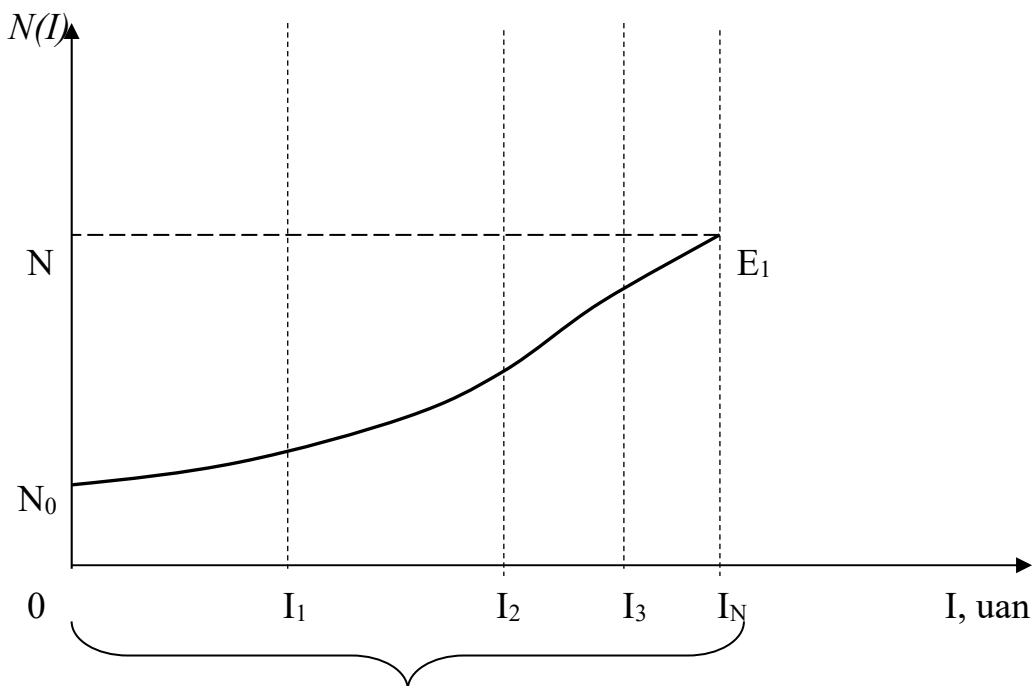$$\begin{cases} I = I_z, \\ a = a_z,\ b = b_z; \end{cases} \tag{4}$$

where I_z – the budget for activities with z – communication tool, UAH;

$a_z,\ b_z$ – dependence coefficients for the function N(Iz).

Then:

$$N = \sum_1^p N_z. \tag{5}$$

Consider and analyse the curve characterising the dependence of N(I) on the interval [0; I_N] (Fig. 1).

The stage of bringing a product to the market

0 I_1 – amount of funds for the 1st instrument of the promotion strategy;
I_1 I_2 –amount of funds for the 2nd instrument of the promotion strategy;
I_2 I_3 –amount of funds for the 3rd instrument of the promotion strategy;
I_3 I_N – amount of funds for the 4th instrument of the promotion strategy.

Fig. 1. **Graph of the dependence of the number of buyers on the budget for innovation promotion at the stage of product launch**

Let's define the conditions for building a function graph:

1) product promotion tools are used in the best possible way, based on market conditions and the capabilities of marketing tools;

2) the decision to use a particular tool is made in a balanced and objective manner;

3) the implementation of the promotion strategy is constantly monitored by the specialists responsible for the process.

Thus, the graph starts from the point $(0; N_0)$, where the innovator buyers and their followers from among the potential consumers of the innovative product appear.

Further, according to the graph (Fig. 1), from the moment the communication tools are used to promote the innovative product, the target audience's awareness increases and influences the desire to purchase this product. Bringing all possible tools of the strategy into action, we get the point E_1, the value of which is the quantity of the product N when using the media budget for promotion in the amount of I_N.

In some cases, when the level of consumer awareness is insufficient, the nature of the curve may be different. That is, if no funds are allocated for the promotion of an unknown product, the sales curve for this product may move along the Qp axis in the interval [0; N0].

We will study the budget line schedule only at the stage of the innovation's appearance on the market and detail the I_N for separate allocations for each individual instrument of the promotion strategy.

It is worth noting an important feature of innovations: the uncertainty of data on future sales, which is required to build the necessary schedule. At the same time, the graph of the N_0E_1 function (3) required for the study is built on the basis of building the Qp dependence for previous periods. To determine the coefficients of the Qp function, information is needed on:

- funds for marketing communications spent at the stage of the innovation's appearance on the I_N market;

- the number of trial purchases of the innovative product without any influence of marketing measures N_0;

- the number of consumers N who bought the product under the influence of communication tools z.

Proceeding from the fact that the effective distribution of communication tools requires a specific promotion strategy, which, according to our proposed approach, is determined by the performance indicators of the manufacturer, the specifics of the product and the peculiarities of the behaviour of potential consumers, we formulate the assumption that the same marketing strategy, due to its similarity in many criteria for one product group, has approximately the same coefficients of dependence.

So, now to build the curve N_0E_1 of the function $N(I_N)$ for a new product, the following data are needed:

- the promotion budget (I_N) for the new product, planned for the implementation of the promotion strategy at the stage of the innovation's appearance on the market;

- the number of trial purchases of the innovative product (N_0) without any influence of marketing communications activities;

- the number of customers N that were attracted through the use of each of the communication tools that were in place in previous periods for products of a similar group.

Taking into account the company's goals of maximising profits, it is necessary to optimally and rationally allocate the funds allocated for the implementation of the product promotion strategy.

As a condition for the effectiveness of the use of innovation promotion tools, we will use the most common indicator in practice – "communication costs to attract one customer":

$$S = I / N, \tag{6}$$

where S is the cost of attracting one new customer, UAH/person;

I is the total cost of promoting a new product, UAH;

N is the value of the function $N(I)$, which describes the attracted number of customers who purchased the product under the influence of promotion means, persons.

As a condition for the optimal use of communication tools for implementing the strategy, the article uses the achievement of the planned indicator N_{opt} – the possible number of buyers of the new product, i.e. the strategic objective should be fulfilled. In this case, the value of L takes the form of Nopt due to the existence of production capacity constraints (production of a new product that will satisfy the needs of potential consumers) and market constraints (efficient logistics, geography of supply, etc.).

Therefore, as a result, it is necessary to find such a distribution and, accordingly, the total amount of funds I for the tools for implementing the chosen strategy so that the system of constraints on the function values is fulfilled:

$$\begin{cases} N \to N_{opt}, \\ S_{opt} < S_0, \\ I_{opt} \leq I_0, \end{cases} \quad (7)$$

where N, N_{opt} are the number of buyers of the new product in the baseline and optimised versions, respectively;

S_0, S_{opt} – the cost of attracting one customer in the baseline and optimised versions, respectively;

I_0, I_{opt} – costs of communication tools in the baseline and optimised versions, respectively.

Conclusions and prospects for research. The analysis of existing models and methods of allocating funds for communication tools has confirmed that they all relate to an existing product on the market. Therefore, the article proposes a function of dependence of the volume of sales of new products, defines the conditions and limitations of the function values, and provides sources of search for input information to determine the dependence.

The complex of innovation promotion is proposed to be carried out in four interdependent stages: selection of a marketing strategy, formation of an optimal distribution of communication tools for implementing the chosen strategy, implementation of the chosen strategy, collection and analysis of the achieved results.

It is proved that the process of commercialisation of a new product depends on the creation of primary demand and awareness of target consumers.

The essence of the proposed methodological approach is to systematise actions to determine the function of dependence of sales volumes of a new product on the distribution of the marketing budget for communication tools and their optimisation, taking into account the implementation of the system of constraints.

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