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The object of the study is the managing the information environment of technology parks in Azerbaijan, formed taking into account the competitive specifics of technology parks. Disclosing the problem of high-quality management of the information environment of the technology park requires analyzing the marketing strategy, taking into account the key factors of competition. It is necessary to take into account the key criteria for success and the dominant competitive conditions. The article also presents the main results of a study conducted at the regional universities of Azerbaijan (Sumgait State University and Azerbaijan Technological University) with the aim of developing information and economic mechanisms for the organization and effective operation of technology parks with their further application in the educational environment. Among them: modernization to meet modern requirements; use of marketing tools; adaptation of communication strategy; integration of advanced information technologies; implementation of innovative solutions. In an era of economic growth and dynamism, ideas that seemed like dreams become reality, ahead of their time. Adequate response and application of information technologies in the management of the information environment of the technology park allows to set the direction of the marketing strategy in the new conditions. The study identified three key factors that can have a direct or indirect impact on the organization of an effective consistent approach to the implementation and use of a marketing strategy in the management of a technology park. The obtained results can be used in universities of Azerbaijan, while it is necessary to take into account the key criteria for success and the current competitive conditions

Keywords: marketing, strategy, technology park, management, information environment, effectiveness, success criteria

DEVELOPING A MARKETING STRATEGY FOR EFFICIENT MANAGEMENT OF THE INFORMATION ENVIRONMENT OF THE TECHNOLOGY PARK

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1. Introduction

The IV industrial revolution, known for the appearance of the computer in the early 70s of the last century, determined the modern structure of not only the economic, but also the everyday life of people around the world. Information technologies are present in all types of human activity: from budgeting, doing business to personal life. This situation requires a change in the existing way of organizing and doing business; equipment, technology and management skills.

Universities are now conducting theoretical research, the results of which can be applied in production. This process begins in technology parks operating at universities, which carry out patenting and commercialization of complex knowledge-intensive works [1]. On the other hand, the problem of developing intellectual personnel, which has become more relevant with the transition of society from industrial to information, further increases the importance of this approach. It is for this purpose that, in addition to the re-

search center, the technology parks have engineering centers involved in the development of basic technologies, as well as workshops for the production of pilot batches.

For the development of the innovation system, it is important to create a progressive system of methods and mechanisms for managing innovation activities, ensuring maximum efficiency of the process of formation and management of innovative potential.

According to the results of the annual study “The Digital Univers” conducted by the international company IDS, the global volume of data will double every year. By some estimates, 90% of all the data accumulated in the world was created in two years, and the volume of data is predicted to increase by 40% annually. In 2020, about 64.2 zettabytes of data were created, which is 314% more than in 2015 [2]. Consequently, the activities of managers and marketers in processing and making effective management decisions based on this information become more complicated. In these conditions, effective market activity of the enterprise

and satisfaction of the individual needs of each representative of the target market are possible only through the use of modern software, information systems and technologies in the field of marketing.

The initiative to create multi-component innovation clusters involves the development of the main components of a support structure for innovative companies, which is diverse and includes technology parks [3].

Therefore, the analysis of the marketing strategy in the context of managing the information environment of the technology park of universities with special rules for automating technological operations, setting issues of multidisciplinary management and scientific research using intelligent information methods in order to establish corporate communications between the participants of the technology park is relevant [4].

2. Literature review and problem statement

An interesting idea regarding the concept of initiative or innovation is put forward in the paper [5]. According to this view, an enterprising businessman always looks for opportunities to minimize the cost of the product and pays attention to innovation. It is shown that it is important for a successful entrepreneur to have certain skills and abilities. For example, it must be able to analyze several problems at the same time, act quickly, find resources that can solve a problem in difficult situations; if something goes wrong, be able to adapt to changes, be reliable, stable and decisive. People often develop these skills through their family environment and early education.

But there are still unresolved issues related to the speed of changes occurring in the world under the influence of globalization, as well as the production and use of high-tech products that open up new approaches. Today, to be a successful entrepreneur, it is important to be informed not only in such areas as trade, risk, marketing, finance and management, but also automation, computer technology, information and computing systems [6].

It also cannot discount the impact on the outcome of the skills and abilities necessary for successful entrepreneurial activity [7]. The reason for this may be that being a successful entrepreneur requires certain unique characteristics, and it is also important to have a number of skills and abilities. These skills are assessed in three different categories: technical, managerial, and personal entrepreneurial abilities [8].

Thus, an entrepreneur is a person who observes and identifies opportunities available in the market, turns these opportunities and consumer demand or need into a business idea, builds a business by pooling resources, and takes risks. It manages project finance, production, production processes and human resources. Committed to continuous innovation in products, management, technology and marketing (sales) of products or services. Further development of regional innovation systems based on the development of technology parks in the field of high technologies is associated with the development of effective marketing mechanisms for the commercialization of innovations, improving the quality of education and attention to the problem of its information content. Because individual companies receive assistance in finance, marketing and management from technology parks.

A way to overcome these difficulties can be the concepts of "Marketing 4.0 and 5.0", the content of which is the au-

tomation and optimization of business processes, including marketing activities. This approach was used in [9, 10], where the leading forces of Marketing 4.0, which began in developed countries in the 2000s, and 5.0, will be Internet marketing, as well as information systems that will be in constant search of new, closer ways of communicating between the technology park and consumers.

Based on the foregoing, it is possible to conclude that the core focus of marketing research is reducing the uncertainty accompanying management decision-making and increasing their effectiveness. The best results in this process are achieved by those who approach research creatively, and unconventionally.

Despite their constantly expanding scope, marketing research is an integral part of the company's entire information system, an independent sector of the unified information field.

As a result of the analysis of scientific literature, as well as experience in organizing the activities of a technology park, it is possible to list the functions of the information system for its management:

- providing the necessary conditions for the activities of resident companies;
- providing the necessary conditions for carrying out research and experimental work;
- formation of an information system to support innovation activities;
- provision of information, engineering, technical, technological, consulting and other services to innovative companies of the technology park;
- development of an intelligent decision support information system;
- market research;
- provision of marketing services to related enterprises;
- search for innovative products, selection of potential products and support before use in production, etc.

However, technology parks should not be considered as the main mechanism for regional development, since this may lead to the fact that other important mechanisms of regional policy may not receive proper support. Therefore, technology parks should be considered in interaction with other structural points of regional development and, when creating them, the general concepts of territorial development of the industrial policy of the region should be taken into account. Technology parks must accelerate this development and bring the entire life support system of the region out of its difficult situation. They can become a training ground for acquiring management skills, improving the qualifications of employees and specialists, training personnel capable of working in new conditions.

As mentioned earlier, without identifying trends and patterns of the market mechanism and constantly analyzing demand and customer needs, it is impossible to effectively adapt to changes and create long-term competitive advantages. The role of the information system is becoming increasingly important as people's needs become more complex and markets globalize. Rightly notes that with the active introduction of e-commerce, information technology is considered not only as an auxiliary tool that provides support in making management decisions, but as the basis of the business itself and the competitive advantages of the organization [11]. There are three main requirements for the information system: it must contain information on all aspects of the technology park's activities, the information must be available to employees of all departments, and it must be possible to quickly access all information.

A number of enterprises are developing and developing marketing information systems that allow managers to constantly monitor changes in consumer behavior and their preferences. Information support is becoming one of the most important competitive capabilities, thanks to which modern managers have the opportunity to improve production and marketing results, develop unique offers and achieve marketing goals. The company must provide managers with the information they need. At the same time special employees clarify what exactly interests managers of different ranks, then, based on this information, they design marketing systems. Such a system involves individuals, equipment, and the systematic and reliable collection, sorting, analysis, evaluation, and dissemination of information used in making marketing decisions. The necessary information can be obtained from the company's internal reporting system, marketing observations, surveys and analytical data. The marketing aspect includes studying the state of the finished product market segment suitable for specialization of new production, as well as taking into account other environmental conditions [12].

A conceptual review of the literature provides grounds for the assertion that technology parks play the role of a favorable "patron" for young entrepreneurs who like to take risks. Entrepreneurs benefit from the information ecosystem of technology parks in order to commercialize their innovative ideas. These mini companies prepare their activities for the market conditions by using services such as research, marketing, accounting, mentoring, various laboratory facilities, business cooperation circle, etc. provided by the technology park during the specified period. To benefit from the technology park's information ecosystem, during an agreed initial period of support, entrepreneurs try to get the company up and running so that it can compete in the real market. However, entrepreneurs or startup teams taking advantage of the opportunities of the information ecosystem formed in the technology park also contribute to its development.

All this suggests that it is advisable to conduct a study to identify some regularities of the marketing strategy in the context of multidisciplinary management of the information environment of the technology park of universities of Azerbaijan, taking into account the specifics of automated technological operations.

3. The aim and objectives of the study

The aim of the study is to develop and assess the implementation of a marketing strategy for effective management of the information environment of technology parks in higher education institutions of Azerbaijan. This will allow for the development of informational-economic mechanisms for the organization and effective functioning of technology parks, with further application in the educational environment [13].

To achieve the aim, the following tasks were solved:

- to use various marketing tools to determine the main scientific profiles when selecting innovative projects;
- to adapt the marketing strategy according to the new concept of managing innovative projects in Azerbaijani universities, based on the preferences of the target audience;
- to integrate advanced information technologies, algorithms and software for ensuring the management of innovative projects in university technology parks to perform menu procedures in the corporate network system of the technology park in the management of marketing processes.

4. Materials and methods

The object of the study is the managing the information environment of technology parks at the regional universities of Azerbaijan. After all, the innovation system in Azerbaijan is just beginning to form.

The assumptions of the work include that the development and implementation of a targeted marketing strategy can significantly improve the efficiency of managing the information environment of the technology park, contributing to the growth of its recognition, the influx of residents and an increase in innovative activity. Another assumption is that taking into account the information needs of various segments of the target audience (startups, investors, the scientific community) increases the relevance of communication. In addition, the use of digital and interactive channels (social networks, online platforms, webinars) increases the involvement and loyalty of users of the information environment. Effective positioning of the technology park through marketing tools contributes to its competitiveness. Systematic work with the brand of the technology park improves its perception as a center of attraction for innovation and investment.

In the course of the study, certain simplifications were made due to the need to focus on the applied aspects of developing a marketing strategy. The information environment of the technology park was considered primarily as a set of external communication channels and promotion tools – such as websites, social networks, events and the media. The target audience of the technology park was studied based on typical behavioral models and general information needs, without delving into individual differences between separate user groups. It was assumed that the key motivational factors of the audience remain stable during the period under consideration. In addition, the study was conducted using the example of a technology park of two regional universities, and the conclusions and recommendations made were extended to universities in Azerbaijan. It was also assumed that the available quantitative and qualitative data, despite their possible incompleteness, are sufficient to analyze the effectiveness of the communication strategy. Macroeconomic, political and legal factors that may influence the activities of the technology park were deliberately excluded from the study in order to focus on internal marketing and management processes.

Marketing strategy analysis includes several types of statistical analysis: descriptive, correlation, regression, time series, cluster, ANOVA (analysis of variance), factorial, choice modeling, predictive, inferential, comparative, and relational. Sometimes they are used separately, sometimes together. The most commonly used methods are classical (external and internal) and content analysis. Classical analysis is a set of logical structures used to determine the essence of the material under study from a specific point of view that interests the researcher in each specific case. Content analysis is the analysis of information arrays for the purpose of meaningful interpretation and measurement of social facts and trends reflected in the documents being studied. Marketing theorists note that the most common methods of data collection are surveys, as well as observation, experiment and modeling.

It is possible to note that the most commonly used methods are traditional (external and internal) and content analysis. Traditional analysis is a set of logical constructions aimed at determining the essence of the analyzed material from a certain point of view that interests the researcher in each specific case. Content analysis is the analysis of information masses

for the purpose of meaningful interpretation and measurement of social facts and trends reflected in the documents being studied. Marketing theorists argue that the most common methods are research, of which the main methods of data collection are survey, observation, experiment and modeling.

The methodology for studying the information environment of a technology park covered the existing approaches of the classical theory of marketing strategy. As a result, the study was conducted using three research methodologies: survey, in-depth interviews and direct observation. Using a survey approach allowed to obtain data outside the immediate research environment and find out which factors played the most important role in the marketing strategy of the information environment. The online survey was distributed to 60 respondents from regional universities in Azerbaijan. A total of 54 responses were received. The survey included twenty questions related to the management of technology parks at regional universities in Azerbaijan. Some questions focused on an in-depth assessment of information systems, including the range of services used, structure, configuration, etc.

Having received ratings from respondents for each question, the client was asked to also rate the significance of five service dimensions on a 100-point scale, i.e. the maximum sum of ratings should be equal to 100. The process was carried out with the aim of identifying indices, accurate analysis in order to improve the quality of services provided. Based on the data, indices of service excellence and adequacy were calculated. All calculations were carried out using the basic CSI (Customer Satisfaction Index) model. This model reflects the decision-making process involved in purchasing a product or service. Reputation, expectations, uniqueness, value, availability, quality are the main criteria that influence client satisfaction and, ultimately, its attitude towards a particular company. Each criterion has its own level of satisfaction, which is assessed by the consumer on a 100-point scale.

The importance of each criterion is calculated based on all responses by satisfaction level.

Ten in-depth interviews were conducted with the academic administrator. The goal was to study the effectiveness of using the information system in the management of a technology park, as well as to study all aspects of interest to us (for SWOT and PEST analysis), the usefulness of the system in decision making [14]. In order to triangulate and verify the results of the survey and interviews, direct observation was conducted at the university. Direct observation includes policies, procedures, system manuals, and other documents. Fig. 1 shows the algorithm of the conducted marketing research.

After the main questions about the criteria, three more aspects are additionally considered to calculate the satisfaction index:

- how satisfied the audience is with the overall quality of the product;
- how much the product meets the requirements and expectations of the target audience;
- how close the quality of the product is to ideal.

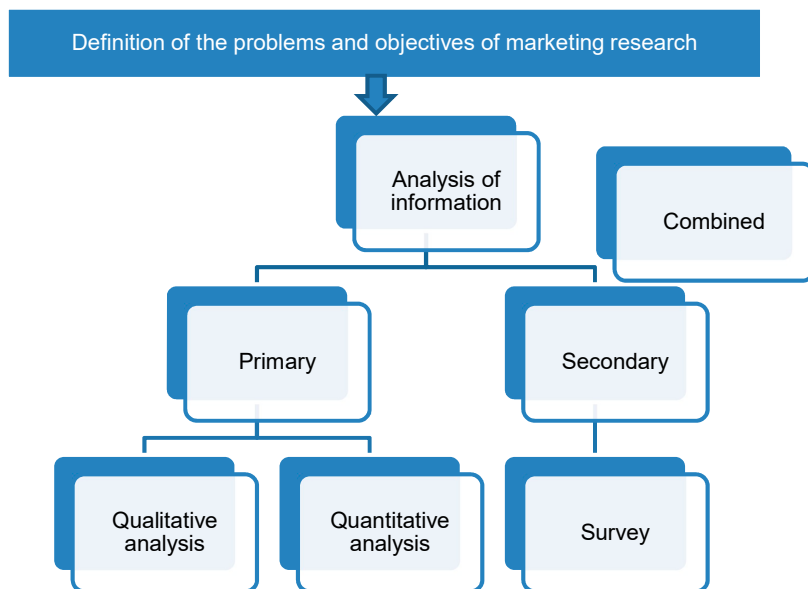


Fig. 1. Algorithm for conducting marketing research

5. Results of the analysis of the marketing strategy in the context of managing the information environment of the technology park

5.1. Results of using various marketing tools to determine the main scientific profiles

For the effective operation of this cycle, it is necessary to develop two tactical directions (Fig. 2): internal and external marketing analysis, which in turn is divided on macro and micro analysis of the information environment of the technology park. Internal marketing analysis refers to infrastructure, human resources, equipment and technology. This position complies with the policies of the Market Research Society (MRS), i. e. a market society research.

There are many marketing tools. Advertising posts, mailings, pop-up notifications show effectiveness. The downside of these activities is the difficulty in getting feedback from customers. It is almost impossible to collect statistics on how many potential buyers have seen an advertisement.

Effective management of a technology park is achieved through strong ties, or more precisely, by establishing information and communication processes between the participants of the technology park: government agencies, certification, licensing, patent structures; financial and consulting organizations; advanced innovative and investment companies and enterprises; universities and research institutes; marketing and advertising centers; objects of the social sphere; pilot enterprises [7]. It is necessary to take into account that the presence of a database in the management information system; its importance in making vital decisions; technical service of this system, in general, high-quality information support are considered a necessary part of the entire activity of the technology park. The information necessary for management circulates between the structures of the technology park, being the foundation for the formation of an information system for the management of the technology park.

The functioning of the technology park according to system integration and software creation covers all areas of the

technology park. It is necessary to take into account that the production of information systems and their components also implies the integration of the use of devices and equipment; software development and design; writing program codes, using software in work processes are the main directions of their functioning, which tool will increase sales of a particular product depends on many factors. The best way is to gradually implement different strategies or their combinations and track customer reactions to them.

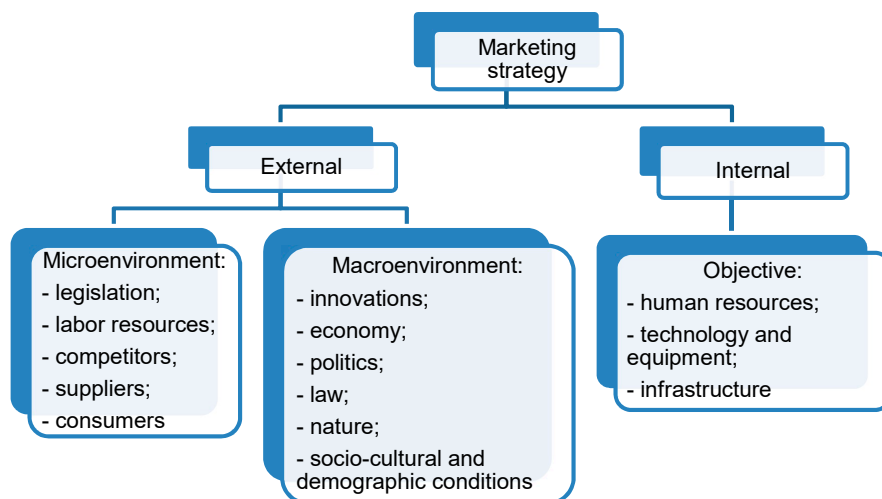


Fig. 2. Classification of marketing strategy

Experts on scientific profiles review the purpose, main idea, working principle, constructive changes and economic efficiency of innovative projects in the annotation and save the initial opinions in the memory of the “Expert’s opinion” section. The evaluation process is carried out in accordance with the standard requirements developed based on the innovative properties of the project, new design and technological indicators, the possibility of applying automation technology and high economic criteria. In addition, a prototype of the proposed project, its descriptions, technical and economic indicators and working principle are prepared in the form of electronic data and sent to the e-mail address of the specialist expert. A special program page has been created to automate the expert evaluation process of an innovative project, with the help of which the expert in the scientific field selects an innovative project related to the specialty and records its score within the allotted time (Fig. 3).

Fig. 3. Program page for graphic annotation of the project and evaluation of the expert on the scientific profile

5.2. Adapting marketing strategy to target audience's preferences

The foundation for research into the marketing strategy of a technology park information system is an analysis of competing companies, which is necessary to determine its external (micro and macro) and internal characteristics. For the reason that such a characteristic directly influences the choice of strategic priorities, including analytical information about the external macro and micro environment of the technology park. Before starting information research, it is necessary to comprehend the actions taking place in the technology park, i.e. analyze the internal and external environment of the technology park.

The macroanalysis marketing strategy mainly involves SWOT and PEST research methods, which consists of the following stages (Fig. 4).

The results of the analysis of the marketing strategy of the information environment of the technology park must necessarily give a clear picture of the priorities of consumer choice. Such research is the basis for decision-making in the further functioning of the technology park. The result of our observation is closest to the view that macroenvironmental factors have an indirect influence. After all, macro-

analysis of the information environment involves many more aspects than in microanalysis. For these elements, unpredictability, uncertainty and variability are of great importance.

As a result, marketing analysis is a strategic analysis of the information environment of a technology park, which includes a phased study of macro and microeconomic elements to determine their impact on functionality, as well as identifying trends in the development of the technology park.

The assessment is carried out on a scale of 1÷5. The coefficients of the criteria for the objective assessment of the expert vary within the range of $E=0\div1$. The coefficients of the proposed innovative project in accordance with the accepted criteria are as follows:

– M1: degree of superiority over the prototype project in terms of design→(very low/0; low/0.25; similar/0.5; superior/0.75; very superior/1);

– M2: economic efficiency→(very low/0; low/0.25; identical/0.5; higher/0.75; very high/1);

– M3: electricity consumption→(very high/0; higher/0.25; identical/0.5; lower/0.75; very low/1);

– M4: availability of demand→(absent/0; low/0.25; same/0.5; high/0.75; very high/1);

– M5: use of modern electronics→(absent/0; low/0.25; sufficient/0.5; high/0.75; very high/1);

– M6: application of intellectual information system→(absent/0; low/0.25; sufficient/0.5; high/0.75; very high/1).

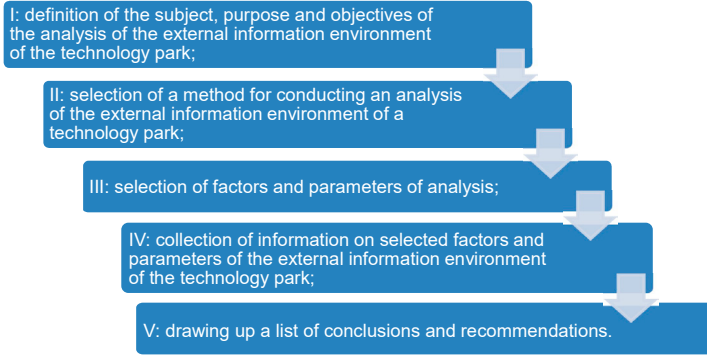


Fig. 4. Stages of macro-analysis of marketing strategy

5. 3. Integration of advanced information technologies into marketing process management

New approaches and methods of collecting and processing data based on information and communication technologies have significantly increased the volume and efficiency of the information used. Modern information systems in technology parks are complex software and hardware systems aimed at automating the main business processes of an organization. The most important function of an enterprise is marketing, which coordinates the company's efforts to achieve common corporate strategic and operational goals. Marketing business processes and the corresponding components of the marketing information system are designed using methods of system and structural analysis and modern CASE tools, such as ARIS, etc. As a rule, modern information systems are developed on the basis of standard adaptable software products, but can also include custom components. The capabilities of such technologies are constantly being improved under the pressure of market, technological and social factors.

Fig. 5 schematically shows the factors influencing the improvement of information support for technology parks.

It is necessary to consider criteria related to the strategy and policy of technology parks, i. e. the reputation of the technology park; marketing strategy; crisis management; innovation planning; time factor [15].

The algebraic sum of the coefficients according to the M_i criteria given above is calculated, and a decision is made on whether or not to accept the innovative project based on the maximum value of the result obtained. Thus, the maximum coefficients according to the M_i criteria and their priority degrees are selected and written in the following expression

$$E_{M_i} = \left\{ \begin{array}{l} M1 \rightarrow \left(\frac{\text{stunt}}{0.75} \wedge \text{very } \frac{\text{stunt}}{1} \right) \\ M2 \rightarrow \left(\frac{\text{high}}{0.75} \wedge \text{very } \frac{\text{high}}{1} \right) \\ M3 \rightarrow \left(\frac{\text{low}}{0.75} \wedge \text{very } \frac{\text{low}}{1} \right) \\ M4 \rightarrow \left(\frac{\text{high}}{0.75} \wedge \text{very } \frac{\text{high}}{1} \right) \\ M5 \rightarrow \left(\frac{\text{high}}{0.75} \wedge \text{very } \frac{\text{high}}{1} \right) \\ M1 \rightarrow \left(\frac{\text{high}}{0.75} \wedge \text{very } \frac{\text{high}}{1} \right) \end{array} \right\}. \quad (1)$$

The algebraic sum of the coefficients of M_i selected in expression (1) is calculated based on the technical, construction

and economic indicators of the proposed innovative project and the prototype project presented by the designer

$$M_g = \sum_{i=1}^6 M_i. \quad (2)$$

Based on expression (1), the expert intuitively selects the coefficients of M_i and inserts them into expression (2).

The following logical expression is written to make a choice based on the result obtained:

– $M_g = 0 \div 1.24 \rightarrow$ the project is rejected by the expert (unsatisfactory);

– $M_g = 1.25 \div 3.24 \rightarrow$ the expert makes a decision to change the design of the project, add modern electronics, adapt it to the needs of the region and increase economic efficiency (satisfactory);

– $M_g = 3.25 \div 4.24 \rightarrow$ the expert makes a decision to improve the design of the project to some extent, add an intelligent information system and reduce electricity consumption (good);

– $M_g = 4.25 \div 5.24 \rightarrow$ the project is accepted as a whole, but the expert makes a decision to make certain technical changes (very good);

– $M_g = 5.25 \div 6 \rightarrow$ the project is unconditionally accepted (excellent).

A decision is made to select an innovative project based on the value closest to the maximum value of M_g ($\max(M_g) = 6$). As shown in Fig. 3, the project is given an excellent grade (excellent) and the author is notified (a message is sent to his/her e-mail).

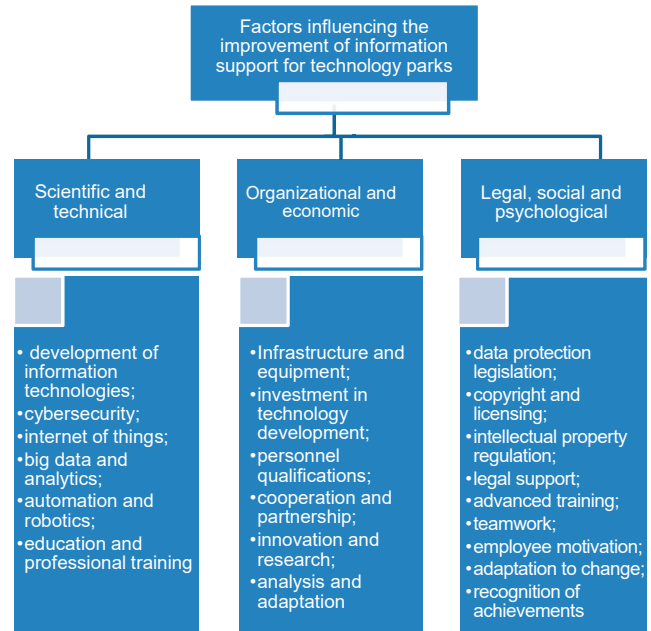


Fig. 5. Factors influencing the improvement of information support for technology parks

6. Discussion of results of the analysis of the marketing strategy in the context of managing the information environment of the technology park

The analysis confirmed the assumption that the development of a technology park depends on the degree of development of a marketing strategy for a high-quality information

environment. A timely study of the marketing strategy of the information environment of the technology park's activities makes it possible to promptly respond in management [16, 17]. Adequate response and application of technologies in the management of marketing strategy to emerging events and situations in the information environment of the technology park helps to set the direction of further actions for development in the international and domestic markets in new conditions [18].

The results of the marketing strategy development in the context of the management of the information environment of the technology park allow to determine the key areas and tools that ensure the effective functioning and development of the complex. The analysis of the use of marketing tools to determine scientific profiles is significant in this study. For the effective management of the cycle of development of scientific profiles in the technology park, it is important to implement internal and external marketing analysis, divided into macro- and microenvironment. The use of various marketing tools, such as advertising posts, mailings and pop-up notifications, shows positive dynamics in attracting the attention of the target audience, but it is difficult to receive feedback and collect statistics on advertising coverage:

1. Effective management is carried out by establishing information and communication links between the participants of the technology park (government agencies, certification and patent structures, financial and consulting organizations, research institutes, universities, marketing centers and enterprises). An important component is the availability of a database and an information system that ensures prompt management decision-making and support for the activities of the technology park. The development and integration of information systems, including hardware and software, allow for the automation of processes and increased efficiency. The analysis of scientific profiles is carried out through expert assessment, which includes consideration of design characteristics, innovative properties and economic efficiency. To automate this process, a specialized software platform has been created that allows experts to quickly and accurately give assessments and save opinions.

2. Adaptation of the marketing strategy to the preferences of the target audience is important for the formation of an effective marketing strategy. It is necessary to analyze competitors and evaluate the internal and external environment of the technology park. Macroanalysis methods are mainly used – SWOT and PEST, which allow identifying external and internal factors that influence development. The results of such analysis help to form consumer choice priorities and strategic areas of activity. Considering that the macroenvironment has an indirect impact, it is important to assess the level of uncertainty and variability of external factors. An objective assessment of innovative projects is carried out according to a number of criteria, such as superiority over the prototype, cost efficiency, energy consumption, demand, use of modern electronic components and implementation of information systems. Each criterion is assigned a value on a scale, which allows for a quantitative assessment of the project and a decision on its further development.

3. Integration of modern information technologies into marketing management, as well as the use of modern information and communication technologies significantly increases the volume and quality of data, and automates the business processes of the technology park. Within the

framework of marketing management, systems of analytics, automation and decision support based on modern CASE tools (for example, ARIS) are used.

Key factors influencing the development of information support are the strategy and policy of the technology park, its reputation, crisis management, innovation planning and time frames. A generalized assessment of the innovation project is carried out through the sum of coefficients for the selected criteria, which allows systematizing expert assessments and making informed decisions.

The results of the study indicate that the development of a marketing strategy in the management of the information environment of technology parks of regional universities in Azerbaijan provides additional information on their competitive specifics. This is explained by the fact that high-quality management uses flexible management with an individual approach to each project. This is also confirmed by the classification of the marketing strategy (Fig. 2) and the factors affecting the improvement of information support for the technology park (Fig. 4). The use of various marketing management tools is applied in a correctly selected, as well as unique combination to each idea. This management advantage is also confirmed in studies [15], which analyze the impact of marketing strategy on enterprise efficiency. It is important to take into account other factors that may affect the results and conduct a comparative analysis with similar studies that remained on classical management models.

An important part of the modern approach to assessing innovative projects is a systematic analysis conducted by experts in various scientific fields. The project assessment begins with an abstract, in which experts (Fig. 3) examine in detail its purpose, main idea, operating principle, design changes and economic efficiency. This allows to understand how promising the project is and how it can influence the market and technological trends (Fig. 5).

However, it is important to note that project evaluation is not limited to a superficial analysis. All information collected by experts is stored in a special database in the Expert Opinion section. This makes it possible to form a more complete picture of the project, as well as to create a well-founded and transparent evaluation history that will be used for future decision-making. What is even more interesting is that the evaluation process of these projects strictly complies with standard requirements. These standards, developed taking into account innovative properties, new design and technological characteristics, as well as the possibility of using automation and high economic criteria, ensure objectivity and unification of the process. As expected, this creates the basis for an objective and consistent evaluation of all projects, regardless of their specifics.

Example of assessment: the sum of coefficients for criteria (for example, superiority, efficiency, energy consumption, demand, use of modern technologies and information systems) allows to determine the level of compliance of the project with established standards, and the final value allows to make a decision on its further implementation or revision.

The overall assessment of the project or the choice of maximum coefficients according to the *Mi* criteria and their degree of priority (1) is carried out on a scale where high values indicate a high degree of its readiness for implementation and competitiveness. In the event of reaching the maximum value (close to 6), the project is considered absolutely acceptable and can be implemented without additional adjustments.

The final indicators of the evaluation of innovative projects, or more precisely the overall evaluation indicator (Mg) is calculated using formula (2) as the sum of the coefficients selected by experts according to the criteria. The final value is compared with the specified ranges to determine the degree of acceptance of the project.

In conclusion, it can be noted that effective management of the information environment of a technology park requires careful development and implementation of a marketing strategy. This approach ensures the correct positioning of the technology park in the market, allows to attract and retain target customers, and also helps optimize internal communication and interaction with external partners. A comprehensive understanding of the marketing environment and strategic planning help technology parks successfully adapt to market changes and achieve sustainable growth and development.

This systematization allows not only to objectively evaluate innovative projects, but also to form strategic directions for the development of marketing and information systems of the technology park, ensuring its competitiveness and innovative potential.

The limitations of the study are that the studies were conducted only in two regional universities in Azerbaijan. The limitations of the study are that the study of the effectiveness of the information environment management of the regional universities' technology park was conducted only in Azerbaijan. Prospects for future research include a larger sample of countries and universities. Further work should also focus on studying the correlation between the marketing strategy and the level of information technology management capabilities of the university.

7. Conclusion

1. The study showed that the information environment of the technology park often requires modernization to meet the current requirements and expectations of the target audience. In university technology parks, long-term tasks, search, selection, technical proposal, preliminary design, testing are performed intuitively, using specific approaches and individual systems. Marketing strategy is extremely important for increasing the efficiency, productivity and quality of complex intellectually-oriented project work projects. The use of various marketing tools, such as digital

marketing, content strategies and social networks, had a significant impact on increasing awareness and attracting new customers.

2. Understanding the needs and preferences of the target audience is crucial for developing a successful marketing strategy. After all, the main resource of marketing activities is information. This allows technology parks to adapt their offers and communication strategies.

3. Integration of advanced information technologies into marketing process management contributes to more accurate market analysis and improved interaction with customers. To improve the efficiency of information environment management, it is recommended to implement innovative solutions, improve internal and external communications, and regularly monitor and adjust the marketing strategy depending on changes in the market environment. These results emphasize the importance of a strategic approach to managing the information environment of a technology park and the need for continuous analysis and adaptation of marketing strategies.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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The study was performed without financial support.

Data availability

All data are available, either in numerical or graphical form, in the main text of the manuscript. Manuscript has no associated data.

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the current work.

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