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COMMERCIALIZATION OF NTU “KHPI” INNOVATIONS WITH DIGITAL MARKETING TOOLS IN THE EXPERIENCE ECONOMY

Purpose. Formation of theoretical and methodological approaches to the definition of effective tools for the commercialization of university startups based on taking into account the emotional aspect of interaction with consumers and investors.

Methodology. The methodological basis of the study was the modern achievements obtained in the field of innovative theory and the conceptual foundations of the economy of impressions. The following methods of scientific research were used as specific research tools: a systematic approach, based on which the place of the concept of the economy of impressions in the process of commercialization of startups in the university environment was determined; generalization and systematization – when determining the benchmarks of consumer behavior in relation to innovations and motivational mechanisms of innovative activity in the business sector; comparative analysis – when distinguishing the peculiarities of startups of NTU “KhPI” and Stanford University; analysis and synthesis – when distinguishing the directions of using impression marketing at different stages of the startup’s development.

Findings. The article proposes a new perspective on the commercialization process of university-based startups through the lens of the experience economy concept. Six key stages of startup development are identified: idea, incubation, prototype development, promotion, servicing, and scaling. The components of the university’s sustainable innovation ecosystem are characterized, including the Spark startup center, the research and development unit, the technology park, as well as external and internal events that facilitate the commercialization of innovative projects. The study highlights that digital marketing, with an emphasis on its emotional aspect, plays a crucial role in engaging both consumers and investors at every stage of commercialization. Specific digital marketing tools, such as social media platforms, webinars, interactive content, and personalized advertising campaigns, are explored for their ability to enhance audience engagement and foster an emotional connection with the product. Key sources of startup funding are identified, including consumer sales, investor contributions, and grant programs.

Originality. An improved theoretical and methodological approach is formed to determining the directions of commercialization of university startups, which, unlike the existing ones, involves taking into account the emotional aspect of the interaction of the subjects of innovative activity and influencing their behavior through digital marketing tools.

Practical value. The proposed recommendations for using the concept of economics of impressions in the commercialization of startups can be the basis for developing strategies for promoting new products and services. The use of emotional marketing at different stages of startup development, such as incubation and scaling, will provide competitive advantages, facilitating better adaptation of startups to market conditions and consumer requests. The results of the study can be used in the practice of universities to support startups, as well as in entrepreneurship training programs.

Keywords: *experience economy, digital marketing, commercialization of innovation, startups, innovative university ecosystem*

Introduction. With the rapid development of digital technologies and increasing competition in the startup market, effective promotion of innovative ideas of products becomes a decisive factor for their success and commercialization. Every year, the number of startups increases, which increases the need for new approaches to their communication, which can attract the attention of investors and consumers. In particular, at the CIG R&D Lab startup competition, a steady increase in the projects from NTU “KhPI” (the total number of about 150) has been observed over the past five years. Some of these startups have received funding and support from the international investment company CIG R&D Lab, which indicates

high competitiveness and the need to distinguish successful promotion strategies. As Aksoy A. Y. notes, “the economy of knowledge has cooperated a triple spiral at the center of economic growth. In this paradigm, innovations are important for the survival of the firm, and universities are considered as an indisputable source of new ideas, talents and endeavors” [1]. The university’s innovative ecosystem not only contributes to the development of entrepreneurial thinking, but also provides students with resources and support for the implementation of their own ideas, turning them into profitable projects during training. This provides practical experience and opens ways to introduce innovations into the real market. The thought of Hall R. is appropriate [2], who believes that the startup movement implementation at universities enhances the practical component of the educational process. In addition, the imple-

mentation of startups in cooperation with business changes educational programs, providing appropriate vectors of practical use of knowledge. According to Hall R., Lulich J. [3], innovations and entrepreneurship are often mentioned in university strategic plans, passing the desire for changes both within the university (to improve the educational institution) and beyond (in favor of society as a whole). These terms have become combining topics of many plans aimed at modernization, improvement, and more sensitive response to public needs that cover numerous areas of activity [3]. Universities that effectively apply the practice of commercialization of Labib H. startups and others are called "business universities" [4]. Startups gradually become indicators of universities efficiency and an important part of innovation, giving the opportunity to solve real business problems [5].

The scientific problem of the article is to find effective tools for commercialization of startup starters. The focus of the study of this article is on how startups can emerge and be successfully commercialized according to the concept of economics of impressions in the educational environment. The main emphasis is on the use of the concept of economics of impressions in combination with digital marketing tools. This combination is a key factor in creating an emotional connection between an innovative product and a consumer, which increases its market attractiveness and chance of success. It is important to study how the university's innovative ecosystem can contribute to effective commercialization, giving the startups the necessary tools for implementing a digital marketing strategy focused on consumer emotional experience. Digital marketing economics can be one of the important components of a comprehensive solution to this problem.

The relevance of the topic of research lies in the implementation of the concept of economics of impressions in the process of promoting startups, which allows spreading innovative ideas to potential consumers and investors by means of digital marketing, such as social networks, sites and contextual advertising. The use of impressions as a digital marketing tool helps not only to show the value of the product, but also to create an emotional connection with the audience, which is a key element in the commercialization of innovative projects.

It is important to note that not all startups can be successfully advanced through the experience economy. To do this, you need to identify clear criteria for the selection of startups that can use this concept. The article will provide an analysis of the startup competition, as well as recommendations for the choice of digital marketing tools that are suitable for promotion of innovative ideas based on the experience economy.

Literature review. Commercialization of innovation is a key stage in developing startups, which allows them to turn ideas into profitable products or services [6]. The focus of our research is to find the effective ways of startups commercialization by universities. Commercialization of technology is now one of the cornerstones of experience in the academic environment, according to Gómez-Baquero F., et al. [7]. Universities give priority not only to creation of new technologies, but also to commercialization [8], providing knowledge management, technology transfer and educational programs, forming digital identity of graduates and digital transformation of students. At the same time, Gómez-Baquero F., and others recommend creating a culture of technology transmission, "which is less worried about traditional results (such as patents, licenses, income), and more aimed at providing resources, relationships and knowledge" [7].

In some studies [9, 10], we can see a growing role in the commercialization of business circles and representatives of the industry in their cooperation with universities, that is, movement goes from top to bottom: from business to universities and student environment. The prerequisite for success in the commercialization of startup is experience. In the study [9], considerable attention is paid to the team work of university innovators, business representatives and industry. According to the

authors of the study [11], such cooperation can combine talents and enhance the development of a startup, which in turn will attract greater interest in the market. In other studies [2], the focus in the development and startups commercialization is on the strengthening power of young people, students, which is based on their energy, interest, creativity, pursuing the goals [3]. Amry D., et al. [12] recognize the considerable potential inherent in student business. Hall, R., Lulich, J. [3] claim that student startups are a viable means of demonstrating social influence of scientific research. Young people are able to invent creative ideas for the start of the startup and bring them to commercialization, that is, the movement goes from bottom to top: from the students through universities to business.

Scientists have found that the success of commercialization depends on factors such as an effective business model [11], modern flexible project management, effective marketing, risk forecasting [13], as well as proper market positioning. Kruachottikul, et al. [14] claim that it is important for startups to find a niche in the market and to differentiate an innovative product.

It is appropriate to analyze the main obstacles that hold back the commercialization of university startups. Yassine M. has analyzed the factors that interfere with the transformations of university patents into market innovations [15], which include: the lack of specially dedicated funding for patent development stages, the lack of marketing and business skills among teachers, and limited interaction with industry.

Studies that analyze the role of universities in improving commercialization of startups are very interesting. Hall R. [2] notes that university services, such as business plans and market assessment, have a positive effect on support satisfaction, but students face difficulty in navigation through bureaucracy and limited institutions for risk. Yassine M., and others [15] emphasize the importance of specialized intellectual property management programs integration and the creation of university incubators and accelerators to support innovative startups. The opinion of Gupta V. is relevant [11]; he gives experience of hackathon as a synergistic method that enhances the commercialization of university startups, since this approach allows participants to receive feedback from jury, colleagues, users and sponsors, generates various ideas for potential decisions, and according to a pilot study with students from Poland, Spain and Portugal, it can increase commercial potential, although it requires proper coordination and control. The creation of an innovative ecosystem of the University contributes to the commercialization of student startups, giving them the necessary tools for the development of business skills and creating innovative solutions [16, 17]. The study [18], on the example of the University of Dar-Salem, showed that initiatives such as hubs and the Academy of Startups help students develop key competencies, which leads to successful sale of more than 40 innovative products. Other authors, in particular, Marx M. [19], note the need to attract investors in the early stages of startup, and on the contrary, Kruachottikul P., and others [14] it claims that this need arises at the final stage of the "last mile" when the goods are delivered to the buyer. Stanford University's research [5] found that the most profitable inventions are often licensed by inventors, and commercial success is related to the work of large, various teams, which has become one of the main trends of recent decades. It is interesting that the demographic variety of teams and the size of innovative groups influence the development of new ideas, and smaller teams are usually aimed at creating innovative approaches, and large ones are aimed at improving existing technologies. The largest financial investments in startups were concentrated in industries such as biology, chemistry, engineering, materials science, electronics and energy.

The experience economy is increasingly seen as a powerful tool for promoting goods and services [20, 21]. In the scientific literature, this concept has not yet been used in the context of a study of the commercialization of startups. Consumer impressions are crucial for their willingness to buy a product, as

they seek not only to get the product, but also to be emotionally related to it. As Pine J. B. & Gilmore J. [22] note, the experience of the user is no less important than the quality of the product itself, and for startups emotional marketing can be a decisive factor in success. Živojinović I., and others [23] emphasize that the creation of unique consumer impressions contributes to the attraction of customers and their loyalty, which in turn enhances the process of commercialization.

Another important aspect is the ability of startups to adapt to a rapidly changing market environment. According to Živojinović I. [23], innovative products require flexible promotion strategies, which allows you to respond to new trends and consumer needs. Here, marketing of impressions can help create long-term emotional interaction with the consumer, even in the face of constant changes.

Purpose. The purpose of this article is the formation of theoretical and methodological approaches to the definition of effective tools for the commercialization of university startups based on taking into account the emotional aspect of interaction with consumers and investors.

Methods. In the process of writing this article, both general and special methods of scientific research were used. General methods include induction and deduction that have allowed a logical analysis and generalization of theoretical materials. Methods of analysis and synthesis were also applied to systematize information on the stages of commercialization of startups in the university environment and the role of impressions. Among special methods of cognition sociological analysis was used to understand the behavior of consumers and investors, as well as modeling elements for a schematic representation of the university's innovative ecosystem.

Findings. A look at the commercialization of student startups in the context of the experience economy. Universities play a central role in the formation of innovative ecosystems that contribute to the development of entrepreneurial potential of students and teachers, the generation of new knowledge and technologies, the development of startups. In the face of increasing competition and digital transformation, universities become centers of innovation, where new startups and innovative solutions are being created. The development of innovative ecosystems not only provides universities in the position of leaders in research, but also creates a favorable environment for commercialization of innovative ideas, stimulating the entrepreneurial activity of young people. The formation of an innovative university ecosystem is a critical factor in its sustainable development [8, 23], as it provides opportunities for integration of education, science and business, supporting the transformation of ideas into real products and services.

In the context of rapid digital transformation, the development of student startups, which are born in the walls of universities, is of particular importance for Ukraine's economic and social growth. Universities are the basis for the formation of innovative potential of the country, providing support for young entrepreneurs, researchers and innovators. It should be noted that in the post-war reconstruction the development of startups at universities will become a powerful driver of Ukraine's rebuilding.

The most general plan for commercialization means a market realization of an innovative product on a commercial basis for the purpose of obtaining material benefits, which can come both from consumers and from investors investing in startup development [24]. Commercialization of innovative ideas created in the environment of universities requires modern approaches. The scientific interest of our study is the analysis of the opinions of scientists on the driving forces of commercialization of startups at universities. There are a number of key positions in the modern scientific discussion about commercialization of startups in the university environment. Gontareva I., et al. [16] emphasize that the innovative ecosystem of universities helps to increase the commercialization of knowledge by intensifying cooperation between science, education,

business and the state, including various functional roles, such as innovative educational programs, scientific parks and business incubators. At the same time, Guindalini [17] draws attention to the fact that the successful development of business universities depends on both formal factors (entrepreneurial organization, relationships with industry) and on informal factors (cultural values, attitude to entrepreneurship). Labib H., et al. [4] emphasize that universities should implement a strategy of obligations, optimize the organizational structure and provide resources to support startups, in particular through sectoral orientation and effective intellectual property policy. Hall R. [2] notes that general services, such as assistance with business plans and training in entrepreneurship, have a significant positive impact on students' satisfaction, although obstacles in the form of bureaucracy remain relevant. Yassine M., et al. [15] emphasize the need to integrate specialized intellectual property training programs and create incubators and accelerators to support innovative startups, which confirms the importance of a systematic approach to academic studies. Thus, the views considered demonstrate the complexity of the problem of commercialization of startups in universities, emphasizing the need to integrate formal and informal factors, resource support and development of supporting structures to succeed in this area. In this context, it is worth paying attention to Malaysia's experience, which has demonstrated an exceptional example of economic development through innovation, in particular, through the active support of high-tech industries and attracting investments, which can be applied in Ukrainian realities.

This study proposes a new point of view on commercialization of startups in the context of the concept of economics of impressions, which takes into account the emotional aspect of interaction with consumers and investors. The generalization of the authors' opinions on the driving forces of commercialization of startups is presented in Table 1, which **denotes the author's vision on the driving forces of commercialization of startups at NTU "KhPI".

It is proven [20, 21] that consumers focus not only on the functionality of the product, but also on the emotional experience they receive from interaction with it. With regard to investors, although their basic motivation is related to profit, they also indirectly respond to emotions, especially when they see the potential of startup to cause a positive emotional response in the market [22, 23]. If the product is capable of creating a unique consumer experience, it can increase investors' expectations for its profitability. In addition, the emotional impact of presentation materials, webinars and other digital marketing tools generates vivid impressions and promotes investment decisions, enhancing the desire to invest in startup [24, 25].

We propose to schematically reflect the place of the concept of economics of impressions in the process of commercialization of startups in the university environment Figure. The new scientific direction is highlighted by a dotted.

Six key stages of startup implementation [26, 27] have been highlighted: Idea, Incubation, Development of Sample, Promotion, Service, Scaling. The implementation of startups takes place within the framework of a permanent university innovative ecosystem, which provides support at each of the stages. The ecosystem includes elements such as Startup center "Spark"; Scientific Research Department (SRD); LLC "Scientific Park of NTU "KhPI", as well as internal and external measures aimed at facilitating the commercialization of startups. Internal events include the All-Ukrainian Innovation Festival, Fintech Laboratory and Startup School for Students, while external participation in such projects as CIG R&D Lab (which takes 6 years in a row). Particular attention is paid to the role of digital marketing, in particular its emotional component, in attracting investors at each stage of startup development.

Impressions marketing plays an important role in the process of commercialization of startups both at the level of interaction with consumers and with investors. At the level of consumers, emotional marketing contributes to the formation of trust and

The driving forces of startups commercialization in the student environment

Factors	[11]	[13]	[9]	[12]	[15]	[27]	[14]	[7]	[5]	[17]	**
Effective business model	+	-	-	-	-	+	-	-	-	-	-
Analysis of the market and strategy of matching problems and solutions	-	-	-	-	+	-	+	-	+	-	-
Searching for a required niche /industry on the market	-	-	-	-	-	-	+	-	+	-	-
Startup management	-	+	-	-	-	-	-	-	-	+	-
Risk forecasting	+	+	-	-	-	-	-	-	-	-	-
Marketing	-	+	-	-	+	-	-	-	-	-	-
Attracting business practitioners	+	-	+	+	+	-	-	+	+	+	-
Support for university's innovative ecosystem	-	-	-	-	-	-	-	+	+	+	+
Product financing at different levels	-	-	-	-	+	+	-	-	+	-	+
Marketing of impressions	-	-	-	-	-	-	-	-	-	-	+

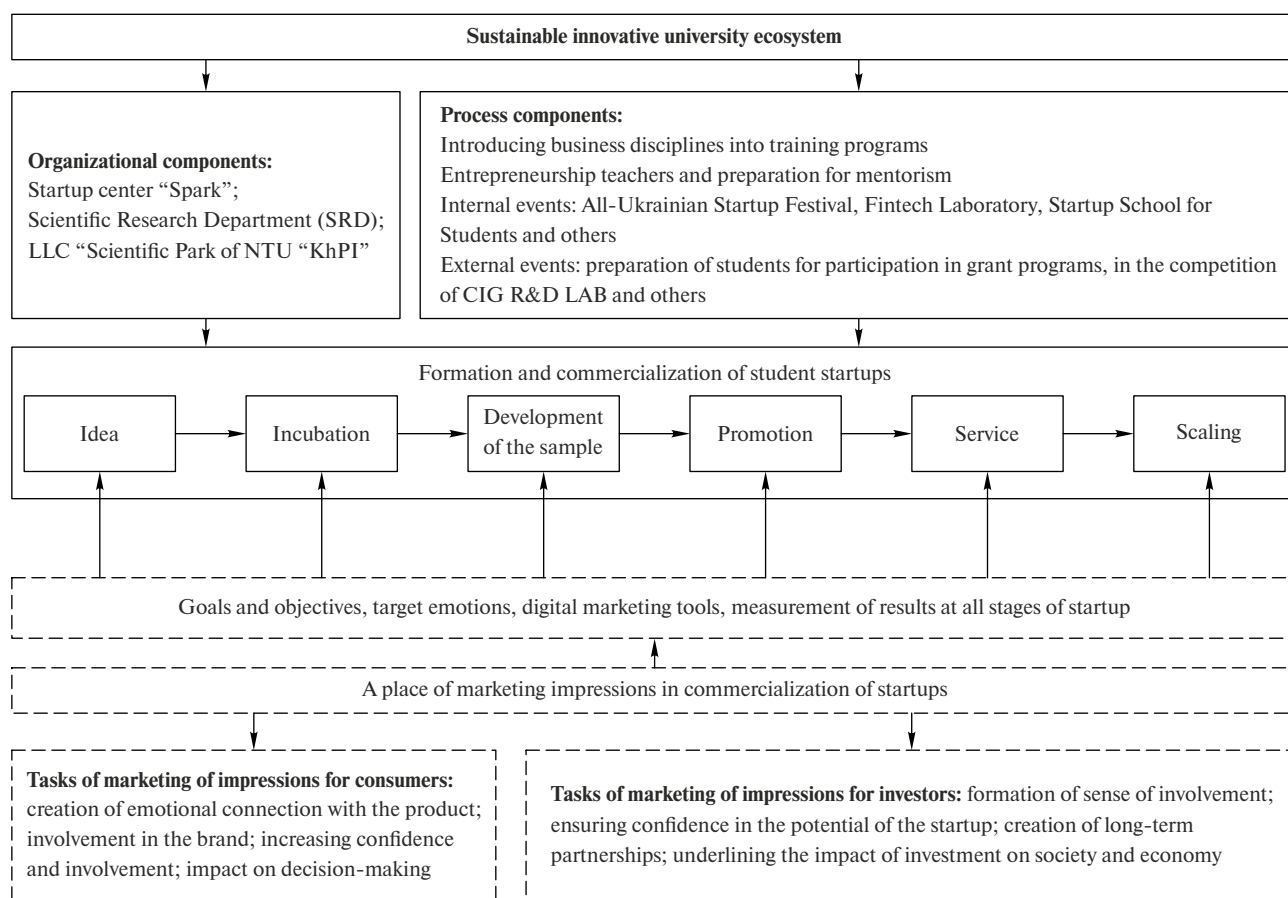


Fig. The place of the concept of economics of impressions in the process of commercialization of startups in the university environment

creating a sense of belonging to the product, which is especially important in the initial stages of startup development. At the stage of generation of the idea, when the product is not yet fully developed, attracting consumers is possible through pre-order, registration for updates or participation in crowdfunding campaigns. Digital marketing tools such as social nets for announcements, Email Marketing for Collection of Subscribers and Special Kickstarter, Indiegogo) are used for this purpose. These measures allow you to attract the first financial resources through the support of consumers at the stage of product development. Tasks of marketing of impressions for consumers involve:

- creating an emotional connection with the product – it is important to create an emotional connection between consumers and the product of startup, focusing on the benefits of life and the feelings that the product can cause;

- brand involvement – consumers should feel that a product or service is part of their identity, making loyalty;

- increasing confidence and involvement: emotional campaigns should stimulate trust, encouraging the use of the product through positive feedback and social evidence;

- impact on decision-making – marketing messages should emphasize the features that influence the purchase decision, in particular through the use of success stories or examples of product use.

For investors, it is important to present the potential of the product and the market at the idea stage. In this case, investments or grants aimed at supporting the development of innovative projects can be sources of financing. Among digital marketing tools that work effectively at this stage, webinars, online presentations for investors and startup platforms, such

as AngelList and Gust, where entrepreneurs can demonstrate their ideas for investors.

Choosing the concept of economics of impressions as basic it is necessary to define the criteria for the selection of startups for their commercialization through emotional instruments of digital marketing.

Substantiation of the criteria for the choice of startups for commercialization in the experience economy. The choice of criteria for the analysis of startups in the context of their potential promotion through the emotional tools of digital marketing is based on the understanding of how different markets and emotional impact on consumers can affect the success of advertising campaigns. The first criterion we have considered is the type of market. The distribution of startups by market types (B2B, B2C, B2G) allows you to clearly determine on which audience to focus your marketing efforts. For example, B2B-oriented startups often have a more technical or functional focus, whereas for the B2C market, the emotional aspect is critical, because consumers in these segments tend to respond more to emotional stimuli.

- B2C (Business to Consumer) – is usually targeted at consumers, where the emotional impact can be very important. Products and services in this segment often focus on creating positive emotional experiences, making them ideal for emotional marketing.

- B2b (Business to Business) – often focused on business processes, where solutions can be more pragmatic. Here, emotional aspects are less important than economic benefits and efficiency. However, some B2B products can use emotional marketing if they have elements that create additional value or unique experience.

- B2G (Business to Government) – usually focused on government contracts and projects where decisions are often based on strict performance, security and compliance criteria. Emotional marketing is less commonly used here, but can be used in the context of social projects or initiatives.

The second criterion is the analysis of emotions that can cause the use of a product or service. Because emotions can play a key role in consumer behavior, understanding what emotions will be actively expressed when using a product, allows you to create more effective advertising campaigns. For B2C includes oriented startups, the emotional component is especially important, since consumers are often guided by their feelings and impressions when making a purchase decision.

The third criterion we took into account is the industry to which the startup belongs. The study of industry features allows you to understand the specificity of the market and determine what emotions and types of promotion are the most relevant for a particular segment. It also helps to identify trends and needs in certain areas, which can provide valuable insights for marketing strategies.

Based on the analysis of industries, we can conclude that different areas have their unique features and requirements for promotion. For example, startups in the field of ecology and health often require a positive impact on the environment or personal well-being, which promotes emotional attachment. At the same time, technological and engineering startups are more focused on functional advantages and technical characteristics. Thus, the correct definition of criteria and understanding of the specifics of industries helps to adapt effectively to the promotion strategies to maximize the impact on the target audience.

Analysis of 46 startups created in the sustainable ecosystem of the University of NTU “KhPI” in 2023 was made in a sectoral section. There are three startups in the field of construction and architecture, including ecological building materials for the restoration of historical monuments and automated monitoring of metal structures that contribute to the introduction of innovations and preservation of historical heritage.

There are five startups in medicine, including the automatic monitoring system of medical refrigerators, IoT technology for blood velocity and blood pressure control, as well as

a mobile meditation application that emphasizes the importance of technological health care solutions.

Social services are represented by two startups, including an application for people with disabilities that provide access to medical services and food delivery, as well as comprehensive animal care, which demonstrates the desire for social responsibility.

Nine startups are presented in transport and ecology, including an application for finding bicycle paths, soybean-based air-pointing filter, and a portable solar energy shower that reflects increasing interest in sustained solutions.

Among the startups in the technology there are a large number of projects, including the algorithm of image conversion into sound tracks, autonomous control system for kamikaze drones, and identification of the parameters of the direct current engine in real time, which indicates the active development of innovation in this field.

Five startups are presented in education, including a mobile application for a child’s schooling day and an online school for learning English and German, which focuses on the integration of technologies into the educational process. Ecology also has a significant representation of four startups, including recycling clothing and soft toys, as well as recycling in everyday life, which emphasizes the importance of sustainable development and environmental consciousness in modern society.

In general, the analysis of the presented startups testifies to the diversity and innovative potential in various fields, contributing to the development of new solutions that can improve the quality of life and reduce the negative impact on the environment.

In order to compare 46 startups of NTU “KhPI” for 2024 with the most commercialized startups of Stanford University for 50 years [5Fum], the data was analyzed on investments obtained by Stanford startups at different periods, and compared to the activities of the NTU “KhPI” startups (Table 2).

In Stanford, a large number of investments are concentrated in electronics, medicine and defense. NTU “KhPI” has startups in various fields, but for effective commercialization it is worth paying attention to the most promising industries in terms of investment potential, just as it is done in Stanford. Not all startups can be successfully commercialized, based on the concept of economics of impressions. Given this, we have identified selection criteria that allow you to evaluate the potential of startups to successfully implement the market using emotional impact on consumers and investors. Below are the startups of NTU “KhPI” which meet the selected criteria and have the potential for commercialization through the concept of experience economy. In Table 3 B2C-oriented startups are systematized, along with branch industries and targeted emotions that can be used to promote them.

In order to evaluate the commercial efficiency of NTU “KhPI” startups in terms of approaches used at Stanford University, we take into account the amounts of investments aimed at the most commercialized startups in various industries. Based on commercialized startups in Stanford and taking into account the prospects of industries and markets, we can distinguish the startups that have the highest potential for commercial success. Explanation to the ranking: high commercial potential is startups in the fields of medicine, health and transport, ecology and high potential for investment and development, taking into account Stanford’s successful experience in such fields; the average commercial potential is industries concerning education, tourism, ecology and energy and have less, but still significant potential for commercial success; low commercial potential is startups in highly specialized industries or less innovative segments, such as animal care or materials processing and may have limited opportunities for significant investments. This rating will help to distinguish startups with the highest potential for commercialization and attracting investment, based on Stanford’s experience.

An example of a successful implementation of startup selection and commercialization based on the experience econ-

Table 2

Comparative analysis of startups of Kharkiv Polytechnic Institute and Stanford University: activities and investment priorities

Branch	Stanford startups (investment amount, thousand dollars) for 50 years	NTU “KhPI” startups (number of startups)
Electronics/ Technologies	1,072	19 startups: monitoring system for medical refrigerators, applications, automated drones and others
Medicine/Health	362	5 startups: applications for people with disabilities, dietary supplements, IoT technology for blood pressure monitoring
Defense/Safety	662	5 startups: detection of mines, drones, ballistic protection, chair suspension system
Construction/Architecture	–	2 startups: ecological building materials, automated monitoring of metal structures
Ecology/Recovery	–	10 startups: soy oil-based filters, solar panels, soil reclamation, recycling and others
Education/Technology	–	7 startups: teachers’ programs, mobile applications for school planning, language learning
Transport	–	4 startups: renting applications, multipurified transporter
Engineering	511	5 startups: high-pressure hydraulic station, increased steel durability, other engineering solutions

Table 3

Analysis of startups of NTU “KhPI” according to the criteria of commercialization in the experience economy

Branch	NTU “KhPI” startups	Target emotions to promote	Commercial potential (forecast)
Medicine, Health	Dietary supplies from medicinal herbs from Synevir National Park; Application for meditation; Technology (IoT) for measuring blood velocity	Health, naturalness, well-being, patience, control of well-being	High
Transport, Ecology	App for cycling and transportation; Annex for transportation of transport	Environmental friendliness, travel satisfaction, convenience, time saving	High
Ecology, Technology	Soy oil-based air-pointing filter; Portable solar panels; Environmentally friendly electromagnetic rodent protection technology	Cleanliness, environmental friendliness, autonomy	Average
Education, Technology	Smart Schedule – mobile app for planning a child’s school day; Sprachtime – online school for language learning	Organization, convenience, training, accessibility	Average
Tourism, Entertainment	Online quests for tourists with tasks	Entertainment, admiration	Average
Animal services	Complex animal care	Care and comfort	Low
Energetics, Ecology	Portable solar energy shower; Portable solar panels	Environmental friendliness, autonomy, savings	Average
Ecology, Craft	EcoMade – clothes and soft toys recycling	Environmental friendliness, creativity, recovery	Low
Fitness, Health	FlexiTrainer Live – mobile sports app	Activity, motivation, health	High

omy is a startup for the production of portable solar panels, which received funding when submitting to the competition by the CIG R&D Lab. This project not only combined an innovative approach to alternative energy, but also effectively took advantage of the experience economy for further development and entry into the market.

Recommendations for the use of marketing of impressions at the stages of startup development. The use of impressions marketing in the process of startup development is an important strategic tool for improving its commercial attractiveness, both for investors and end consumers. After preliminary selection of the most promising startups from the B2C segment and structuring them by industries, it is necessary to apply marketing of impressions at each stage of startup development to stimulate commercialization. This allows you to create emotional connection with targeted audiences, which increases the interest of both investors and consumers, which is a key factor for success.

At the product incubation stage, it is important to attract early users through a prototype or a minimal viable product (MVP). Consumers can be involved in beta testing or pre-order.

Social networks and content marketing are key tools for promoting the prototype, and the landing page allows you to collect applications and pre-order. For investors at this stage, the source of funding is venture funding, which is provided to support the further development of the product. Digital marketing gives you the opportunity to present projects through online demonstrations, websites and specialized startup platforms.

At the stage of manufacturing a sample or prototype, consumers can interact directly with the product through the first sales or subscriptions. Digital marketing allows you to organize an effective process of promoting with landing pages, social networks and email-distributions to inform users about product availability. At the same time, investors evaluate the product’s market readiness that allows you to attract additional venture financing. Digital marketing tools may include advertising through social media (Facebook Ads, Google Ads), re-marketing, and SEO-optimization to attract additional traffic to the product site.

Promotion is a critical stage in which the startup enters the market and actively attracts both consumers and investors.

For consumers, the source of commercialization may be direct sales or subscriptions. Digital tools include paid advertising, communication with influencers, content marketing and remarketing. Large-scale presentations at events, online demonstrations of project success and business analytical reports are used to attract investors at this stage. The source of financing is the serial financing or attracting strategic partners through digital platforms for startups. At the maintenance stage, the key is to support loyal customers and ensure continuous interaction with the product. Consumers can support the product through subscriptions for service or purchase of additional services.

Using chatbots, CRM systems for personalized support and social networks for feedback are important digital marketing tools at this stage. It is important for investors to demonstrate the stability and prospects of startup growth, which can be the basis for reinvestment. Digital marketing helps in this through analytical reports, email and webinars for investors.

Finally, at the stage of startup, commercialization at the consumer level is implemented by entering new markets and expanding the audience. Sales can be made through online platforms or franchising. Digital marketing at this stage covers global advertising campaigns, social media, localized advertising and artificial intelligence tools for personalized targeting. Investors support scaling through additional financial investments, which provides new markets.

Recommendations for evaluating the effectiveness of using marketing impressions in startup development. Assessing the efficiency of using startup marketing is a critical aspect to ensure successful promotion and achievement of business goals. In order to get a clear idea of how efficient use of marketing of impressions should take into account a few key recommendations.

First, you need to install clear and measuring KPIs (Key Performance Indicators) for marketing campaigns based on impressions. These can be indicators such as the level of involvement, the number of positive reviews, the level of memorization of the brand, as well as the conversion coming out of emotional campaigns. It is important to regularly monitor these indicators and adjust the strategies in response to the results.

Secondly, it is important to carry out constant collection and analysis of customer feedback. This allows you to not only assess how effective emotional perception affects their loyalty and pleasure, but also to identify opportunities to improve campaigns. The use of surveys, interviews, and social media analysis can provide valuable information about which emotions and messages are most resonated with the audience.

Third, it is important to compare the results of impression-oriented campaigns, with other forms of marketing activities. This allows you to determine which strategies have brought the greatest success and which aspects of impressions were the most effective. As well as evaluate ROI (return on investment) for each campaign to optimize the cost of marketing of impressions in the future.

Fourth, you can use A/B test tools to evaluate efficiency that allow you to experiment with various emotional messages and visual materials. This allows you to accurately determine which elements of the campaign most effectively affect the target audience and which strategies should be scaled.

Finally, regular analysis of the competitive environment is also an important aspect. Comparing your own results with competitors' results helps you understand how emotional strategies in the industry are successfully used and what can be borrowed or improved within your own startup.

The application of these recommendations will not only evaluate the effectiveness of existing campaigns, but also develop more sophisticated strategies for marketing impressions, which will promote the sustainable development and success of the startup.

Conclusions. The role of universities in the commercialization of startups in the context of the experience economy is analyzed. It has been proven that universities are important

centers of innovation that contribute to the development of youth entrepreneurial potential and the creation of new technologies. The results of the analysis are presented, demonstrating the driving forces of commercialization of startups in the student environment. The authors' vision of the driving forces of commercialization of startups at NTU "KhPI", which is based on the support of the innovative ecosystem of the university with a focus on marketing of impressions. A new approach to the use of the concept of economics of impressions to increase the efficiency of commercialization of startups through attracting investors and consumers is substantiated.

Three key criteria for choosing startups suitable for commercialization in the experience economy are identified: market type, emotional impact and sectoral specificity. In particular, 43 startups of NTU "KhPI" are analyzed, of which 9 startups in the field of ecology and transport show high commercial potential. The study has shown that B2C-oriented startups are most likely to have successful commercialization due to emotional stimuli, whereas B2B and B2G segments are less important. The results of comparative analysis with Stanford's investments confirm that the emphasis on emotional aspects can significantly increase the chances of attracting investments for Ukrainian startups.

An analysis of the use of marketing of impressions at different stages of startup development was made, which confirms its importance for increasing commercial attractiveness.

Recommendations for evaluating the efficiency of using impressions in the development of startups, in particular the installation of measuring KPI, collection of feedback and comparison with competitors for optimization of marketing campaigns were proposed.

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Комерціалізація інновацій НТУ «ХПІ» інструментами цифрового маркетингу в економіці вражень

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Мета. Формування теоретико-методологічних підходів до визначення дієвих інструментів комерціалізації університетських стартапів на основі врахування емоційного аспекту взаємодії зі споживачами та інвесторами.

Методика. Методологічною основою дослідження стали сучасні досягнення, отримані у сфері інноваційної теорії та концептуальні засади економіки вражень. Конкретними інструментами дослідження виступили такі методи наукового пошуку як: системний підхід, на основі якого було визначено місце концепції економіки вражень у процесі комерціалізації стартапів в університетському середовищі; узагальнення й систематизація – при визначенні орієнтирів споживацької поведінки щодо новачок і мотиваційних механізмів інноваційної діяльності підприємницького сектора; порівняльний аналіз – при виокремленні особливостей стартапів НТУ «ХПІ» та Стендфордського університету; аналізу й синтезу – при виокремленні напрямів використання маркетингу вражень на різних етапах розвитку стартапу.

Результати. У роботі запропонована нова точка зору на процес комерціалізації стартапів у середовищі університету крізь призму концепції економіки вражень. Виділено шість ключових етапів розвитку стартапів: ідея, інкубація, розробка зразка, просування, обслуговування й масштабування. Охарактеризовані складові сталого інноваційної екосистеми університету, що включає стартап-центр «Спарк», науково-дослідну частину, технологічний парк, а також зовнішні та внутрішні заходи, які сприяють комерціалізації інноваційних проєктів. Дослідження показало, що цифровий маркетинг з акцентом на емоційну складову відіграє важливу роль у залученні споживачів і інвесторів на кожному етапі комерціалізації. Розглянуті специфічні інструменти цифрового маркетингу, включаючи соціальні мережі, вебінари, інтерактивний контент і персоналізовані рекламні кампанії, що сприяють підвищенню зацікавленості аудиторії та створенню емоційного зв'язку з продуктом. Визначені основні джерела фінансування стартапів, зокрема споживацькі продажі, інвесторські вкладення та грантові програми.

Наукова новизна. Полягає у формуванні удосконаленого теоретико-методологічного підходу до визначення напрямів комерціалізації університетських стартапів, що на відміну від існуючих передбачає врахування емоційного аспекту взаємодії суб'єктів інноваційної діяльності та здійснення впливу на їхню поведінку через інструменти цифрового маркетингу.

Практична значимість. Запропоновані рекомендації щодо використання концепції економіки вражень у комерціалізації стартапів можуть стати основою для розробки стратегій просування нових продуктів і послуг. Використання емоційного маркетингу на різних етапах розвитку стартапу, таких як інкубація й масштабування, забезпечить конкурентні переваги, сприяючи кращій адаптації стартапів до ринкових умов і запитів споживачів. Результати дослідження можуть бути використані у практиці університетів для підтримки стартапів, а також у навчальних програмах із підприємництва.

Ключові слова: економіка вражень, цифровий маркетинг, комерціалізація інновацій, стартапи, інноваційна екосистема університету

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