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AN INNOVATIVE PROJECT DEVELOPMENT IN THE CONSTRUCTION INDUSTRY OF UKRAINE

РОЗРОБКА ІННОВАЦІЙНОГО ПРОЕКТУ В БУДІВЕЛЬНІЙ ГАЛУЗІ УКРАЇНИ

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Prodius O.I., Zaporozhsk A.M. Розробка інноваційного проекту в будівельній галузі України. Оглядова стаття.

Стаття присвячена дослідженню теоретично-методичних основ розробки інноваційного проекту в будівельній сфері України. Розглянуто теоретичні аспекти маркетингових інновацій та проаналізовано існуючі методи визначення потенційних споживачів, проаналізовано ринок малоповерхового будівництва у контексті діагностування переваг цільових споживачів. Розроблена методологія пошуку потенціальних споживачів інноваційного проекту продукту у вигляді алгоритму, що поєднує існуючі підходи до сегментації властивостей з сучасними методами, заснованими на змінних і психографічних характеристиках щодо підвищення рівня персоналізації та залучення цільового споживача до маркетингових комунікацій будівельних компаній. Розроблено методологічний підхід до виявлення потенційних споживачів продукту інноваційного проекту в будівельній сфері України. Сформована концепція та основні етапи проекту будівництва котеджного селища з використанням інноваційних технологій, проведено оцінку ризиків та ефективності проекту для ключових учасників. Отримані практичні результати можуть бути використані вітчизняними будівельними компаніями для прийняття управлінських рішень щодо впровадження інновацій у власні проекти та більш ефективної комерціалізації інноваційної продукції на ринку нерухомості, що сприятиме оптимізації бізнес-процесів, скороченню витрат і термінів будівництва, підвищенню якості житла для кінцевого споживача.

Ключові слова: інноваційний проект, інновації, будівельна галузь, ринок, 3D-друк, 3D-принтер, інноваційні технології

Prodius O.I., Zaporozhsk A.M. An Innovative Project Development in the Construction Industry of Ukraine. Review article.

The article is dedicated to the study of the theoretical and methodological foundations of innovative project development in the construction sector of Ukraine. Theoretical aspects of marketing innovations have been considered and existing methods of identifying potential consumers have been analyzed, the low-rise construction market was analyzed in the context of diagnosing the preferences of target consumers. A methodology for finding potential consumers of an innovative product project has been developed in the form of an algorithm that combines existing approaches to the properties segmentation with modern methods based on variables and psychographic characteristics to increase the level of personalization and attract the target consumer to the marketing communications of construction companies. A methodological approach to identifying potential consumers of the product of an innovative project in the construction sector of Ukraine has been developed. The concept and main stages of the project for the construction of a cottage village using innovative technologies were formed, and an assessment of the risks and effectiveness of the project was carried out for key participants. The obtained practical results can be used by domestic construction companies to make management decisions regarding the innovations introduction into their projects and more effective commercialization of innovative products on the real estate market, which will contribute to the business processes optimization, construction costs, and terms reduction, and housing quality improvement for the end consumer.

Keywords: innovative project, innovations, construction industry, market, 3D printing, 3D printer, innovative technologies

Every year, an aggressive external environment, oversaturated markets and increased competition force businesses to become more flexible. Even for simple survival, companies need to constantly develop, bring new products to the market, optimize processes and conduct regular research. In order to solve these challenges, many businesses use innovations, a powerful tool that can give you an edge and a chance to stay ahead of their rivals.

Innovations also have a special strategic importance for the economy formation of modern Ukraine, especially in the conservative construction industry, which has been experiencing a crisis in recent years. A decrease in purchasing power, an unstable economic situation, and other negative factors lead to the fact that developers leave the market, and the remaining players begin to save on their projects quality or significantly increase prices.

In modern conditions, it is the cost reduction and the increase of productivity of business processes that is the most urgent problem of construction enterprises which can be solved by the rapid introduction of modern technologies, new developments, and modified technical equipment. However, scientific knowledge and developments are important not only for creation but also for successful commercialization. Innovative product development is always associated with increased risks, primarily commercial, due to the unpredictability of consumer reactions. Only about 20% of new products achieve market success. And if the product is just introduced to a new market, this indicator declines rapidly to 6%. Thus, most failures are due to the fact that innovations arise on the basis of new knowledge, but not needs. Mistakes made in consumer research lead to the failure of the entire campaign. Customers do not need a new product, but new benefits they can get from it. Therefore, before developing and introducing innovations to the market,

companies should know and understand their target segment as best as possible.

Effective marketing research and accurate identification of small groups of target consumers are the most important stages of this process. Understanding the interests, problems, habits, and behaviour patterns of future customers should be the starting point for the successful commercialization of innovative products. These features knowledge can help construction companies conduct effective, narrowly focused advertising campaigns that will give the maximum return and allow successful commercialization of an innovative product, thanks to overcoming perception barriers and affecting the necessary emotions of the target audience.

Analysis of recent research and publications

A significant number of scientific works are dedicated to the study of issues in the field of innovative marketing and its use by enterprises. The research is based on the works analysis of well-known Ukrainian and foreign specialists, such as: S. Bukreieva, D.Yu. Shestakov, O.A. Havrysh. In most of the works, the industry specifics of the marketing industry were not taken into account, therefore, when writing the article, the conclusions from research in the marketing of the construction industry by R.B. Papirnyk, I.S. Ivakhnenko, T.A. Vynnyk, V.A. Melnykova, A.O. Kasych and

other scientists have been studied and integrated For a more accurate development of an innovative project and understanding of the definition of an "innovative project", the works of such authors as D. S. Bukreiev, O.A. Havrysh, K.O. Boiarynov, K.O. Kopishynska, A.O. Kasych, D.Yu. Shestakov and other scientists have been considered.

The aim of the article is to develop a methodological approach and recommendations for the more effective development of an innovative project in the context of identifying potential consumers in the construction industry.

The main part

The practice shows that today, in a harsh external environment, those domestic companies that successfully implement innovations that contribute to increasing the company's competitiveness and give a chance to take leadership positions survive and develop. Innovations make it possible to retain old and attract new consumers, producing products that provide a better degree of satisfaction for their needs.

Having analyzed the issue of the formation and development of the innovative activity definition, it can be stated that both foreign and domestic scientists pay a lot of attention to researching various aspects of the innovative sector, but it needs further thorough study (Table 1).

Table 1. The Notion of Innovative Activity

Author	Definition
Ph. Nixon	A complex of technical, production, and commercial measures that lead to the appearance on the market of new, improved industrial processes and equipment
J. Schumpeter	An innovation is a new product or service produced by an enterprise or using methods or means that are new to it and produce technical changes.
F. Kotler	An idea, product, or technology launched into serial production and presented on the market, which the consumer perceives as completely new or as having certain unique qualities
A.Ya. Kuznietsova, N.Ya. Zinko, and O.O. Druhov	Innovative activity is an activity related to the entire innovation process implementation.
V.O. Koiuda, L.A. Lysenko	Innovative activity is a systematic activity aimed at scientific research, innovation development (or involvement), implementation, and commercialization aimed at obtaining an economic and (or) another effect, increasing the enterprise's competitiveness and ensuring its development.
O.V. Tarasova	Innovative activity is a set of practical actions aimed at using scientific and technical results to obtain new or improve existing products, technologies, management methods, etc.
O.V. Chumak	Innovative activity is an activity, as a result of which something new (novation) is born, which is characterized by uniqueness and originality and which has not exist before in nature and society.
Commercial Code of Ukraine	Innovative activity in the field of management is the participants' activity in economic relations, which is carried out on the basis of the investments implementation in order to implement long-term scientific and technical programmes with long periods of cost recovery and new scientific and technical achievements introduction in production and other areas of social life.
The Law of Ukraine "On Innovative Activity"	Innovative activity is an activity aimed at using and commercializing the results of scientific research and developments and leads to the release of new competitive goods and services to the market.
The International Standard	Innovation is the final result of innovative activity, embodied in the form of a new or improved product introduced to the market, a new or improved technological process used in practical activities, or in a new approach to social services

Source: authors' own development

Analyzing the aforesaid, it is possible to distinguish the main essence of innovations - these are the ideas that receive a real embodiment in the form

of improving existing processes or creating fundamentally new products on the market. Innovations have their own specifics, which cannot

fail to be reflected in marketing activities, so over time researchers have identified such a concept as innovation marketing

The main mission of innovation marketing is to help innovative companies overcome stereotypes and patterns of behaviour in the market and move to an offensive marketing strategy implementation, which is very relevant and important at the moment. On the basis of the mission, the main tasks of marketing innovations can be determined:

a) Evaluation of the innovative activity market in the process of developing new products. Search organization and market evaluation of new product ideas, search for potential applications, and market testing of new products.

b) The innovation market formation: innovations commercialization and diffusion. Entering the main market, clarifying the consumer specifications of the new product, and mastering the “early” market;

c) A marketing strategy development for a new product. The transition from the “early” market to the market niche and leadership;

d) Innovations promotion. Overcoming barriers to consumer acceptance of new products, building communication channels, forming and conveying the value of a new product to consumers;

e) Competition and partnership. Strategic partnership within the modern policy framework of open innovations, and creation of excellent positions in the high-tech market.

Thus, the main difference in innovation marketing is that it does not work with a product, but with an idea or innovation. First of all, it will be aimed at instilling in the consumer the need to pay attention and try a new product, and not to convince him to switch from rivals’ products.

For successful business activity, it is necessary to regularly conduct marketing research in order to identify promising areas of development, innovative needs, goods, or services. The aim of innovative marketing research is to justify a new project rationality for the company. It can be the of a new market development, the opening of a brand, or a whole business area. As a rule, such studies are planned at the stage of initiating the project and building a work schedule for its further implementation. As we can see, this is quite a long process, during which they can be used as traditional marketing tools (advertising, PR, etc.) that are used when bringing the product to the market. As well as non-standard means in the form of fundamentally new approaches. For example, the use of AR (augmented reality) or original advertising media (advertising games, viral videos, game branding). After conducting marketing research, it is necessary to develop a system of measures aimed at product creation, pricing, promotion, and selection of delivery channels to end consumers. In other words, it is necessary to develop a marketing complex, with the help of which the innovation will occupy its niche in the market.

However, there are nuances here as well. The set of marketing measures aimed at the successful

implementation of an innovative product differs from the classical approach to its development in a sustainable market. This is due to the following features of the innovative market, which was born at the goods and knowledge junction:

a) High degree of uncertainty. The company does not know and can only assume how a potential consumer will react to a new product. In addition, if it refers to breakthrough (radical) innovations and has no analogues, then the enterprise appears in a completely new market, which development laws are not yet known to anyone;

b) The innovation market is characterized by the low price elasticity of demand. Price changes have very little effect on sales. First of all, it is connected with the monopolistic and oligopolistic position of the manufacturer and the limited number of buyers. The innovation market grows and develops not because of demand, but because of supply;

c) The S-shaped nature of demand for radical product innovations in the long run. This is due to the peculiarity of the information distribution about new products among consumers:

— Uneven distribution of information between different strata of society;

— For some time, the consumer does not have objective knowledge about the new product. The information comes from the manufacturer and a priori;

— Personal contacts and other informal sources are the strongest channels of information dissemination among consumers at the beginning;

c) A new product will face a high perception barrier by consumers. A potential buyer lacks information about a new product, but even with it, a person may not fully understand the product benefits and why he needs to pay for it (as a rule innovation tends are expensive).

At the same time, the competitiveness and perception of the new product will depend primarily on the properties that allow it to satisfy the buyers’ needs at a higher level, these are:

a) High product quality or a lower price at the same level of quality with substitutes;

b) Reputation and reliability of the company representing the product;

c) Availability of good after-sales service;

d) Products conformity to international national standards.

Consumers occupy a central place not only in the global economy but also in marketing. Their purchasing power, potential and existing needs determine the market and shape its development. The nature of innovative demand has its own specificity. The most important factors determining consumer motivation when purchasing an innovative product are:

a) Income level, since new articles on the market at the first stage of their existence are sold at declared prices, income becomes a key factor when making a decision to buy it;

b) Consumer inclination towards novelty, fashion, etc;

c) Opportunities for the consumer to use innovative products. Using new products often requires the presence of an accompanying maintenance system of additional infrastructure;

d) Informational and psychological influence on the consumer as a result of propaganda, etc.

Innovative products can vary depending on the degree of novelty for the consumer. If the novelty is an improved version of the old one, the demand for it will depend on how well the new model will satisfy the need. If the product is fundamentally new and aimed at meeting a new need, its success in the market depends on how urgent this need is among consumers. If there is no previous information about a new product, its emergence on the market may be met by the consumer with caution and the process of forming demand will be too long, which will affect expenses and final financial results. An important role in the perception process of new products is played by the personal influence that the statement about the product made by one person has on the attitude of another person to this product. It is most significant at the evaluation stage.

Thus, the companies that bring an innovative product to the market will face the problem of dependence on a rather narrow segment of "innovators" and "early followers" on which they will be forced to focus. The second feature is that the innovation nature itself affects the potential consumer attitude towards it and the speed of its spread. Some products gain popularity after the first presentation, while others require a long time and a huge advertising budget. This is influenced by the following characteristics of the new product:

a) Comparative advantage is the degree of superiority of an innovative product over existing analogues (for example, a pager and a mobile phone that replaced it);

b) Compatibility is the degree of compliance with accepted values and consumer experience (a great example is the iPad, which quickly became a popular attribute of middle-class people);

c) Complexity is the degree of difficulty in understanding the product essence, its development and use (for example, many people do not buy an electric car because there is no developed infrastructure for its use).

The model of consumer behaviour in the innovation market is close to the model in industrial markets. The difference is that needs are often covered, so the initiative comes from the innovation provider.

Thus, the innovative product marketer must know and take into account the innovative features and how it is perceived by the target audience.

The sources of gathering such information will be various methods of surveying potential consumers: questionnaires, Internet surveys, focus groups, etc. The company must identify the "right" buyers who will want to buy its innovation and will be solvent enough to do so. If there are enough of them, a further plan can be developed for the company's entry into the market.

The group of people to whom the company directs its marketing work is called the target audience (TA). It can satisfy their needs with the product being produced, so the target audience is more likely to buy it. Marketers divide TA into two types:

a) Main (primary) consists of people who are the initiators of the purchase and make decisions about its feasibility. For example, an adult man who has decided to buy a car with the money he earned;

b) Indirect (secondary) people who do not initiate the purchase and are not active participant in it. This category is perfectly illustrated by children who initiate the purchase of toys but do not make the final decision about their purchase.

Some marketers single out certain criteria as key. For example, what guides the customer when choosing a product or dividing consumers, taking into account the circumstances of the purchase and the reasons for which the consumer initially wants to purchase the product. For example, in the construction industry, a widespread method of segmentation is based on buyers of real estate classes: economy, comfort, business, and elite. The more details and data are taken into account, the more chances potential consumers have to make an effective offer that they will be ready to consider and accept to meet their needs. But it should be remembered that mistakes made at the stage of defining target segments can lead to the failure of the entire campaign.

It should be noted that innovations in construction differ in that it is far from every novelty, but only that which can significantly increase the efficiency of the current system of current installation and construction works implementation.

Unfortunately, at the moment, most Ukrainian construction companies are not ready to invest significant funds in the study and research of new technologies. For a business, the implementation and development of innovative processes is an unattractive, time-consuming, and very expensive job. Building materials manufacturers are in no hurry to invest in the creation of fundamentally new products, as it is not known whether the efforts spent will be rewarded. Designers do not seek to take into account innovative technologies and materials in new projects. Innovations are also not in demand by architects and designers in most cases. Therefore, in order to create conditions for long-term innovative development of the construction sector in Ukraine and to reduce the risks of innovative projects, first of all, state support is needed, which would be aimed at creating special programmes capable of facilitating the process of innovations entering the consumer market, providing the sector.

Today, the competitive advantages of companies are determined by how quickly they respond to new market needs and how quickly they develop, produce and introduce new products in response to these needs. Unfortunately, innovations are not quickly implemented and effectively spread in the construction industry in Ukraine, which leads to differences in the price and quality of construction

companies' offers, and a decrease in competitiveness in front of foreign players.

The share of investments in PropTech (innovative technologies in real estate) in Ukraine does not exceed 1% of the total volume of investments in the world market. And not only the developers are to blame for this, but also the buyers themselves, who are distinguished by their conservatism and difficult acceptance of everything new. Change is not something that people like, especially the Ukrainian mentality.

In order to change the situation, a critical mass of implemented innovative projects, built with the participation of new approaches, technologies, and materials, is needed. Based on them, as illustrative examples, innovative products of the construction industry will be able to receive an influx of investments for further development, and as a result, begin to actively spread on the market among buyers and developers. But how to find those innovators who will support them with hryvnias and their example? Modern psychographic methods of segmentation, in my opinion, do not allow to reflect the construction industry specifics and the innovative product features to the required extent at the same time. This requires a more in-depth model of the shard. The combined algorithm presented below was developed specifically to identify potential consumers of the innovative project product in the residential real estate market. In other words, it will help to more accurately define and form a portrait of the target segment, whose need for real estate, the construction company is ready to satisfy in an improved way or in a fundamentally new way.

Since the primary goal of the market acquisition is adoption by "innovators" and "early adopters", one of the primary segmentation criteria should be psychographic and behavioural. A marketer needs to understand his psychology and touch the right emotions. If this consumer group accepts the innovation and begins to use it, the commercialization stage will end and the diffusion stage of new items to other market segments will begin. Therefore, Mark Sherrington's 5W method was chosen as the basis for developing the algorithm for identifying potential consumers, which was supplemented with a block of questions reflecting the specifics of the residential real estate market.

After that, the target segments are selected from the obtained segments using segmentation based on the VALS model of Stanford University.

At the final stage of the methodology, for a more convenient presentation of the received information, it is suggested to use a detailed portrait of the target segments using Alan Cooper's character method.

Sherrington's method turned out to be the most practical and convenient for basic market segmentation, that is why it was chosen as the basis. 5W allows a deeper understanding of each segment than the usual division by gender, age, place of residence, and other characteristics. Its advantage is the product orientation to the behaviour, lifestyle and needs of the target audience. 5W consists of five

consecutive questions that allow us to highlight the most attractive market segments:

- a) What? – what product you offer to the consumer;
- b) Who? – who will buy your product (gender, age, income level, education, the field of work, etc.);
- c) Why? – why your product will be interesting to the audience, what pain the buyer closes;
- d) When? – when the audience wants to buy/need the product;
- e) Where? – where the purchase decision is made and the purchase itself takes place.

After we segment the market using the matrix with 5W questions, we add to the algorithm clarifying data related to the behaviour of representatives of the selected segments when purchasing residential real estate. For this purpose, we have developed a "product matrix" that adds the specificity of the real estate market to the methodology. It consists of three questions:

- a) The purpose of buying real estate (for residence, for renting, for conserving savings, for investments)?
- b) Where are you living now (economy, comfort, business or elite housing class)?
- c) Buying independent or intermediary (real estate agencies)?

The final step of the algorithm will be using the VALS model to select target segments. "Innovators", "Crucial to Success" and "Experimenters" are the target segments on which we will need to focus our main marketing efforts. They tend to be innovative and have sufficient funds or the ability to find them to purchase real estate.

Further, on the basis of the conducted research, it is suggested to use Alan Cooper's "Persona Method" for a more visual representation of the received information about the target segments. This method's essence is to create several characters with the characteristics of potential consumers of the product. Thus, each character will become a collective image of one group of our target audience. The Persona Method helps to collect several collective models of potential consumers from a large amount of information. For this, it is necessary, taking into account the already collected information, to answer the following questions:

- a) How do you spend your free time?
- b) How does he get the information?
- c) How does a person learn about a product?
- d) What topics are relevant for potential consumers?
- e) What devices, programmes and applications does a person use regularly?

As a result, we will get several persona models, each of which will represent the target segment, or rather its typical representative. This will make it possible to better understand potential customers and, based on this, more effectively plan and implement the influence stage of marketing incentives.

There are certain segmentation methods in the real estate market (by product – physical characteristics, class of housing, etc.; by consumers – geography,

socio-demographic factors), as well as a number of other methods based on behavioural and psychographic consumer criteria that allow identifying types of people prone to novelties and innovative products. The scientific novelty of this algorithm is an attempt to combine these approaches to achieve deeper segmentation. Thus, it will increase the personalization level of the potential consumer in the residential real estate market and, as a result, increase his involvement level in the residential real estate market. Response to the marketing communications of a company that is introducing innovative technologies in a conservative real estate market.

Having selected and described the target segments with the help of this model, one can proceed to the positioning formation and the effective marketing strategy development for the innovative project product. Having determined in the theoretical part of the article the unsatisfied demand in the domestic ICS market and the attractive market capacity, a project for the construction of a cottage village using innovative 3D printing technology was developed, the concept of which was based on the obtained methodology for determining potential consumers of the innovative project product.

In modern conditions, residential low-rise buildings are becoming more and more popular, which is due to a number of advantages over typical urban development, the population's concentration in

which has led to the appearance of: super-dense high-rise buildings, a sharp deterioration of the human environment, which is expressed in crowding that is harmful to health, population, environmental problems, as well as transport problems of city highways. Unlike urban areas, where land is in shortage and, as a result, has a rather high price, low-rise settlements can be built on empty suburban land, which has a much lower cost and a more favourable ecological environment. Such buildings allow the possibility of construction on sites of any category. However, despite all the advantages and the obvious interest of the population, there is no mass resettlement of Ukrainians in low-rise housing. After all, the old problems have not disappeared: the decrease in the population's purchasing power, the low development of suburban infrastructure (in most cases, before building a cottage village, the developer must bring all communications to it at one's own expense), the lack of interest of banks in issuing mortgages according to ICS (the profitability of apartment buildings houses are higher, and the risks are lower). Based on the above, a tree of problems will be constructed and presented in the Figure 1 with the resulting consequences for: citizens, property owners and developers.

After analyzing the obtained problem tree, we will build the solution tree based on it and present it in the Figure 2.

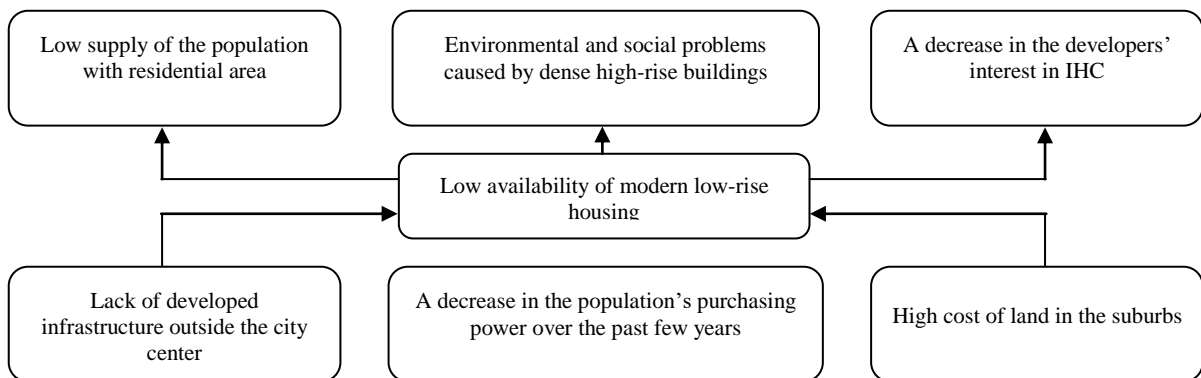


Figure 1. The Problem Tree
Source: authors' own development

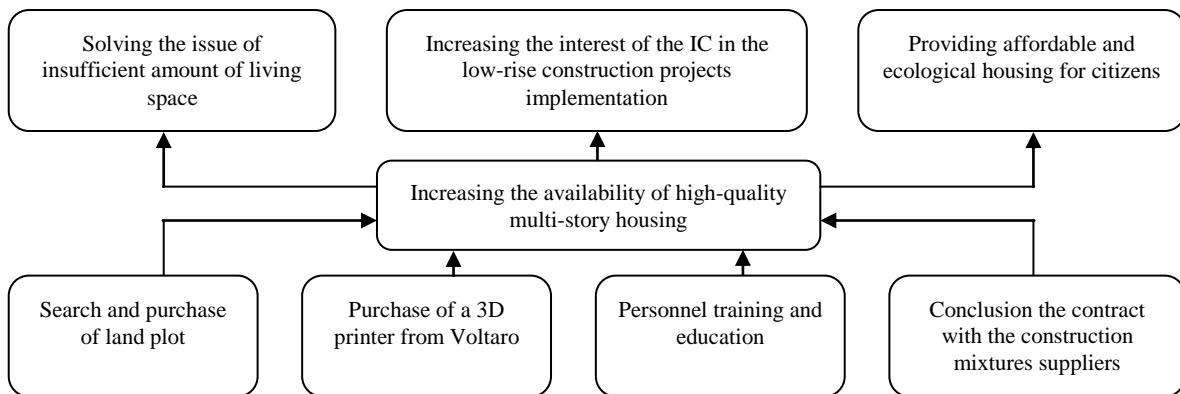


Figure 2. The Solution Tree
Source: authors' own development

Thus, the idea of the considered project consists in a land plot acquisition in the suburbs of Odesa and a low-rise settlement construction on its territory, for the further realization of houses with adjacent land plots. For this purpose, it is planned to create a construction company, on the basis of which the project will be implemented. Using innovative 3D printing technology during construction will be a feature of this village that favourably distinguishes it from its competitors. This will allow the newly created company to occupy a significant share of the market in the coming years, thanks to a reduction in costs, a significant increase in the quality of construction and a multiple increase in the speed of building construction.

In order to implement the project, it is planned to purchase a construction 3D printer from the Kharkiv company Voltaro. In 2016, after 3 years of research, the company launched the first serial production of construction 3D printers (COP-printers) in Europe and the CIS, which are exported and successfully operated in Ukraine, Europe and the countries of the Middle and Southeast Asia. All manufactured equipment has the industrial safety certificate, technical conditions (technical conditions) are registered, a Declaration of Compliance with Technical Regulations on the territory of the Customs Union has been issued, and a European Union (KE) certificate has been obtained. The "Voltaro" catalogue presents an assortment of portal 3D printers of small and large formats, aimed at solving various tasks. Based on the size and characteristics of typical buildings that will be built on the purchased land plot, the S-300 model, which allows printing on the foundation, is optimal for the project implementation of two-story buildings up to 6 meters high. After ordering the equipment, "Voltaro" specialists will

assemble and launch it, teaching modeling and control of the 3D printer by the future personnel, whose personnel consists of 2 people: an operator and an employee responsible for mixtures.

All components are industrially produced and of high quality, intended for overloaded professional use. This makes it possible to organize a 2-3 times operation mode on the selected printer. Another advantage of this model is that after building houses on its basis, one can create exclusive landscape products, such as: benches, gazebos, playgrounds, etc.; which will become part of the street interior and will allow ennobling the territory of the settlement without unnecessary expenses.

Having described the project idea, let's decide on its mission, purpose, and the resulting product:

a) The mission is to popularize and bring ILS in Odesa to a qualitatively new level due to advanced innovations in the construction industry;

b) The goal is to provide affordable and comfortable housing for the Odesa oblast residents;

c) The product is a low-rise residential settlement built using 3D printing technology.

Thus, the success criteria of this project will be:

a) The project implementation, execution period, absence of exceeding the planned budget;

b) Warranty for the 3D printer operation by the manufacturer throughout the entire life of the project.

In order to implement the planned project, it is necessary to determine the circle of project participants (Table 2), each of whom will have their own function, degree of participation, and influence on the final results of the project. It should be noted that during the direct implementation of the project, the project participants' circle may expand, as new participants may appear whose interests and rights will be violated.

Table 2. Key Participants of the Project

Investor	Credit Institution or Bank
Client	Private entrepreneur
The project consumer	Private entrepreneur
The project executor	The construction company created to implement the project
The project manager	The chief executive of the enterprise
The project team	The construction company created to implement the project
Contractors	Engaged organizations for connecting the territory to the city infrastructure (electricity, water, etc.) and pouring foundations for buildings
Suppliers	Voltaro 3D printer manufacturing company and the country's concrete factories

Source: authors' own development

In order to implement the project, it is planned to create a new construction company in the form of a Limited Liability Company (LLC). The company will be managed by a director who will be responsible for determining the main directions of the company's development, as well as the project development and implementation. His/her responsibilities include: solving strategic issues of the organization's activities, marketing activities, signing official documents; disposal of enterprise property, personnel hiring, and firing. The secretary reports directly to the director and carries out work on the organizational

and technical support of the administrative activities of the head of the enterprise. He accepts documents and personal statements for the signature of the head of the enterprise. The accountant is responsible for transactions with suppliers, accounting of income and expenses, wages payment in full and on time, as well as accounting and financial statements preparation. The designer is responsible for the houses design and the uniform style of construction on the settlement territory. In the case of a large volume of work, he is authorized to use outsourcing resources to solve tasks. The foreman is the leader of the construction team

and directly manages the workers, is responsible for the construction and work quality in the planned settlement, and forms the needs of the builders in materials. His duties also include monitoring the condition of the purchased 3D printer and its maintenance.

The sales department consists of several managers who work with customers, and their manager is a leading specialist of the department, who is engaged in improving the efficiency of his employees' work, motivating them, and reporting to the director. The head of the sales department is responsible for the final results of the department's work and sales performance indicators.

Effective advertising of the created village will play an important role in the success of the project. Before starting work, it is necessary not only to identify potential consumers of housing built according to innovative technology but also to conduct "explanatory work" with them. Thanks to this, the company will be able to increase the level of trust and "warm up" the target audience before the start of sales.

Understanding the features of the selected target segments, we hypothesize that modern Internet tools will help us collect the necessary data as quickly and qualitatively as possible because our potential consumers are active users of modern technologies, are interested in thematic events, and monitor the release of new products.

As part of promoting an innovative product and collecting data about the target audience, it is necessary to organize thematic events attended by potential consumers. Due to this, they will be able to personally interact with the innovative product, better understand how it works, and feel its benefits for themselves. In addition, the company will be able to adjust the price of the innovative product, identify and optimize its weak points, and understand how advertising messages will be best perceived by the target audience and how to effectively communicate with them.

As a result, after bringing the product to the market, the company will already have a pool of loyal audiences consisting of innovators. They will trust the new product, buy it and recommend it to others which will help start the natural diffusion of the innovative product in the market.

The main stages of the project development. At this stage, it is necessary to draw up a detailed project implementation plan with a phased distribution of time and financial expenses.

The purpose of the calendar plan is to obtain an accurate and complete schedule of the project, taking into account the works, their duration, and the necessary resource provision. Based on this, it includes:

- a) Determining the sequence of the works;
- b) Designing periods, durations, and logical connections of services;
- c) Calculation of financial and time expenses for the project implementation.

The planning structure is based on four phases of the project life cycle:

a) The conceptual phase is the initial stage of any project, during which the identified problem analysis, marketing research, technical and economic substantiation, and, as a result, final approval of the project concept or rejection of its implementation are carried out;

b) The planning stage – at this stage, the main components of the project are developed and the necessary preparation for its implementation takes place: team formation, the main content formation, structural planning, the contracts concluded with the main performers, and the project work organization;

c) The implementation stage includes work related to the project direct implementation, up to the final goal achievement, taking into account the constantly changing environment;

d) The completion stage – the results of the work performed are analyzed and the management process effectiveness is evaluated. As a result, this project is formed to capture the experience gained and its further use in the next projects of the company.

The critical path consists of the following tasks: defining the goals and objectives of the project, conducting marketing research, developing the business plan and its approval, finding investors, developing a project and forming a team, legal registration, and business registration, issuing a loan, concluding contracts with infrastructure organizations and infrastructure, pouring the foundation, printing houses, presenting the village, the management efficiency assessment, formation and delivery of the project archive.

The project manager – the director of the construction company to be created – will control the timing and quality of the launch stages implementation.

Since the project is based on assumptions about the future and is associated with uncertainty, its risks should be evaluated. The main objective of risk analysis is to determine the probability of occurrence and possible damage from the occurrence of a risk event.

Thus, the most dangerous risks for the project will be: non-compliance with the terms of construction and installation works; the project manager's insufficient experience; exceeding the project budget due to unplanned works.

Conclusions

The successful implementation of this project will lead to a number of positive effects for its key participants, as well as the city of Odesa and its residents:

a) Social – giving the Odesa oblast residents the opportunity to purchase a high-quality and comfortable house built in an ecologically clean place at prices comparable to housing in an apartment building, which can improve their life quality;

b) Public – Odesa suburbs infrastructure development. Reducing the unemployment rate,

thanks to the employment of 10 to 20 people as a result of opening the construction company;

c) Ecological – unloading the dense urban environment, reducing emissions, reducing the volume of construction waste as a result of using innovative technologies;

d) Tax – tax revenues to the budget of Odesa and the Odesa oblast;

e) Economic – the profit obtained as a result of project implementation, which will allow all the project participants to earn;

f) Commercial – after the project implementation, its manager team and customer will receive an innovative construction company that was able to implement a unique construction project for Ukraine and is able to successfully compete with other

participants in the country's low-rise construction market in the future;

g) Technological – popularization and implementation of innovative 3D printing technology in the country's construction industry. Increasing labour productivity and improving its conditions.

Summarizing the above, it can be concluded that the innovative project development in the construction industry of Ukraine will allow construction enterprises to gain a significant competitive advantage, shorten the construction period, increase the period of structures operation, save labour expenses and labour force, preserve the environment and increase the safety of life activities in the production itself.

Abstract

Relevance of the research topic. Every year, an aggressive external environment, oversaturated markets, and increased competition force businesses to become more flexible. Even for simple survival, companies need to constantly develop, bring new products to the market, optimize processes and conduct regular research. In order to solve these challenges, many businesses are using innovation, a powerful tool that can give you an edge and a chance to stay ahead of the competition.

Innovations also have a special strategic importance for the emerging economy of modern Ukraine, especially in the conservative construction industry, which has been experiencing a crisis in recent years. A decrease in purchasing power, an unstable economic situation, and other negative factors lead to the fact that developers leave the market, and the remaining players begin to save on their project quality or significantly increase prices.

In such conditions, reducing costs and increasing the productivity of business processes is the most urgent problem of construction enterprises, which can be solved by the rapid introduction of modern technologies, new developments, and modified technical equipment.

However, scientific knowledge and developments are important not only for creation but also for successful commercialization. Innovative product development is always associated with increased risks, primarily commercial, due to the unpredictability of consumer reactions. Only about 20% of new products achieve market success. And if the product is just introduced to a new market, this indicator drops rapidly to 6%.

Most of the failures are related to the fact that innovations arise based on new knowledge, not needs. Mistakes made in consumer research lead to the failure of the entire campaign. Buyers do not need a new product, but new benefits they can get from it. Therefore, before developing and introducing innovations to the market, companies should know and understand their target segment as best as possible.

Effective marketing research and accurate identification of small groups of target consumers are the most important stages of this process. Understanding future buyers' interests, problems, and behaviour patterns of should be the starting point for the successful commercialization of innovative products.

Knowledge of these features can help construction companies conduct effective, narrowly targeted advertising campaigns that will give the maximum return and allow the successful commercialization of an innovative product, thanks to overcoming perception barriers and affecting the necessary emotions of the target audience.

The aim of the study is to develop a methodological approach and recommendations for the more effective development of an innovative project in the context of identifying potential consumers in the construction industry.

Objectives of the study:

a) Consider theoretical aspects of marketing innovations and analyze existing methods of identifying potential consumers;

b) Analyze the market of low-rise construction, diagnose the preferences of target consumers and develop a methodological approach to identifying potential consumers of the product of an innovative project in the construction field;

c) Develop the concept and main stages of the cottage settlement construction project using innovative technologies based on the developed methodological approach, and assess the project risks and effectiveness for the key participants.

The object of this study is the market of products of innovative projects in the construction industry. The subject is an organizational and managerial activity of finding potential consumers of the innovative project product.

Research methods. Marketing tools, as well as project management tools, were used as methodical tools in this work. Ranking and forecasting methods, expert-logical methods, generalization, grouping, as well as tabular and graphic methods of presenting the obtained results were used to solve the tasks. In the theoretical part of this work, the exceptional role of innovation and marketing in the competitiveness and successful operation of organizations was considered. The features of the innovative market, its specific characteristics, and the role they play in the development and introduction of new products to the market are analyzed.

In the course of the study, the special role of "innovators" and "early followers" in bringing an innovative product to the market and its subsequent commercialization was highlighted, as the importance of the personal influence of people in the spread of innovations (especially at the stage of innovation evaluation) was assessed, and modern methodological approaches to the potential consumer identification of the innovative project product. The project for the construction of a residential settlement in Odesa suburbs was developed. For its implementation, it is planned to create a construction company in the form of a Partnership with a Limited Liability Company (LLC). Its main competitive advantage will be the use of innovative 3D printing technology, which will reduce costs, improve the construction quality and significantly increase the speed of construction work.

As part of the project, its idea and concept were developed. Then, based on them, a calendar plan was drawn up, after which the project risks were analyzed, the most likely of which was:

- a) Non-compliance with the terms of construction and installation works;
- b) The project manager's insufficient experience;
- c) Exceeding the project budget due to unplanned works.

The final stage of the work was the assessment of the project effectiveness, taking into account all the main impacts on society, the city, the economy of the region, and the key participants of the project.

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