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# Trends of Marketing Innovations in the Market of Construction Products

Oleksandr Deineha<sup>1</sup>, Oksana Palamarchuk<sup>2</sup>

<sup>1</sup>Department of Management, Rivne State University of Humanities

<sup>2</sup>Department of Economics and Business Management, Rivne State University of Humanities

**Abstract** - Modern construction companies when planning their own activities must take into account the current needs of consumers, which allows them to form a competitive offer in the market. The results of the study of the local construction market showed such priority needs of consumers when choosing housing as comfort, safety, energy efficiency, architecture, «yard without cars». It is established that any innovations in the field of construction have significantly positive consequences. Buyers have significantly expanded the range of choices not only by price or location of housing, but also by the number of bonuses provided by developers. In addition to the types of innovations and their application, which were identified during the evaluation of the development of construction companies at the local level, the condition of construction projects of each city developer was assessed. According to the results of the study, three groups of enterprises were identified by the intensity of the use of innovations in their activities: innovators, moderate innovators, outsiders.

**Index Terms** — competition, innovation, market research, consumer needs, effective demand, market share

## I. INTRODUCTION

The challenges of the external environment with its limitations on human life are a significant stimulus for innovative development of construction companies, the operation of which primarily ensures the growth of non-current assets in the economy and to some extent determines its efficiency. The purpose of the article is to study the level of innovative development of construction companies in Ukraine, to establish the level of development of innovations in the processes of their activities with the separation of the type used at the local level.

Some aspects of ensuring the innovative development

of enterprises are thoroughly reflected in the research of domestic and foreign scientists. Scientific concepts of innovation theory are covered in the works O. Baranova, O. Bilovods'koyi, N. Bondarenko, L. Del'beksa, S. Ilyashenka, L. Kantorovycha, M. Kondrat'yeva, H. Mensha, U. Mitchela, R. Nureyeva, O. Pyestovoyi, T. Raynova, V. Rasykhinoyi, P. Tkachenko, Dzh. Forrester, K. Fridmena, O. Chepurnoyi. The category «innovative development» is the subject of research in the works P. Sabluka, S. Sirenko, YU. Pohoryelova, R. Fatkhudinova, L. Fedulovoyi. Scientists have made a significant contribution to solving general and sectoral problems of construction development S. Abramov, A. Asaul, N. Bakusheva, S. Bushuyev, A. Hoyko, O. Hrytsenko, I. Dmytruk, V. Zarenkov, K. Izmaylova, V. Torkatyuk, H. Stadnyk, competition issues in the field of construction - L. Holovan', P. Sapiha, S. Irkhina. However, at the same time, the issues of assessing the level of innovation development in the processes of construction enterprises with the separation of their type taking into account the regional aspect remain poorly studied.

## II. MATERIALS AND METHODS

Today, domestic developers are more focused on ensuring the high quality of work performed, the introduction of energy-saving technologies, as well as optimal and functional planning as opposed to attracting innovation.

The main reason why advanced technologies are not widely used in Ukraine is the low solvency of a large part of the population. The arrival of new technologies in Ukraine depends in part on the level of investment in construction, on the possibility of attracting so-called «long money» to the local market. Developers are waiting



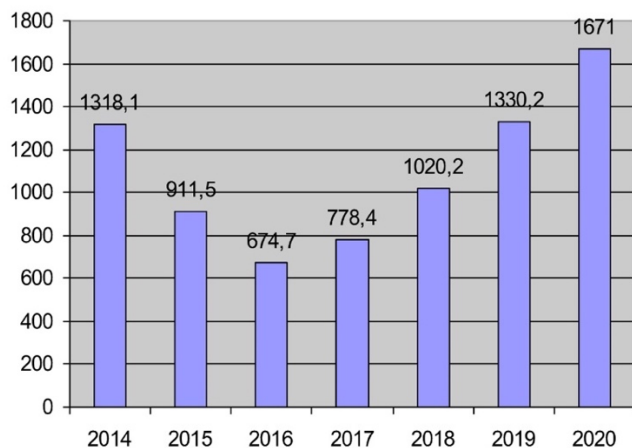
for the resumption of mortgage lending.

The management mechanism of the housing market is also complex, which in many respects has an unregulated nature of activity. Today, the state does not have effective levers of influence on the housing market, which has a very negative impact on the ability of citizens to solve their housing problems. First, this is manifested due to the shortage of housing supply, which significantly increases its prices. On the other hand, the lack of a state order for housing does not make it possible to regulate its supply by the state and restrain prices. The other side of the problem is the overly complex and burdensome mechanism for issuing permits for land allocation, construction work, connection of new buildings to urban communications, and so on. This situation also creates a financial burden on developers and increases the cost of housing (S. Shkarlet, V. Il'chuk, 2015).

Despite all the obstacles associated with the introduction of innovations, the high demand for housing has caused the so-called «boom» of construction throughout Ukraine. The city of Rivne, which is a regional center with a population of about 250,000, is no exception. That is why the construction market of Rivne was chosen to assess the practical results of innovative development of enterprises.

The number of construction companies that have already built and put into operation residential buildings and residential complexes, as well as continue to develop the city, in Rivne is quite significant. In 2020, the volume of construction products in monetary terms compared to 2014 increased by 1,27 times (Figure 1).

FIGURE 1. DYNAMICS OF THE MARKET OF CONSTRUCTION PRODUCTS IN UAH MILLIONS OF RIVNE REGION, 2014 - 2020



Source: formed by the authors on the basis of materials Website of the Main Department of Statistics in Rivne region

However, at the same time there is a decrease in the share of construction products in Rivne relative to the total regional production of construction products. If in 2014

the share of the city in the total regional volume was 84,4%, then in 2020 - only 51,2% (Main Department of Statistics in Rivne region).

Statistical data show a systematic increase in the volume of housing construction both in the city of Rivne and in the Rivne region as a whole. One-apartment residential buildings are in the greatest demand on the regional market (Figure 2).

However, as rightly noted by G. Stupniker, we cannot assume that demand in the real estate market exceeds supply. Most often, demand is really only a potential opportunity, ie a need that is not supported by real financial assets (H. Stupniker, 2016, 89 pages). This thesis is supported by statistics. In recent years, the structure of construction products in Rivne region has seen a significant reduction in new construction, due to falling effective demand caused by the Kovid-19 pandemic (Figure 3).

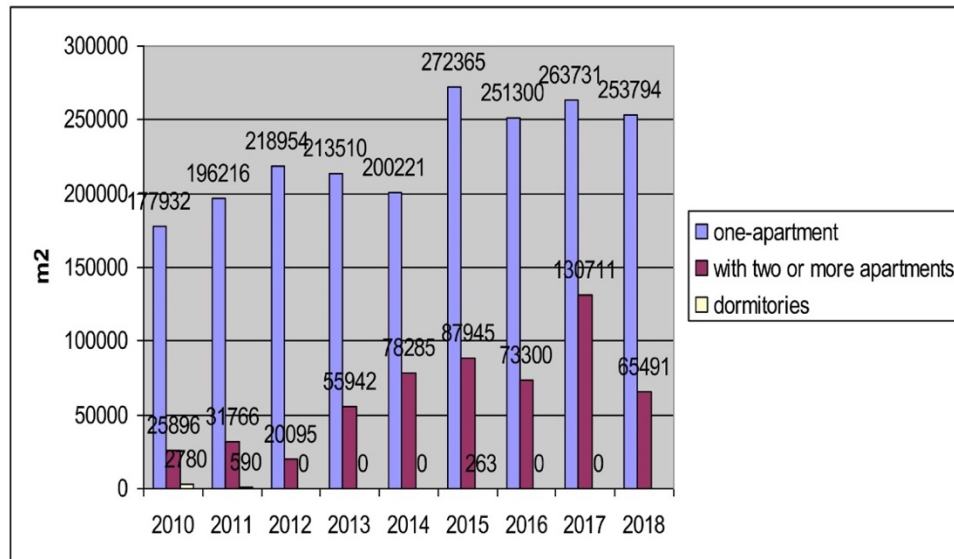
The level of innovative development of construction companies can be assessed in some places through the study of the housing market. To ensure innovative development, it is necessary to apply innovations. In the economic literature, there are classifications of innovations depending on certain characteristics: by cause, by scope, by market orientation, etc. (P. Mykytyuk, 2015). To clarify the specific market-specific criteria for segmentation of construction companies, the market for newly built housing was monitored at the local level. To this end, construction companies in Rivne were identified, operating in this segment during 2018 and including the first quarter of 2020. This made it possible to characterize the innovative development of construction companies by the types of innovations they use in their activities.

The study used information from electronic sources (Sites of real estate agents in Rivne), which are the official websites of local construction companies, developers and real estate services.

According to the results of the study, three groups of enterprises were identified according to the intensity of the use of innovations in their activities:

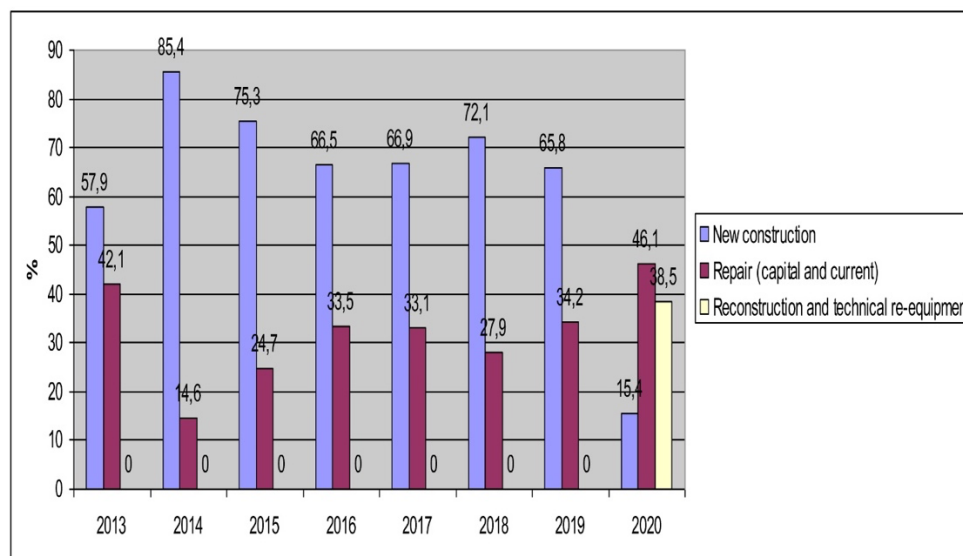
- Enterprises-innovators: DBK Bud Plyus, Stohrad, Renome, Association Our Format, DBN Development Business Novations.
- Enterprises are moderate innovators: SC Kvartal, HC New city, Ranh, Smart Group, BCM, SC Rivbud, Fine City Development, HC SC Theatrical, «Sunset», Apartament-Bud, Amber Cottage, Rivne yhc, SC «Rivne», NK Group, Lake Pearl, Luxury House Group, Optimus, Sunny Valley.
- Outsider companies: A.V. Groups, SK Group, Club House, Familiya, LakeLand, Eco House, New Era, INTERBUD.

FIGURE 2. DYNAMICS OF DEVELOPMENT OF THE CONSTRUCTION MARKET OF RIVNE REGION, 2010 - 2018



Source: formed by the authors on the basis of materials Website of the Main Department of Statistics in Rivne region

FIGURE 3. DYNAMICS OF THE STRUCTURE OF CONSTRUCTION PRODUCTS OF RIVNE REGION, 2013 - 2020



Source: formed by the authors on the basis of materials Website of the Main Department of Statistics in Rivne region

Among the types of innovations used by the mentioned enterprises, the following are defined as: social, financial, ecological, target and information / digitalization. Each of the types of application of innovations is illustrated for an individual enterprise in the expression of a specific example. Most of such enterprises use only technological innovations in their activities, which does not allow them to occupy higher positions among the rest.

Almost all developers claim to use modern engineering systems and new construction technologies, which saves on utilities. However, despite these technological innovations, this is not a convincing fact when buying a home from a particular developer.

Each of the enterprises simultaneously demonstrates a

number of advantages and conveniences for its customers, which is expressed in the developed infrastructure, namely good logistics / geographical proximity to the hospital, shopping center, market, shops, kindergartens, schools, passenger traffic, underground or ground parking, garage boxes, commercial premises, etc.

However, it should be noted that this list has become traditional for home buyers. Modern customers have become quite demanding, especially when it comes to choosing an apartment in new buildings. This fact encourages construction companies to use non-standard approaches in their own activities to attract the attention of real home buyers and forms a relevant structure of measures to attract potential customers.



Another reason for customers' attention to developers is determined by class, because the higher the class of the house, the more opportunities for its inhabitants: the LCD has not only a playground and shop, but also sports arenas, educational institutions, restaurants, cafes, beauty salons, parking lots etc (Mind Club).

Any business is responsible to the city, especially if it is the real estate sector, which takes into account the fact that in the XXI century. it is not just construction, but the sphere of development, which involves not only the development of the construction business, but also the place where construction takes place. The developer is an innovator and therefore always worries, for example, about a sufficient number of parking spaces, or provides underground parking near the residential complex.

Parking spaces are land, and therefore, additional costs of the developer, so it is usually a platform to not keep promises and unscrupulous work near the houses. Paying attention to the number of parking spaces near your future home, you can assess the level of «generosity» of the selected developer. By providing the future house with the necessary number of parking spaces, the developer actually saves the city from excessive traffic, from gassiness and discomfort in pedestrian areas, which are often forced to become parking spaces. Such facts make it possible to measure the effectiveness of the developer for the city (DOM.RIA).

Today, developers pay a lot of attention to the formation of not just a place to live, but a whole living space. Within the framework of this concept, adjacent parks and / or areas for family recreation are created or improved on the territory of the residential complex. The price in such complexes is 10-25% higher than in ordinary new buildings located in the neighborhood. However, even within one residential complex, the cost of an apartment of the same area may differ, because one house has already been put into operation, and another is just beginning to build. Thus, this leads to a difference in cost, which can range from 10% to 30% (Mind Club).

In some projects, an important role is played by the «species» component - the panorama that opens from the windows. Spectacular apartments are those from which you can see the river, lakes, major cultural or historical monuments, etc. Such housing can also cost 10-30% more than similar, but with a different view.

The cost of housing is also affected by construction technology. Apartments in houses built on monolithic-frame technology are cheaper than in new brick buildings. The calculation of indicators does not consider the influence of emotional factors: the reputation of the developer, marketing activity, the attractiveness of the design and concept of projects, etc. (Mind Club).

The monitoring of the innovative development of construction companies and related market participants demonstrates the level of innovation use by each company in particular. Technological innovations applied by all developers without exception provide much more efficient, safer and cost-effective operation of buildings in the long run. In addition, innovations increase the efficiency of construction itself.

Modern technologies simplify and speed up many processes, increase the life cycle of the building and reduce production costs.

The results of a study of the local construction market suggest that buyers have significantly expanded the range of choices not only by price or location of housing, but also by the number of bonuses provided by developers. In the course of own research, it was established that modern construction trends in Rivne include comfort, energy efficiency, safety, architecture, «yard without cars» (Table 1).

TABLE 1 CURRENT TRENDS OF THE LOCAL BUILDING MARKET

Component of the proposal of construction companies	The content of the component	Features of application in the regional market
<b>Comfort</b>	level of development of a comfortable environment that has everything you need for life and leisure	when buying a home, people pay attention not only to the number of storeys of the apartment and its layout, but also to the choice of a comfortable environment in which everything will be necessary for life and leisure
<b>Security</b>	the level of physical and emotional security of homeowners	protected yards of residential complexes, separate security and notification technologies provide maximum comfort to residents and peace for children. It is also important to have armored and fire-prevention entrance doors in the apartments, the obligatory elements of which must be locks, a fire resistance limit of at least 30 minutes and a certificate of conformity. The modern housing and communal services take into account the daily needs of future residents. Many new buildings have supermarkets, cafes, restaurants, cafes, kindergartens, private clinics, beauty salons and spas, bank branches, fitness centers, playgrounds and sports grounds, etc.
<b>Energy efficiency</b>	housing with minimal heat loss and minimal environmental impact	requirements for the quality of construction are growing every year. The housing of the future should be as energy efficient as possible with minimal heat loss and minimal impact on the environment. More and more responsible Rivne developers are building housing using monolithic

Component of the proposal of construction companies	The content of the component	Features of application in the regional market
		frame technology, exterior walls made of ceramic blocks, and insulation is provided by high-quality mineral wool. The number of residential complexes with their own boiler houses is increasing, and alternative energy stations are being installed. High quality applies to both facades and panoramic windows, which give more light and create comfort in the apartment.
Architecture	individual non-standard approach to the choice of exterior and interior of houses	individuality above all. Every buyer wants to see not only quality construction, but also the aesthetics and style of their new home. Gray buildings have been replaced by bright facades, a harmonious combination of glass, concrete, metal structures in whimsical design solutions. Residential complexes in Rivne have become more unique.
«Yard without cars»	reducing the load on the ecosystem of the yard of a residential building by reducing the number of cars	the concept is at the peak of relevance in all cities, including Rivne, because the number of car owners is growing every year, and there are not enough parking spaces. At the local level, developers are already beginning to implement this concept. There are no roads for cars in the courtyards. Playgrounds and recreation areas are not located near the roadway. For cars there are places in several level underground parking lots and on perimeter of complexes

Source: formed by the authors on the basis of materials Site Kurs, Pro Zhytlo

It is obvious that any innovations in the field of construction have significant positive consequences, both for the subject of construction and for their subsequent consumers. In addition to the types of innovations and their applications, which were identified during the evaluation of the development of construction companies at the local level, the condition of the construction sites of each developer of the city was determined. Information was collected on the number of already built and commissioned residential buildings, as well as the number of

residential buildings included in the residential complex of each individual developer. The number of construction companies and their facilities that continue the construction process has also been determined: ongoing, under construction or construction «frozen».

The collected information fully makes it possible to determine the value of the Herfindahl-Hirschman index, which is used to assess the degree of monopolization of the industry in the local market. It was found that in the construction market of Rivne there are about three dozen enterprises, which gives the right to say that this market is sufficiently saturated. The calculation of the Herfindahl-Hirschman index makes it possible to determine the level of concentration of enterprises in the construction market.

It is calculated as the sum of the squares of market shares (sales) of each enterprise in the industry:

$$HHI = S_1^2 + S_2^2 + \dots + S_n^2 \quad (1)$$

*HHI* – the value of the Herfindahl-Hirschman index

*n* – number of enterprises in the market

*S<sub>n</sub>* – market share of the n-th enterprise, %.

The value of the index can be in one of three positions:

- index has a value below 1000, ie  $HHI < 1000$  (it is easy for a new firm to enter the market) - a slight concentration of the market;
- index has a value from 1000 to 1800, ie  $1000 < HHI < 1800$  - the average market concentration;
- index has a value above 1800, ie  $1800 < HHI < 10000$  (it is difficult for a new firm to enter the market) - high market concentration.

Before calculating the value of the Herfindahl-Hirschman index, determine the market share of each construction company.

The quantitative indicator of market share relative to competitors is determined by the percentage of sales, and in our case - the number of delivered objects, to the total sales of goods of the same category in the market, ie to the total number of handed over houses by all enterprises.

For this purpose, input data were generated to calculate the market share of each developer, divided into groups: innovators, moderate innovators and outsiders (Table 2).

### III. RESULTS AND DISCUSSION

Thus, the following results were obtained:  $HHI_1$  is 1720,67, which indicates the average concentration of the construction market in Rivne, as it lies within  $1000 < HHI < 1800$ .  $HHI_2$  is 866,49, which indicates a slight concentration of the construction market in Rivne, because the index has a value below 1000, ie  $HHI_2 < 1000$  (minor barriers to market entry).

Summarizing the calculations of the degree of monopolization of the construction industry at the local level at a certain value of the index, it should be noted that it characterizes the average concentration, there is intense

competition, which is a prerequisite for high quality construction products. In addition, only 81 units of the result  $HHI1 = 1720,67$  distinguish from the value of the index, which is a high concentration of the market, ie  $1,800 < HHI < 10,000$ , which indicates significant barriers to entry of a new company in this market.

TABLE 2 THE STATE OF COMPETITION AND CONSTRUCTION PROJECTS IN RIVNE

No	Developer	Residential buildings handed over	Start / Continues / Construction of residential buildings has been suspended	The share of enterprises in the construction market, % (handed over residential buildings)	Share of enterprises in the construction market, % (start / continues / suspended construction residential buildings)
<b>ENTERPRISES - INNOVATORS</b>					
1	DBK Bud Plyus	27	-	33,33	0,00
2	Stohrad	15	4	18,52	13,33
3	Renome	9	-	11,11	0,00
4	Association Our Format	7	-	8,64	0,00
5	DBN Development Business Novations	4	4	4,94	13,33
<b>ENTERPRISES MODERATE INNOVATORS</b>					
6	SC Kvartal, HC New city	2	2	2,47	6,67
7	Ranh	2	-	2,47	0,00
8	Smart Group	1	4	1,23	13,33
9	BCM	1	2	1,23	6,67
10	SC Rivbud	1	1	1,23	3,33
11	Fine City Development	3	-	3,70	0,00
12	HC SC Theatrical	1	-	1,23	0,00
13	«Sunset»	1	-	1,23	0,00
14	Apartament-Bud	1	-	1,23	0,00
15	Amber Cottage	1	-	1,23	0,00
16	Rivne YHC	1	-	1,23	0,00
17	SC «Rivne»	1	-	1,23	0,00
18	NK Group	1	-	1,23	0,00
19	Lake Pearl	1	-	1,23	0,00
20	Luxury House Group	1	-	1,23	0,00
21	Optimus	-	3	0,00	10,00
22	Sunny Valley	-	1	0,00	3,33
<b>ENTERPRISES - OUTSIDERS</b>					
23	A.V. Groups	-	1	0,00	3,33
24	SK Group	-	1	0,00	3,33
25	Club House	-	1	0,00	3,33
26	Familiya	-	1	0,00	3,33
27	LakeLand	-	1	0,00	3,33

28	Eco House	-	2	0,00	6,67
29	New Era	-	1	0,00	3,33
30	INTERBUD	-	1	0,00	3,33
Together		81	30	100	100

Source: Based on the size of the market share of the surveyed enterprises, the Herfindahl-Hirschman index was calculated first among those enterprises that built and handed over the finished HHI1 facilities, and then among those that started, are completing or are currently suspending construction - HHI2.

According to the results of the calculations, it is possible to recommend the local authorities of Rivne to control the level of market saturation by construction companies, as the limit of exceeding the Herfindahl-Hirschman index, which will be a high market concentration, can be reached very quickly. A higher value of the index creates conditions for less competition and is a prerequisite for the emergence of risks for customers. This is very often the result of mergers of construction companies. In Western countries, antitrust law applies in such cases.

Regarding the value of the HHI2 index (866,49), there is a slight saturation of the construction market in Rivne with enterprises that have just started, have not yet completed or suspended the construction of new facilities, as the index has a value below 1000.

A study of the level of capital investment in the activities of construction companies suggests that for most of them there is a need for their financial recovery.

In Rivne region, measures are taken to create favorable conditions for intensification of investment activities, modernization of the economic complex of the region, ensuring integrated use and conservation of natural resources, improving the use of transit and tourist-recreational potential of the region, solving employment problems. There is a specialized agency for attracting investments and investor services «InvestInRivne», which works on the principle of «single window» for investors, which facilitates the process of their entry into the business environment of the region and is a «point of contact» to establish investor relations with the authorities, enterprises, institutions and organizations of Rivne region.

The agency provides support to investors at all stages of preparation and implementation of their projects, works closely with international, national and regional partners to provide investors with key information needed for decision-making.

In particular, the Western Regional Representation of the State Innovative Financial and Credit Institution operates in Rivne, the purpose of which is to attract domestic and foreign investments for the development of the real sector of the economy, increase domestic potential for exports commodity producer and implementation of financial support for innovative activities of economic entities of various forms of ownership.

In the Rivne region the industry of production of building materials and glassware is well developed. The production of building materials and glassware is based on local raw materials, respectively, its development is closely linked with the development of the extractive industry and construction trends in the region. Forest resources are one of the largest in Ukraine. In addition, raw materials are available to produce

rubble, cement, lime, brick and facing tiles. Basalt stone suitable to produce heat-insulating and facing materials is also mined in the region. In the Rivne region there is one of the largest cement production enterprises in Ukraine, as well as three of the ten largest glass factories in Ukraine.

Given the provision of housing for the population of Rivne region, it is obvious that it is insufficient, after all, as in other regions of Ukraine.

Summarizing the main purpose of the direction of innovative development of enterprises should be to ensure their transition in the shortest possible time to an innovative model of development.

Such shifts are possible during several structural and functional changes in the management system, which should contribute to the expansion of opportunities to sell competitive products. This, in turn, will meet the qualitatively growing needs of the country's economy and personal consumption, which, as a result of the analysis, illustrate the construction companies at the local level.

According to the results of the study «Reinventing innovation Five findings to guide strategy through execution. Key insights from PwC's Innovation Benchmark», the most representative indicator of enterprise innovation is the indicator «Sales growth»- it was chosen by 69% of respondents (PwC's Innovation Benchmark Report 2017).

According to the «Customer Satisfaction Rating» as the most representative indicator of the company's innovation, it is considered by 43% of respondents; «The number of new ideas in the" portfolio» - 40%; «Market share» - 36% of respondents; «Number of products in the portfolio» - 31%; «Net value of the innovation portfolio» - 28% of respondents; «Market time» - 24% (PwC's Innovation Benchmark Report 2017). We support this approach and, thus, we believe that it is more complete, informative and correct in terms of understanding innovative entrepreneurship.

#### IV. CONCLUSIONS

Thus, for enterprises, innovation has a target function that must meet existing needs or form new ones. The introduction of innovations in production or management changes the quality parameters of the production and management system of enterprises. The greater the mass of innovation, the better the changes in social and production systems.

The construction sector, in particular, housing construction is considered one of the priority sectors of the economy. Today, it shows a growing trend in the number of enterprises engaged in the construction of both residential and non-residential buildings.

Admittedly, according to official and expert data, the market segment in which construction companies operate is expanding and this may be a sign of favorable macroeconomic processes.

The monitoring of the newly built housing market at the local level gives the right to say that the market is attractive, competitive, and the leaders among all participants in the market are those who most successfully and widely use various innovations in their production programs.

The direction of further research will be to study the motives of construction companies to apply innovations for the sake of their progressive development.

According to the analysis of the construction market at the local level, three groups of enterprises were identified according to the intensity of the use of innovations in their activities: leaders (5), moderate innovators (17), outsiders (8). The degree of monopolization of construction market enterprises at the local level using the Herfindahl-Hirschman methodological approach is estimated.

The level of saturation of the local market with construction companies, which built and handed over finished objects, was determined as the average concentration, where HHI1 is 1720,67, as it is within 1000 <HHI <1800; construction companies that have started, are completing or are currently suspending construction has a small concentration, where HHI2 is 866,49, as HHI2 <1000 (there are no barriers to entry for new companies).

It is proposed to recommend local authorities to control the construction market by the level of saturation of construction companies.

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