Development trends in suburban real estate sector

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Abstract. The authors of the research work, based on the analysis of market development trends and key success factors, form a SWOT matrix for out-of-town real estate objects under construction and calculate the evaluation of the matrix factors, which are used to determine the current and desired position of the object of construction in the positioning field. The main research methods are formal-logical, abstract, and empirical. Statistical methods (groupings, averages) and methods of expert evaluations were used to determine the most significant factors of SWOT matrix and to develop perspective directions of development projects' development. In order to improve market positions of out-of-town real estate objects under construction and to transfer their desirable position on the positioning field, the authors elaborate directions of development projects' development. These include the introduction of "green building" and energy-saving technologies, the use of modular construction, BIM technologies and the use of innovative materials. To increase the attractiveness of the objects under construction, development companies are recommended to carry out integrated development of the territories in the construction of cottage settlements. To increase the affordability of built objects, conversion of potential demand into real demand, the authors recommend the active use of mortgage lending system in the construction of residential housing, development and implementation of infill development of individual territories.

1 Introduction

Construction is a key sphere that acts as a driving force for renewal for all industries and spheres of production, as it performs the reproduction of the passive part of fixed assets. Therefore, the works of many academic economists are devoted to the study of modernization and innovative development of the investment and construction complex [1-4], the study of energy-efficient technologies [5-7], the study of environmental aspects and "green construction". [8-12]. In recent years, issues of construction management and development as a way to implement real estate development projects have come to the fore [13-16].

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The analysis of scientific works by domestic and foreign researchers shows that many issues in the field of development project management are underdeveloped. The issues of innovative development of construction need to be updated taking into account changing external and internal conditions.

The methodological aspects of assessing the effectiveness of the implementation of measures to improve the competitive position of the object under construction need to be developed.

The aim of the research is to work out the directions of development projects on building of countryside real estate on the basis of evaluation of factors of SWOT matrix and determination of position of object on positional field.

Proceeding from the aim of the research, the following tasks are defined:
1. Determine the development tendencies of rural real estate.
2. Build a SWOT matrix, perform the factor evaluation.
3. Work out directions of development projects’ development.
4. Identify the current and desired position of the property under construction in the positioning field.

2 Materials and methods

Methodological basis of the study is a systematic approach, which allows to consider the development of development projects as a holistic process, including many stages and elements. The methods of research were used as formal-logical (deduction, induction, reasoning, argumentation); abstract-logical, empirical (observation and experiment). The statistical tools used were grouping methods, mean values, weighting values, as well as graphical and tabular methods of presenting the results of the study.

3 Results

Let us consider the main trends in the out-of-town real estate market in 2021-2023.

The demand for countryside real estate has increased in recent years. This is due to the coronavirus pandemic and an increase in the ability to work remotely. However, there is a discrepancy between the supply and demand structure for residential and low-rise construction. Thus, the vast majority of buyers (65%) are focused on budgets up to 5 million rubles; 17% are in demand for properties with budgets over 10 million rubles. In terms of supply structure, only 35% of out-of-town properties are in the price range of up to 5 million rubles. In this regard, many people decide to purchase a plot of land with the subsequent construction of a residential house. According to many experts, there will be an increase in demand for turnkey projects.

In the last year, the cost of construction of 1 sq m has increased. This is due to the rise in prices for materials and labour. Breaking logistical chains and searching for Russian counterparts have led to an increase in construction time. In 2022, the price of some domestic construction materials decreased. For example, timber became 50% cheaper on average and aerated concrete 60% cheaper.

The trend in 2023 is a trend toward economical and environmentally friendly materials. According to CIAN experts, the most demanded building materials are gas silicate block (about 34%), frame fast construction (32%), wood, etc. (about 34%). Modern building materials reduce the cost of construction.

In the high-budget construction segment, construction costs of out-of-town properties are forecast to increase by 20-25%. This is due to the difficult geopolitical situation and rising prices of imported raw materials.
In recent years, banks have become more active in lending for residential housing. Thus, in 2022 compared to 2021 the number of loans issued has increased by 16%. In December 2021 amendments were introduced into the residential housing legislation according to which it is recommended to enter into escrow account agreements between a developer and a customer (investor). This will reduce the purchaser's risks, as the latter transfers money to a special bank account, and the money is frozen until the construction work is completed. The developer receives the funds only after the house has been built and commissioned.

In recent years there has been a steady increase in the price of suburban properties. In 2021 there was an increase of around 20% and in 2022 an increase of 15%. At the beginning of 2023, the real estate market is stagnating, and many analysts anticipate the possibility of a price decrease of up to 10% for suburban properties in the first half of the year.

Sales in the elite segment of countryside real estate are actively falling and the number of deals concluded is decreasing. In 2022 compared to 2021, activity on the market decreased by 30%, the fall in transactions made was 40%. Many experts predict a further contraction of the market and the volume of deals concluded in 2023.

To identify the current position on the out-of-town property market, consider the SWOT matrix for the Samara region. Based on the study of key success factors (KFU) of development projects in the field of cottage village construction and analysis of macroenvironment factors, the article reveals favourable factors (strengths and opportunities) and unfavourable factors (weaknesses and threats) of the internal and external environment.

Based on the method of expert assessments, using leading real estate professionals and development and construction companies executives as experts, we investigated the factors-SWOT in terms of their degree of expression (on a five-point system) and significance (in fractions of units).

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
<th>Weaknesses</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural location, favourable environment</td>
<td>4</td>
<td>0.16</td>
<td>0.64</td>
<td>Increased construction time</td>
<td>1</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Industrial construction method, integrated land development</td>
<td>3</td>
<td>0.12</td>
<td>0.36</td>
<td>Increase in the cost of 1 sq m in the premium segment</td>
<td>2</td>
<td>0.11</td>
<td>0.22</td>
</tr>
<tr>
<td>Suburban properties with organised services and community</td>
<td>3</td>
<td>0.12</td>
<td>0.36</td>
<td>Low application of innovative solutions</td>
<td>4</td>
<td>0.10</td>
<td>0.40</td>
</tr>
<tr>
<td>Environmentally friendly and energy efficient materials</td>
<td>2</td>
<td>0.1</td>
<td>0.20</td>
<td>Poor infrastructure and lack of social facilities</td>
<td>3</td>
<td>0.18</td>
<td>0.54</td>
</tr>
<tr>
<td>Total</td>
<td>1.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>1.27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
<th>Threats</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially high demand for suburban property</td>
<td>4</td>
<td>0.15</td>
<td>0.60</td>
<td>Imbalance in the supply and demand structure</td>
<td>4</td>
<td>0.16</td>
<td>0.64</td>
</tr>
<tr>
<td>Expansion of bank lending programmes for housing estates</td>
<td>3</td>
<td>0.12</td>
<td>0.36</td>
<td>Market stagnation, uncertainty</td>
<td>5</td>
<td>0.12</td>
<td>0.60</td>
</tr>
</tbody>
</table>
SWOT analysis addresses site strengths and market opportunities, reducing or eliminating weaknesses and circumventing threats. Strengths and weaknesses are internal factors that can be controlled and managed by the organisation. Opportunities and threats are external environmental factors. They cannot be influenced by the organisation, but their dynamics need to be monitored and policies need to be aligned with current trends and market forecasts.

According to the presented SWOT matrix, the strongest positions for realizing development projects for building cottage settlements are natural location of objects, favourable ecology, industrial way of building and complex development of territories, organized service and community. The use of environmentally friendly and energy-efficient materials in construction is a weakly expressed strength; by refining it, the company’s position can be improved. Highly pronounced weaknesses include poor infrastructure, lack of social facilities and low use of innovative solutions. By eliminating or mitigating these weaknesses, developers will improve their competitive position. The most pronounced opportunities are the potentially high demand for suburban properties and the expansion of bank lending programmes. The key external threats include imbalance in supply and demand structure and stagnant real estate market, uncertainty of the situation. By designing and implementing development projects with favourable and unfavourable external factors in mind, the firm can reap additional benefits.

Let us consider each area of improvement of the above measures in more detail.

The use of environmentally friendly and energy efficient materials is a key development area for the modern property development company. The introduction of green building or sustainable construction involves the use of natural building materials, versatile, recyclable materials such as natural stone, composite and fibre cement panels, cement, metal structures, as well as the use of man-made materials that do not have a harmful effect on humans and the environment.

The introduction of energy-saving materials and technologies is based on the rational use of energy resources during the operation of the suburban property. This is achieved through reinforced insulation of walls, roofs and foundations, installation of energy-efficient insulating glass units, door profiles, installation of supply and exhaust ventilation with heat recovery and filtration systems. Energy saving lighting uses panoramic glazing, light domes, wind generators and solar panels. The use of utilities with thermostats and heat sensors reduces the cost of hot water and heating.

One of the weaknesses identified by us is the low application of innovative solutions. Consider the key areas of innovative construction:

1. Modular construction is a way of building, based on assembling prefabricated elements and modules. Its advantages are fast construction lines, technological effectiveness and quality, autonomy, possibility of full-scale recycling and use in new construction.
2. 3D printing of buildings is based on the automation of the process and the use of construction 3D printers to create a model of the house and print its individual parts or the house (walls) as a whole. It is an environmentally friendly, cost-effective and fast-building...
technology, the main drawback being the high requirements for the building mixes used in the construction 3D printer.

3. Application of artificial intelligence and BIM technology. Information and computer modelling technology is used both for design decisions and for the development and digital visualisation of building structures and engineering networks. The use of these technologies helps to minimise the likelihood of design errors and construction risks.

4. Using robotics, drones, and remote monitoring systems on construction sites. The use of robots is possible in processes such as bricklaying, drilling, palletising loads etc. The use of drones and remote control systems allows for surveying the terrain, adjusting the decisions made, and remote control of the construction site.

5. Application of innovative materials. Innovative developments in construction are being actively pursued. Recent innovations include glass tiles, warm bricks, self-repairing, conductive or translucent concrete, and flexible ceramic tiles. The use of new materials will allow the benefits to be exploited and attract additional customers, revitalising demand. However, this most often brings with it not only benefits, but also additional costs, so it is advisable to use technical innovations primarily in the construction of premium houses.

According to the SWOT matrix, the strong disadvantages are poor infrastructure and lack of social facilities. In order to attract consumers' attention and create demand, the infrastructure of the cottage community can be actively developed, including not only landscaping, but also the construction of facilities such as fitness rooms, co-working spaces, business centres, leisure and development centres, etc. The lack of social facilities such as clinics, hospitals, kindergartens, schools, etc. in relative proximity to suburban houses is a key problem which can only be solved by combining the efforts of several developers and state support using various forms of public-private partnerships.

Analysing the external factors of the SWOT matrix, the opportunities include a potentially high demand for suburban real estate and the expansion of bank lending programmes for residential housing. The coronavirus pandemic, the expansion of remote working opportunities and the trend towards healthy lifestyles are leading to an increased demand for country living. However, the high cost of suburban properties significantly reduces the enquiries or solvent needs. According to experts, the majority of requests for countryside properties (65%) are designed for a budget of up to 5 million roubles. In terms of the supply structure, only 35% of country properties are in this price range. There are several options for solving this problem:

1. Reduction of construction costs and, consequently, reduction of the price of the finished object through the use of innovative solutions and technologies. This, according to some experts, will reduce costs by up to 40%.

2. Reducing the area of objects under construction to 100-150 sq.m. with rational planning will reduce the budget for the purchase of suburban property and increase the range of potential buyers of objects under construction.

3. Demand for land has increased significantly in recent years. This trend can be exploited by applying an individual approach and by introducing a spot development of separate territories.

4. Cooperation with partner banks, the use of different systems of mortgage lending of objects under construction will increase the purchasing power of clients of development companies.

The implementation of the above directions will reduce the imbalance between supply and demand for out-of-town real estate.

Let us adjust the data on the SWOT matrix obtained as a result of the implementation by development companies of the measures and technological solutions proposed above:
Table 2. Adjusted SWOT matrix.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
<th>Weaknesses</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally friendly and energy efficient materials</td>
<td>+3</td>
<td>0.1</td>
<td>+0.30</td>
<td>Low application of innovative solutions</td>
<td>-3</td>
<td>0.10</td>
<td>- 0.30</td>
</tr>
<tr>
<td>Poor infrastructure and lack of social facilities</td>
<td>-2</td>
<td>0.18</td>
<td>-0.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.56</td>
<td>0.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
<th>Threats</th>
<th>Score</th>
<th>Value</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially high demand for suburban properties</td>
<td>+1</td>
<td>0.15</td>
<td>+0.15</td>
<td>Imbalance in the supply and demand structure</td>
<td>-3</td>
<td>0.16</td>
<td>-0.48</td>
</tr>
<tr>
<td>Expansion of bank lending programmes for housing estates</td>
<td>+2</td>
<td>0.12</td>
<td>+0.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2.04</td>
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<td></td>
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</tbody>
</table>

Based on the data in Tables 1 and 2, let us construct a position field defined by four axes reflecting the values of strengths, weaknesses, opportunities and threats of the suburban development objects. On this position field, we mark the current position (CP) and the desired position (DP); the points on them are defined as follows:

\[
CP(SW) = \sum_{i=1}^{n} S_{b_i} \times S_{w_i} - \sum_{i=1}^{n} W_{b_i} \times W_{w_i} \tag{1}
\]

\[
CP(OT) = \sum_{i=1}^{n} O_{b_i} \times O_{w_i} - \sum_{i=1}^{n} T_{b_i} \times T_{w_i} \tag{2}
\]

CP(SW) - value on the strengths-weaknesses axis
Sb\textsubscript{i} - the score of the i-th strength,
Sw\textsubscript{i} - the value of the i-th strength,
Wb\textsubscript{i} - score of the i-th weakest party
Ww\textsubscript{i} - weight of the i-th weakest party

CP(OT) - the value on the opportunities-threats axis
Ob\textsubscript{i} - the score of the i-th opportunity,
Sw\textsubscript{i} - the value of the i-th opportunity,
Wb\textsubscript{i} - the score of the i-threat
Ww\textsubscript{i} - the value of the i-threat

Let's calculate the values on the strengths-weaknesses axis:
CP= 1.56-1.27=0.29; DP=1.86-0.61=1.25.
Data on the opportunities-threats axis:
CP=1.65-1.68= - 0.03; DP= 0.84
Based on the analysis of factors and calculation of their score according to the original SWOT table, we have determined the current position of the suburban real estate projects under construction. Refinement of strengths and reduction of weaknesses, use of opportunities and circumvention of threats of the SWOT matrix, allowed us to determine the directions of development company's activities in the field of countryside real estate construction. In case of successful implementation of the latter on the positioning field, there will be a movement from the current market position to the desired one (marked with a dashed arrow on the graph). This transition will be made possible by an increase in the average strengths and opportunities scores and a reduction in the average weaknesses and threats scores.

4 Conclusion

The study of real estate market development trends and identification of key success factors of development projects in countryside real estate construction allowed the authors to
identify favourable and unfavourable factors of external and internal environment: strengths and weaknesses, opportunities and threats, to build a SWOT matrix. Based on the method of expert assessments, each position in the matrix was evaluated in points and determined a weighting value; the total points for strengths, weaknesses, opportunities, and threats were calculated. This made it possible to determine the current position of underconstruction suburban properties in the positional field. The authors proposed directions for development projects that would improve the competitive position of out-of-town real estate projects currently under construction. These include the introduction of "green building" and energy-saving technologies, the use of modular construction, BIM technologies and the use of innovative materials. The introduction of infill development, the use of mortgage lending systems based on cooperation with partner banks, will allow development companies to strengthen the market position of the out-of-town real estate objects under construction in the position field.

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