

Study of Investment and Construction in Management Processes in the Economy of Kazakhstan

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ABSTRACT: The present article is devoted to the issues of investment in the construction sector of the state economy. The volumes of investments in some sectors are increasing, while in others they depend on the conditions of investment favourable conditions created by the state. It is noted that in order to reduce the dependence of the national economy on the conjuncture and changes in the external environment, it is advisable to implement an innovative model of national development. The aim of the research is to form a holistic concept of theoretical representations of the socio-economic space of the country and regions, as well as to use this concept as a methodological basis for the development of mechanisms of state management and professional self-regulation of investment and construction activities in the context of territorial development processes. The originality of the study is due to the fact that in the development of theoretical and methodological approaches and substantiation of practical recommendations to ensure balanced economic growth of the construction industry of the Republic of Kazakhstan, taking into account the features of the Kazakh model of socially-oriented economy in sustainable development. Research results: the results of conceptual development of theoretical and methodological foundations of investment and construction activity management in modern economy are presented for discussion. The decisions made on the basis of scientific research, modern resource-saving and energy-saving technologies became the foundation. At the same time, the study decomposes investment activity and ranks it according to the criteria: high, medium, low levels of investment activity in the sphere of construction and production of construction materials.

Keywords: investments, investment attractiveness, innovations, methods of investment attractiveness assessment, construction industry, factors of investment attractiveness, construction economy, dynamics.

I. INTRODUCTION

Currently, investments are made in various sectors of the country's economy, from the production of goods to the service sector. At the same time, the volume of investments in some sectors of the economy is sufficient and tends to grow, while in other sectors the industry is supported by the state. Trends of decreasing or increasing economic growth rates entail a decrease in construction volumes or a construction boom. Prospects for the development of the construction market all over the world have a clear relationship

with the conjuncture of changes in the volume of the economy [1]. If we take into account that in the current conditions of the country's economic development budget funds have negative indicators, then investments become a significant factor in ensuring sustainable development of the country. At the same time, if the country's economy is based on the innovative model of development, combined with positive indicators of investment inflow, it has the smallest degree of dependence on market conditions.

The main characteristic of the innovation model of economic development is the combination of science and production, when science provides theoretical and practical production activities, and the results of scientific research, new technologies and scientific programmes are mandatory elements of production. Innovations in engineering and technology have become the main factor of economic progress. In order to successfully develop modern production, it is necessary to understand the main objective trends in the development of science and technology. In addition, a deep understanding of innovation processes should be taken into account in the strategic aspect of production activity of an enterprise, industry, region, state as a whole [2]. Investments in the construction sector have a complex character: they are attractive for investors, reduce the risk of problem situations for the government and ultimately make an important contribution to the formation of sustainable development of the country. Investments are not just a means of investing any assets of entrepreneurs, but a way to achieve economic and social efficiency, on the basis of which a variety of social and economic tasks can be solved. Therefore, the investment process ultimately has a social orientation [3]. It should be noted here that modern investment technologies allow starting a business with minimal capital. Special knowledge is also not required. Business can become not only a type of activity, but also a profession of a person, an entrepreneur [4]. For example, a business in the segment of repair services for residential and commercial premises.

There is a tendency of growth of the market of construction repair services. Professional and inexpensive repairs are leading in this sphere. There is a positive dynamic of increasing competition indicators. Despite this, the funds invested by investors in the repair business give regular income, especially in large settlements. To ensure the objectivity of the study of investment activity of investors, the decomposition of objects of investment activity was carried out, methods of system analysis were applied, and ranking by the criterion of investment activity was carried out (Figure 1).

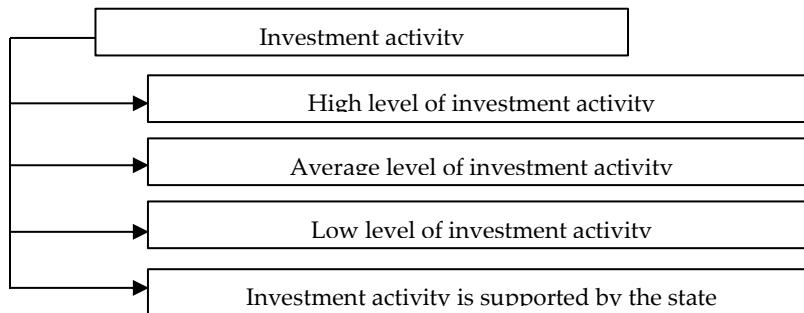


FIGURE 1. Ranking by investment activity criterion.

The purpose of the research is to study the investment activity of investors in the construction sector. This includes analyzing the objects of investment activity and ranking them according to the criterion of attractiveness.

II. RELATED WORK

The issues of attracting and analyzing investments in fixed capital, including at the level of regional socio-economic systems, have been reflected in the works of many leading economists. Let us cite the most famous research results in this area.

Thus, the work of O.V. Rokunova and O.Y. Angelova shows that in most developed countries of the world investments in fixed capital ensure the development of innovative economy, characterized by the

introduction of the latest scientific achievements in all sectors and spheres of economic activity. Thus, it is investments in fixed capital that become the main driver of socio-economic development [5]. However, emphasizing the importance of the development of investment in fixed capital, the authors do not offer methods and tools for their stimulation at different levels of the economy. The high importance of investment in fixed capital for economic development at various levels of economic management is emphasized by Y.S. Pinkovetskaya. In her opinion, increasing the volume of investment in fixed capital allows solving a wide range of strategic tasks of entrepreneurship development in the region's economy [6]. However, as in the previous case, the directions of investment in fixed capital are not discussed in the study by Yu.V. Pinkovetskaya.

In the work of A. Santos gives empirical substantiation of the decisive role of investment in fixed capital in achieving technological progress [7]. E.V. Sibirskaya, L.V. Oveshnikova, L.A. Mikheikina, A.V. Bezrukov, M.O. Grigorieva emphasize that to activate investment activity at the regional level it is necessary to create conditions for the selection of projects that promote investment activity [8]. The importance of projects to stimulate investment in fixed capital aimed at technological development of regions is also discussed in the work of L.M. Strizhkova [9]. At the same time, the level of investment, on the one hand, is determined by the level of economic development of regions [10], on the other hand, B. Kamar, D. Bakardzhieva, M. Goaied established a positive relationship between investment in fixed capital and regional economic development [11]. Using the data of empirical studies for the last few years, L.K. Bilir, D. Chor, K. Manova showed that the financial development of regions is directly related to the volume of attracted investments in fixed capital of various enterprises and organizations [12]. Bilir, D. Chor, K. Manova showed that the financial development of regions is directly related to the volume of attracted investments in fixed capital of various enterprises and organizations [12].

According to T.R. Rakhimov, the analysis of regional investment climate is an urgent task in the planning, organization and improvement of regional investment programmes. Its improvement is the basis for increasing the volume of attracting investments in fixed capital in the regional economy [13]. A.YU. Kokovikhina believes that the private ownership of capital underlies the processes of economic globalization and assigns the investment climate the role of a decisive factor in the spatial development of territories [14]. Y.O. Egorov also expresses the opinion that today the most important goal of socio-economic regional development is to create an investment regional climate and conditions for increasing the investment attractiveness of regions [15]. Based on the results of their research, Z.M. Abdulaeva, R.S. Datsaeva, L.A. Djamoldinova, L.A. Elgukaeva proposed a methodology for assessing indicators characterizing the development of investment climate at the regional level, which is based on the interpretation of investment attractiveness as a combination of socio-economic characteristics of the region. This methodology is developed using the composite indicator of investment climate reliability calculated by the authors [16]. However, despite the significant number of studies that highlight a set of factors for the growth of investment in fixed capital, the situation with capital deficit in the domestic industry is aggravated. Therefore, the works that discuss the possibilities of improving the regional investment climate from the perspective of the development of the digital economy, which is currently the main driver of the development of socio-economic relations, deserve special attention.

In particular, according to C. Richter, S. Kraus, S. Durst, C. Giselbrecht, in the modern world there is a digitalization of the environment, which leads to changes in economic relations and the need to implement digital solutions in all areas of socio-economic system [17]. The importance of digitization of economic processes is also emphasized by G. Valenduc, P. Vendramin [18]. According to A.E. Zubarev, the study of the development of digital economy tools becomes especially relevant due to the transformation of management methodology at all levels of management towards the widespread use of digital solutions [19]. The study by Kh.K. Kazancheva and A.L. Kilchukova substantiates the feasibility of developing the digital economy in the regions as a strategic priority to ensure regional competitiveness [20]. According to E.B. Starodubtseva, O.M. Markova. Starodubtseva, O.M. Markova, the processes of digitalization of modern economy represent the basis of socio-economic development of any country. In the near future, digitalization trends will become the institutional basis for the development of investment and industrial relations and will ensure the improvement of people's living standards in general [21].

The article by N.S. Khoroshavina puts forward the thesis that the digital economy is a factor changing the socio-economic existence of all spheres of society, business and government. The widespread use of digital technologies should increase the efficiency of economic activity in general and investment in fixed capital in particular [22]. A.V. Zavarzin's study highlights various advantages of using digital technologies that allow to significantly increase the volume of investment, but does not analyses the specific relationship between the tools of the digital economy and investment in fixed capital [23]. Y.V. Yakutin believes that it is the transition of the economy to the digital phase that becomes a strategic direction of development [24]. As shown above, this opinion is held by many academic economists. E. Ansong, R. Boateng show that the improvement of digital technologies in enterprises in developing countries leads to an increase in their competitiveness and provides growth in the volume of attracted investments in fixed capital [25]. Analyzing the world experience, A.A. Tarchokova concludes that the main task of modern investment activity development is the formation of digital economy and reduction of digital inequality between regions within one state [26]. But A.A. Tarchokova does not offer directions and opportunities for solving this problem.

The importance of using the effects of digital economy development as a tool to improve the investment climate was also emphasized by I.A. Pryadko, O.V. Bryukhovetskaya, I.A. Danilin, A.V. Melkonyan [27]. In the opinion of A.I. Fedorkov and V.V. Yanovsky, the digital economy offers the digital economy. Yanovsky, the digital economy offers new methods and tools to develop investment activity in domestic regions [28]. The work of S. Nambisan, M. Wright, M. Feldman details how the emergence of new digital technologies, digital platforms and digital infrastructures has significantly transformed innovation and entrepreneurship. Beyond simply opening up new opportunities for innovators and entrepreneurs, digital technologies have broader implications for value creation. Consequently, digital technologies could serve as a common conceptual platform that addresses the challenges of investment activities at different levels of business [29]. The mechanisms of influence of digital technologies on investment activity at the micro- and macro-levels of the economy are considered in the study by W.F. Cascio [30]. Cascio [30]. His analysis of theoretical approaches allowed us to formulate the following conclusions. Given the above, the present study attempts to provide a quantitative assessment of the relationship and influence of various factors in the modern economy on investment processes in regional socio-economic systems on the basis of correlation analysis tools.

III. MATERIAL AND METHOD

To analyses the data and verify the hypotheses, correlation analysis was used, which shows the relationship between two or more values. The value of the correlation coefficient reflects the strength of the relationship between the data series. Interpretation of correlation analysis data was performed using the Cheddock scale (Table 1).

Table 1. Interpretation of the quantitative value of the correlation coefficient (Cheddock scale).

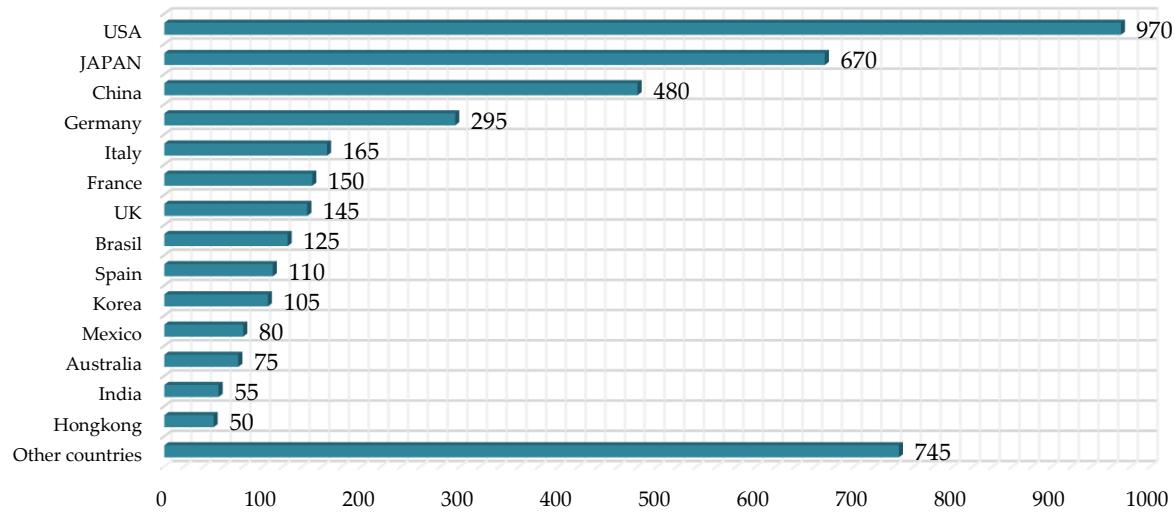
| Correlation coefficient | Interpretation |
|-------------------------|----------------|
| 0,1–0,3 | Weak |
| 0,3–0,5 | Moderate |
| 0,5–0,7 | Notable |
| 0,7–0,9 | High |
| 0,9–0,99 | Very high |

The use of the Cheddock scale allows us to 'translate' a numerical (quantitative) value into a qualitative characteristic: if the correlation coefficient is greater than 0.75, it means that the analyzed factors have a direct strong relationship. In other words, this numerical factor has a significant impact on the volume of investment in fixed capital in the respective federal districts. If the correlation coefficient is 0.7 and lower, it means exactly the opposite of the above. The lower the value of the coefficient, the less connection and mutual influence of the factors.

IV. DATA ANALYSIS

The construction industry is one of the leading sectors of the country, it affects both the improvement and increase in the level of the country's economy and people's welfare. The development of the construction industry is influenced by construction enterprises, which carry out investment activities to improve their efficiency.

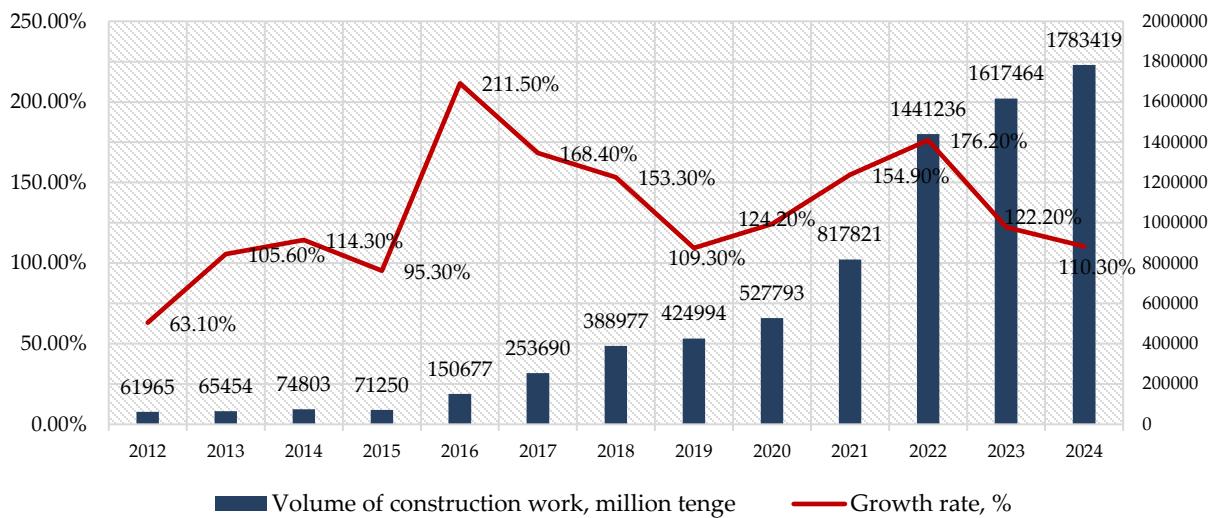
The construction complex plays a significant role in the economic development of any country, being an important factor of its stability. The importance of the construction complex for market development is confirmed by the experience of many countries. According to Davis Langdon & Seah International (DLSI), the volume of the global construction market grew by 4.6% to USD 4.2 trillion in 2023. The main growth factor in the industry is the increase in spending on civil engineering and non-residential construction. The largest national market for construction works and services is the USA - 23% of the world market (DLSI), the volume of construction of new buildings and structures in the USA is estimated at \$970 billion (Figure 2).



Source: Davis Langdon & Seah International (DLSI) data

FIGURE 2. Global construction costs in 2024 (US\$ billion).

It was the construction industry that was assigned the role of one of the main locomotives of the economy. Over the years of independence, the construction complex of the Republic has undergone significant changes. Due to disruption of economic relations, progressive inflation, reduction of investments, the volume of construction works in 2004-2022 decreased by 7.1 times. However, starting from 2023 and up to 2024 the value of this indicator in the Republic of Kazakhstan is gradually increasing, which is a certain milestone of stabilization and the beginning of a new round of development of Kazakhstan's investment and construction complex (Figure 2).



Note: Calculated on the basis of the data of the Statistics Agency of the Republic of Kazakhstan

FIGURE 3. Dynamics of the volume of construction works in the republic of Kazakhstan.

The maximum growth rate is in 2013 - the growth rate reached 211.5%, then up to 2016 the growth rate of construction works slows down, reaching 109.3%. From 2016 to 2020 the growth rate of the volume of completed construction works increases significantly, in 2020 the growth rate was 176.2%. In 2021 and 2022, there is a slowdown in the growth rate of construction works, which is explained by the impact of the global economic crisis and a decrease in business activity. In 2023 and 2024, the situation in this area was stabilized due to state measures.

The dynamics of construction is the most representative indicator of the state of the market economy, reflecting the pace of development of related industries and the country's economy as a whole. Kazakhstan's construction industry is among the leaders among the CIS countries in terms of development. The formation of favorable trends in housing construction was facilitated by macroeconomic factors: general economic growth, stable political environment, inflow of foreign capital and investment, growth of the population's welfare, possibility of legalization of income, and development of mortgage lending. The rapid development of the construction complex of the Republic is ensured, in addition to the general legislation brought in line with the requirements of the market economy, by the updating of sectoral norms, construction norms and rules (SNiP). In general, the Republic is implementing a set of measures aimed at ensuring advanced innovative development of the industry, including the construction complex. Construction occupies a significant share in the gross domestic product of the country (Table. 2). The share of construction exceeds the share of such branches of economy as trade, transport and communication in the country's GDP.

Table 2. Main indicators of construction activity in Kazakhstan.

| Indicators | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|-----------|-----------|-----------|------------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| GDP, KZT million | 4611975,3 | 5870134,3 | 7590593,5 | 10213731,2 | 12849794 | 15936500 |
| Volume of construction works, million tenge | 424994 | 527793 | 817821 | 1441236 | 1617464 | 1783419 |
| Growth rate of construction works, % | 109,3 | 124,2 | 154,9 | 176,2 | 112,2 | 110,3 |
| Share of construction in GDP, % | 9,2 | 9,0 | 10,8 | 14,1 | 12,6 | 11,2 |

As shown in Table 3, the volume of construction works in 2024 amounted to 1783.4 billion tenge, which is 10.3% higher than the level of 2021 and at the same time the results of 2012 were more than 4 times higher than the volume of construction in 2006. The share of construction works in the country's GDP grew steadily until 2020, reaching 14.1 per cent. In 2022, the share of construction in GDP decreased to 12.6 per cent, and in 2024, respectively, to 11.2 per cent. Most of the construction works 92 - 96.8% are performed by the construction organization's own forces, the rest - by attracting third-party organizations. The technological structure of construction works performed by own forces of construction organizations is presented in Table 3.

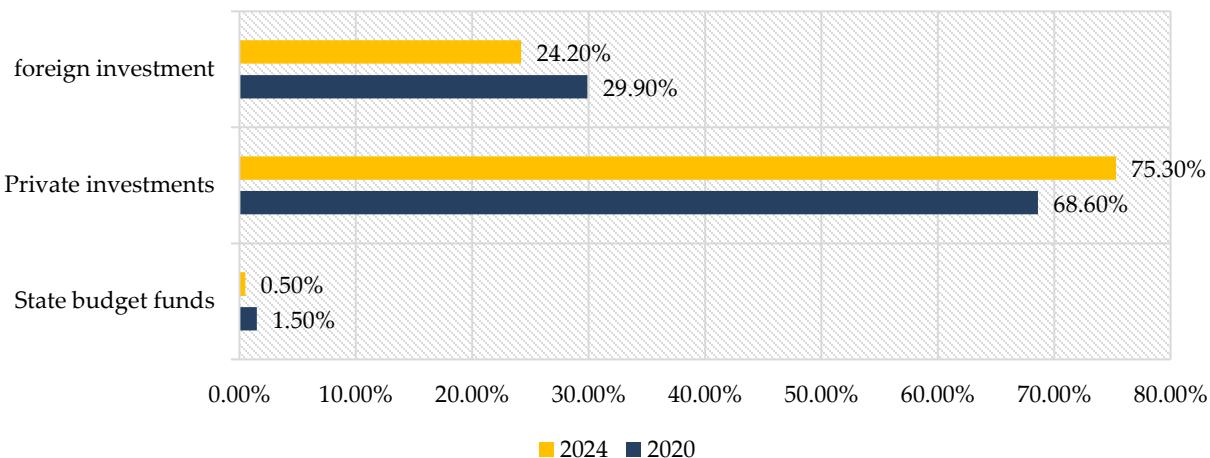
Table 3. Technological structure of construction works in Kazakhstan.

| Indicators | 2011 | | 2012 | | 2013 | | 2014 | |
|---|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
| | Mln. tenge | Specific weight, % | Mln. tenge | Specific weight, % | Mln. tenge | Specific weight, % | Mln. tenge | Specific weight, % |
| Volume of works performed by own forces | 496347 | 100,0 | 756190 | 100,0 | 1023082 | 100,0 | 1565699 | 100,0 |
| construction organizations among them | | | | | | | | |
| construction work | 391245 | 78,8 | 617662 | 81,7 | 839554 | 82,1 | 1298455 | 82,9 |
| Overhaul | 52400 | 10,6 | 72785 | 9,6 | 81075 | 7,9 | 111156 | 7,1 |
| current repair | 25755 | 5,2 | 33506 | 4,4 | 48334 | 4,7 | 66914 | 4,3 |
| other activities | 26 947 | 5,4 | 32 237 | 4,3 | 54 119 | 5,3 | 89 174 | 5,7 |

Note: Calculated on the basis of data from the Statistics Agency of the Republic of Kazakhstan

As can be seen from Table 3, in the technological structure of works the main type of contracting remains construction and installation works, their share is steadily growing. The volume of work performed for the construction of new facilities, reconstruction, expansion and technical re-equipment of existing enterprises in 2024 amounted to 1298.5 billion tenge or 82.9% of the total volume (in 2020 - 295.4 billion tenge or 75.1%). The share of other contracting works has also increased. In 2024, the volume of other contract works totaled 89.2 billion tenge or 5.7% of the total volume (in 2020 - 19.6 billion tenge or 4.9%).

On the contrary, the share of capital repairs and current repairs in the total volume of construction works decreased during 2020-2024. The volume of capital repairs carried out by construction companies under contractual agreements totaled 111.2 billion tenge or 7.1% in 2024 (against 57.7 billion tenge or 14.7% in 2016). The volume of current repairs carried out by construction companies under contractual agreements totaled KZT 66.9 billion or 4.3% in 2024 (against KZT 20.7 billion or 5.3% in 2020). The main sources of financing construction work (Figure 3) are own funds of enterprises, organizations and individual developers, their share in the total volume of construction works increased from 68.6% in 2020 to 75.3% in 2024.



Note: calculated on the basis of data of the Statistics Agency of the Republic of Kazakhstan

FIGURE 4. Sources of financing of construction works.

The share of foreign investments decreased from 29.9% in 2020 to 24.2% in 2024. The share of state budget funds in financing construction works is insignificant - 1.5 per cent and 0.5 per cent, respectively. All this indicates the growing power of national business and independence from foreign financial injections. The analysis of the structure of investments in construction by type of economic activity of the facility under construction (Figure 4) shows that the largest specific weight in 2023 falls on the mining industry - 36.5%, the smallest specific weight on the manufacturing industry - 7.4% (in 2021 37.2% and 11%, respectively), despite all efforts to implement the Strategy of industrial-innovative development of the Republic of Kazakhstan 2016-2028, one of the directions of which is the development of the manufacturing industry.

The regional cross-section presented in Table 6 shows dynamic growth in construction activity over the period from 2019 to 2024 in almost all regions of Kazakhstan. In 2020 compared to 2019, a decrease in construction works was observed in West-Kazakhstan region (50.1%) and Zhambyl region (73.2%), the lowest growth rate of construction works was observed in Almaty city (100.5%), the highest growth rate - in Aktobe region (268%). In 2021 compared to 2020, there was no decrease in the volume of construction works, the lowest growth rate of construction works 116.2% was observed in Akmola region, the highest growth rate of 180.2% - in North-Kazakhstan region. In 2022 compared to 2021, the decrease in construction works was observed in West-Kazakhstan region (95.8%) and Aktobe region (92.4%), the lowest growth rate of construction works was observed in Zhambyl region (112.4%), the highest growth rate - in Almaty city (239.5%). In 2023, compared to 2022, a decrease in construction works was observed in West Kazakhstan (82.9%) and Atyrau (71.8%) regions, the lowest growth rate of construction works was observed in Pavlodar region (103.6%), the highest growth rate - in Akmola region (412%). Finally, in 2024 compared to 2023, the decrease in construction works was observed in Aktobe region (91.3%), Astana city (91.8%) and Almaty city (97.4%), the lowest growth rate of construction works was observed in Pavlodar region (100.8%), the highest growth rate - in Kyzylorda region (163.9%). Thus, the growth rate of completed construction works in the context of regions of Kazakhstan during 2019-2024 fluctuates, which is primarily due to the change of point of view in different years on the geographical directions of investment. A noticeable decrease in the volume of construction works is observed in the West Kazakhstan region.

Regional distribution shows an overweight share of Almaty, Astana, Atyrau and Mangistau regions. They are the leaders in terms of the volume of construction works performed. Thus, in 2014, the share of Almaty accounted for 21.6% of the total volume of construction works, the share of Astana - 19.1%, the share of Atyrau region - 15.4%, the share of Mangistau region - 7.8%. The leadership of Astana and Almaty cities is explained by their metropolitan status, and of Atyrau and Mangistau regions - by the predominance of the extractive industry in this region. The share of other regions does not exceed 6%.

The construction complex in Kazakhstan, despite the high demand for its products, is characterized by low efficiency indicators. The main reason is that the construction process has become largely unregulated. The actual destruction of the majority of large construction and assembly trusts with their powerful production base in the form of enterprises and workshops for the production of building structures and processing of materials has stimulated the emergence of small players in the construction industry market, not only in terms of volumes, but also technically and organizationally weak construction organizations. Today they are mainly small enterprises with 50-100 employees and account for almost 70 per cent of the total number of sectoral entities. And, naturally, for objective reasons they are unable to cope with the tasks of construction of new enterprises, modernization, reconstruction and technical re-equipment of old ones in accordance with modern requirements. Obviously, they cannot compete with foreign firms either. Hence the objective necessity of their integration into larger associations capable of performing not separate types of works, but to build the whole facility on a turnkey basis.

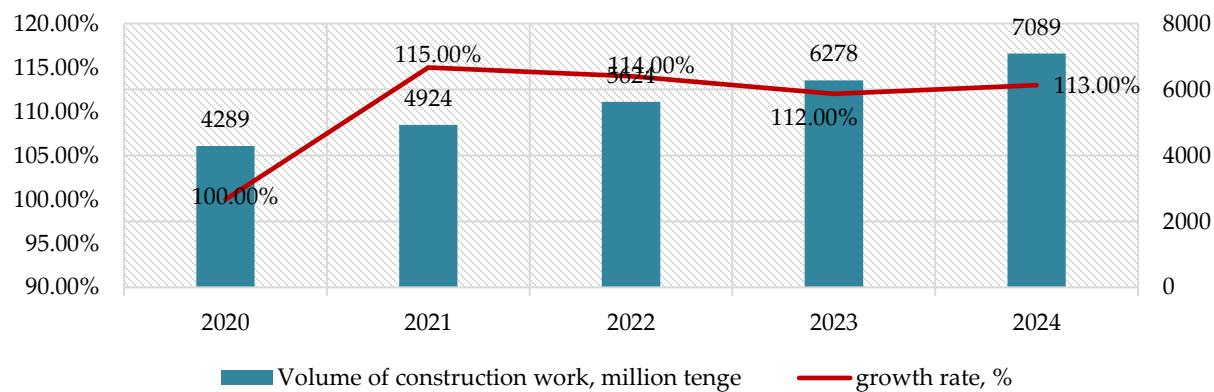
In the large construction business there are companies, holdings, which are in fact united in one or another degree centralized organizations. They can independently perform the main (and sometimes all) types of construction works. In the field of medium and small business the traditional economic method (by own efforts) and contractual method with the involvement of third-party organizations are most often used. Table 4 shows that the largest share among construction organizations is occupied by small enterprises with up to 50 employees. The share of small enterprises in the volume of construction works increased from 38.9% in 2022 to 41% in 2024. The share of medium-sized enterprises (with 50 to 250 employees) increased from 25.1 per cent in 2022 to 27.1 per cent in 2024. In contrast, the share of large enterprises (with more than 250 employees) decreased from 36 per cent in 2022 to 31.9 per cent in 2024.

Table 4. Volume of contracting construction organizations in Kazakhstan.

| Indicators | 2022 | | 2023 | | 2024 | |
|-----------------------------------|-----------|---------------|-----------|---------------|-----------|---------------|
| | Mln tenge | in % of total | Mln tenge | in % of total | Mln tenge | in % of total |
| Volume of contracted works, total | 756190 | 100 | 1023082 | 100 | 1565699 | 100 |
| Including dimensionality: | | | | | | |
| small businesses | 284080 | 38,9 | 419820 | 41,0 | 641444 | 41,0 |
| medium-sized enterprises | 189703 | 25,1 | 262327 | 25,7 | 424930 | 27,1 |
| large enterprises | 272407 | 36,0 | 340935 | 33,3 | 499325 | 31,9 |

Note: Calculated on the basis of data from the Statistics Agency of the Republic of Kazakhstan

In the Republic of Kazakhstan in 2024 there were 6723 construction organizations (Figure 6). While until 2023 there was an increase in their number, in 2024 their number decreased by 5% compared to 2023. 0.7% of all construction organizations are state-owned, 94.4% are private, and 4.9% are foreign enterprises. Kazakhstan's construction market is also attractive for foreign construction companies - Chinese, Turkish, American, South Korean and Russian builders are already working here. However, Kazakhstani property developers feel little competition - foreign investors and builders receive mainly state orders.



Note: calculated on the basis of the data of the Statistics Agency of the Republic of Kazakhstan

FIGURE 5. Number of construction organizations in the republic of Kazakhstan.

In the regional context, the largest number of operating construction organizations in 2014 was in Almaty city (1,546 or 23% of the total number), Astana city (1,061 or 15.8%), East Kazakhstan region (568 or 8.4%) and Karaganda region (612 or 9.1%). On average, one construction organization performed work in the country in 2014 for 265.3 million tenge. At the same time, in Atyrau region this indicator totaled 407 million tenge, Mangistau region - 375.7 million tenge, Astana city - 227.4 million tenge, Aktobe region - 200.2 million tenge. A logical assumption is the heterogeneity (variability) of the results of the functioning of construction organizations in the regions of Kazakhstan, therefore, based on the methodology outlined in the works of Berikov V.B. and Tolmachev M.N. [31] and Tolmachev M. N. [32], we will analyze the distribution of indicators in the regions of Kazakhstan (tab. 5).

Table 5. Characteristics of regional construction organizations in Kazakhstan.

| Subjects of the Republic of Kazakhstan | Volume of works performed, billion tenge | | Number of buildings, units. | | Total floor area of buildings, thousand metres sq. m. | |
|--|--|------|-----------------------------|--------|---|----------|
| | 2010 | 2024 | 2010 | 2024 | 2010 | 2024 |
| Republic of Kazakhstan | 1754 | 9132 | 141619 | 305485 | 66289,1 | 146728,1 |
| East Kazakhstan | 517 | 2299 | 32968 | 81258 | 23020,7 | 48036,7 |
| Karagandy | 230 | 1129 | 8605 | 26080 | 6519,7 | 16433,4 |
| Atyrau | 123 | 649 | 20120 | 42342 | 5981,2 | 17262,1 |
| Mangystau | 43 | 414 | 11567 | 16608 | 3632,0 | 6770,4 |
| Aktobe | 281 | 1434 | 37711 | 68978 | 13445,8 | 27995,4 |
| Astana city | 246 | 1251 | 9548 | 22125 | 5614,9 | 11745,6 |
| Almaty city | 154 | 869 | 14597 | 33699 | 5970,6 | 13405,1 |
| Shymkent city | 155 | 610 | 6326 | 14314 | 2042,0 | 5050,9 |

The data presented in Table 5 indicate growth of all three presented indicators in Kazakhstan in 2024 relative to 2010. At the same time, the clear leader is the East Kazakhstan and Mangistau regions. This pattern is due to a number of reasons: firstly, these regions have about 50% of the population, which is the main customer of construction services, because of this there is an increased demand and growth of construction indicators; secondly, we should not forget about large companies-developers (construction corporations), which have a legal address in Almaty, so all financial flows are fixed in the territory of Almaty region, even if the organization carries out construction in another region of the country. Thus, it can be concluded that there are a significant monopolization of the construction market and the presence of regional development

problems. The option of investing in residential property is the most common, the risks are minimal. As a rule, this method of investment is used to save money. Income is received from reselling the object or renting it out.

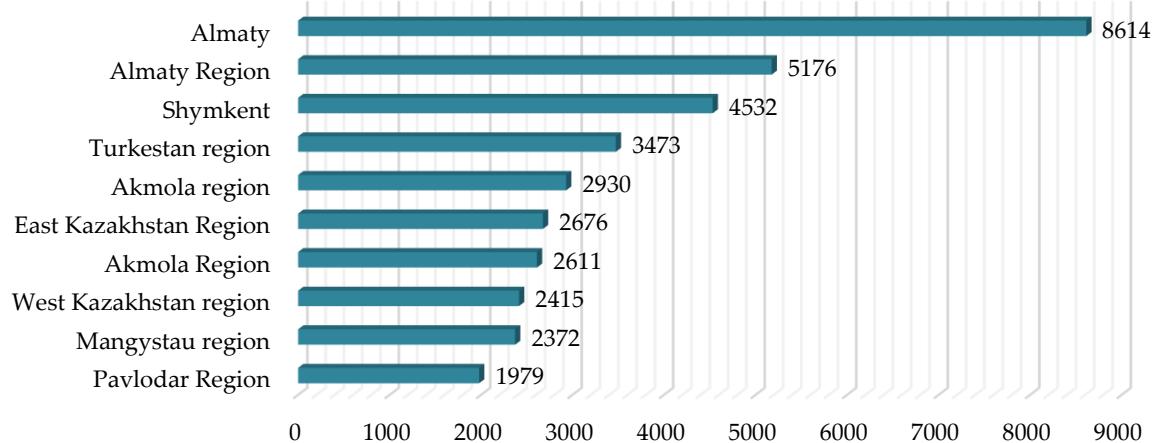
Thus, at the end of 2024, the majority of Kazakhstanis (49%) believe that buying real estate is a more profitable way to invest. Also, 72% of Kazakhstanis believe that the purchase of real estate is a more profitable way to invest than a bank deposit. At the moment, the limitation of the construction industry's development and low investment attractiveness is due to the low activity of private construction companies, reduced investment, and the lack of opportunities for private businesses to implement social projects and use modern digital technologies. Thus, one of the most realistic options for overcoming negative factors and ways to increase investment attractiveness in the construction industry, as stated earlier, is the development of digitalization, as well as the improvement of public-private partnership mechanisms.

In order to improve public-private partnerships in the construction industry, it is necessary to: form consulting project teams that would be responsible for developing as well as supporting projects; implement comprehensive programmes to select and support public-private partnership projects; and carry out continuous detailed monitoring at all stages of project implementation; to form a legal and economic basis for the development of public-private partnership projects in the construction industry, under which businesses would be comfortable to fulfil their contractual obligations, to develop a system of effective correct forecasting, adequate administrative and legal regulation, and, in addition, to improve the quality of project development, justification, evaluation and implementation.

As for digitalization, as already mentioned, the construction industry in our country is the most conservative and inertial, but the government is gradually modernizing it and making all the prerequisites for further development of digital technologies. After all, the implementation of the concept of digitalization development will improve the quality of research and construction design, and will also improve the quality of operation of capital construction projects and have a reducing effect on their cost.

Digital technologies will also help to reduce not only the cost of construction, which was mentioned earlier, but will also help to improve the energy efficiency of buildings, making the construction industry even more attractive for investment. Thus, it is clear that Kazakhstan's construction industry currently has a number of difficulties, but at the same time it has good chances to improve its competitiveness through the use of various digital technologies. For this purpose, it is necessary to develop and implement a comprehensive programme of measures aimed at reducing the problem areas of construction development in Kazakhstan. It is also necessary to study the experience of other countries and explore the possibility of applying their technologies in the development of digitalization of construction in our country in order to increase investment. Thus, due to a significant set of negative factors, all the difficulties in adapting foreign digital technologies for Kazakhstan's construction industry can be seen, but there are also prospects for development, as all the described factors can be solved if possible.

Accordingly, there are all prerequisites for the development of a set of new programmes and financial instruments to prevent negative factors and to continue the development of digital technologies affecting the inflow of investment in the construction industry of Kazakhstan. But it is also known that the inflow of investments into the industry for each oblast and region of the country is different, so this relationship was analyzed. The most highly developed and investment-attractive regions for the construction industry in Kazakhstan are those in which highly profitable projects for developers are possible. Such regions are characterized by high demand, high average wages and ample opportunities for construction, as well as the possibility of applying new technologies. Such regions include Almaty and Almaty region, Shymkent and Turkestan region, Akmola region, East Kazakhstan region. Regions with the highest rate of commissioning of residential buildings are presented in Figure 8.



Note: calculated on the basis of the data of the Statistics Agency of the Republic of Kazakhstan

FIGURE 6. Regions with the highest rate of commissioning of residential buildings, thousand square.metres.

It should be noted that the state will allocate almost 1.7 million tenge to support scientific and technical potential

V. RESULTS

In the course of analyzing empirical data and constructing correlations, the author obtained the following results. Having analyzed the statistical data of the Bureau of National Statistics of the Republic of Kazakhstan, characterizing the volumes of investments in fixed capital as a percentage of the total volume of investments in fixed capital in Kazakhstan, it can be concluded that the leading regions in attracting investments in fixed capital are Almaty and Turkestan region, and the obvious outsider is West Kazakhstan region. This fact indicates a high level of differentiation of Kazakhstan's regions in terms of attracting investment in fixed capital. To explain this feature, we put forward the main hypothesis of the study: the volume of investment in fixed capital depends on the development of digital economy in the region. To verify the author's hypotheses, we construct correlations between the dynamics of investment in fixed capital and the dynamics of digital economy factors.

Table 6 presents the results of constructing pairwise correlations between investments in fixed capital and the factors of the digital economy identified in the course of the author's empirical research. The following conclusions can be drawn from analyzing the data presented in Table 6. Firstly, the main hypothesis was fully confirmed, and the results obtained allow us to verify that the development of digital technologies in the region's economy determines the dynamics of attracting investment in fixed capital in the region. Secondly, the author's assumptions that there is a correlation between the dynamics of the use of digital resources and the dynamics of investment in fixed capital and that different factors of the digital economy have different relationships with investment in fixed capital are confirmed.

The region's leading in terms of attracted investment in fixed capital have strong correlations between the dynamics of attracted investment in fixed capital and the dynamics of the use of digital economy factors. In turn, in regions with low indicators of attracted fixed capital investment, there are either no or very weak correlations between fixed capital investment and digital economy factors. Based on the obtained correlation dependencies, we can conclude that it is the development of digital economy factors that causes the increase in the efficiency of investment and the growth of attracted investments in fixed assets in the region. It is also evident from the analysis of the data that various factors of the digital economy have a multidirectional impact on fixed capital investment activities.

Table 6. Correlation coefficients of factors and volumes of investment in fixed capital of construction industry for the regions of Kazakhstan.

| | Factors | | | | business reputation |
|------------------|------------------------------|-------------------------|------------|-----------------|---------------------|
| | Industrial and technological | resource, institutional | regulatory | infrastructural | |
| Almaty | 0,92 | 0,76 | 0,81 | 0,3 | 0,71 |
| Almaty region | 0,92 | 0,85 | 0,75 | 0,65 | 0,72 |
| Shymkent | -0,47 | 0,55 | -0,18 | 0,36 | 0,26 |
| Turkestan region | 0,04 | -0,29 | -0,21 | -0,19 | -0,16 |
| Astana | 0,75 | 0,8 | 0,76 | 0,12 | 0,77 |
| Akmola region | 0,75 | 0,8 | 0,75 | 0,13 | 0,55 |
| West Kazakhstan | -0,09 | 0,795 | 0,17 | 0,3 | 0,43 |
| Mangystau | -0,44 | -0,24 | 0,31 | 0,12 | 0,11 |

Table 7 shows estimate of the level of change in the volume of investment in fixed capital when the use of the analyzed factors in the region increases by 1%.

Table 7. Estimation of sensitivity of investments in fixed capital of the construction industry to changes in the factors of the digital economy, %.

| | Factors | | | | business reputation |
|------------------|------------------------------|-------------------------|------------|-----------------|---------------------|
| | Industrial and technological | resource, institutional | regulatory | infrastructural | |
| Almaty | 0,17 | 0,16 | 1,3 | 0,01 | 6,2 |
| Almaty region | 0,12 | 0,33 | 1,77 | 0,98 | 6,4 |
| Shymkent | 0 | 0,21 | 0 | 0,12 | 0,01 |
| Turkestan region | 0 | 0 | 0 | 0 | 0 |
| Astana | 0,125 | 0,16 | 0,12 | 0,12 | 0,73 |
| Akmola region | 0,24 | 0,31 | 1,36 | 0,02 | 0,42 |
| West Kazakhstan | 0 | 0,23 | 0,05 | 0,04 | 0,06 |
| Mangystau | 0 | 0 | 0,03 | 0,027 | 0,031 |

According to Table 7, the change of various factors by 1 per cent causes different increment in the volume of investment in fixed capital of the construction industry in the regions of Kazakhstan. At the end of the study, in order to ensure the measurability of the results of the strategy implementation, a methodology for selecting solutions to ensure balanced growth of the construction complex of the Republic of Kazakhstan was developed, including five target indicators combined into a five-component criterion, based on the measurement of which the balanced growth of the construction complex is assessed and the subsequent justification of measures to improve the degree of balance. Taking into account the previously formed strategic framework, value added was taken as the value of the final socio-economic result. At that, the system of indicators included the following of them: index of growth of GVA of construction complex; index of growth of GVA share in the volume of completed works; index of growth of GVA per 1 tenge of invested

funds; change in the value of balance of payments on construction services; coefficient of advance of growth rates of labor productivity and growth rates of wages.

In order to assess the degree of balance, these indicators were combined into a single five-component criterion (P) formed with the help of the above components. If the value of the corresponding indicator exceeds one (in the case of considering the change in the balance of payments - exceeds zero, i.e. is positive), then within the generalized criterion it is replaced by the value '1', in the opposite case - by the value '0'. At the same time, based on the generalized criterion, it was proposed to distinguish four degrees of balance:

- balanced growth corresponding to the variant in which all components are equal to one: $P = (1, 1, 1, 1, 1, 1)$;
- conditionally balanced growth, corresponding to the variant in which the first component is equal to one and two or more of the following four components are equal to one: $P = (1, 1, 1, 0, 0)$;
- unbalanced growth corresponding to the variant in which the first component is equal to one and at least one of the following four components is equal to one: $P = (1, 1, 0, 0, 0)$;
- completely unbalanced growth, corresponding to the variant in which the first component is zero or all of the four components following the first component are zero: $P = (1, 0, 0, 0, 0)$ or $P = (0, 1, 1, 1, 1)$.

In order to appraise the methodology, the balanced growth of the construction complex of the Republic of Kazakhstan in 2015-2024 was assessed. The results obtained are presented in Table 8.

Table 8. Results of assessment of the balanced growth of the construction complex of the Republic of Kazakhstan for 2015-2024.

| Indicator Criterion | $I_{BAC} > 1$ | $I_{CPI} > 1$ | $\Delta \Pi B_{\text{строит}} > 0$ | $I_{INB} > 1$ | $K_{on} > 1$ | Criterion | Balanced growth |
|---------------------|---------------|---------------|------------------------------------|---------------|--------------|-----------|------------------------|
| Values by year | 2015 | 1,17 | 0,99 | -58 | 0,96 | 1,0,0,0,1 | Unbalanced |
| | 2016 | 0,81 | 0,83 | -51 | 0,79 | 0,0,0,0,1 | Totally unbalanced |
| | 2017 | 1,11 | 1,16 | -130 | 1,17 | 1,1,0,1,0 | conditionally balanced |
| | 2018 | 1,58 | 1,22 | -5 | 1,17 | 0,88 | conditionally balanced |
| | 2019 | 1,07 | 1,11 | -147 | 1,09 | 0,92 | conditionally balanced |
| | 2020 | 0,54 | 0,97 | 353 | 0,93 | 0,0,1,0,0 | Totally unbalanced |
| | 2021 | 0,61 | 0,87 | 138 | 0,88 | 0,0,1,0,1 | Totally unbalanced |
| | 2022 | 1,06 | 0,97 | -147 | 0,98 | 1,05 | Unbalanced |
| | 2023 | 1,11 | 1,00 | -165 | 0,97 | 1,00 | Unbalanced |
| | 2024 | 1,16 | 0,98 | -145 | 1,03 | 1,0,0,1,1 | conditionally balanced |

As the results show, during 2015-2024 there is absolutely unbalanced, unbalanced or conditionally balanced growth of the construction complex. The most significant positive values of the components of the generalized criterion are established in 2017-2019 and 2024. As for the negative aspects, it is worth noting the stable growth of the negative balance of payments and the decrease in the growth index of the share of gross value added in the volume of completed construction works recorded in the last 5 years. In general, we can conclude that the growth of the construction complex of the Republic of Kazakhstan is unbalanced, which once again confirms the high importance of the previously proposed practical recommendations to improve the balance.

VI. CONCLUSION

Summarizing the analysis of the key natural and cost indicators of the construction industry, we can point to a number of identified patterns.

- As it is known at the current time in Kazakhstan there is unfavorable macroeconomic situation due to the consequences of the crisis, the transition of the economy to digital format, as well as the diversion of resources to combat the spread of the virus Covid-19. But despite these problems, in the course of statistical analysis, the trajectory of growth in the number of developers, an increase in the volume of work performed in the industry under consideration, as well as a 12% growth in investment flow was recorded. This indicates the relative success and stress resistance of the construction industry.
- Kazakhstan has a huge territory and it imposes its imprint on the level of economic development of the regions of the country, in this regard, the working hypothesis of uneven development of construction in the subjects of Kazakhstan was put forward. As a result of the statistical analysis of construction indicators in the regional context, the monopolization of the market by construction organizations operating in some regions of the country was revealed. This pattern is a constraint for the development of the construction industry, as there is a low competitiveness of construction enterprises, as a result, the cost of built housing and commercial real estate is continuously growing throughout the observation period.
- The importance of the construction industry for the economy of the country, and most importantly for the comfort of life of the population, is indisputable. For this reason, the time series of housing commissioning in Kazakhstan was analyzed. As a result, the negative impact on the trajectory of movement of the levels of the crises of 2008 and 2024 was established. Also, the presence of seasonality with a minimum in each 1st quarter and a maximum in each 4th quarter of the year was revealed. Econometric modelling, taking into account all components of the time series, allows us to assume a slight increase in the level of housing commissioning in 2030, which does not contradict the logic of economic theory, as the industry has inertia in generating income, and stagnation in the economy forces investors to invest in real estate construction.

Funding statement

This research received no external funding.

Author Contributions

All authors have read and agreed to the published version of the manuscript. All authors made an equal contribution to the development and planning of the study.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data is available from the authors upon request.

Acknowledgments

Not applicable.

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