

Increasing the Attractiveness of the Country's Investment Environment based on Digital Technologies

Gafurov Ubaydullo Vaxabovich,

DSc of Tashkent State University of Economics, Tashkent, Republic of Uzbekistan.

Bayxonov Baxodirjon Tursunbaevich,

DSc of Tashkent State University of Economics, Tashkent, Republic of Uzbekistan.

Imomov Jamshidxon Odilovich,

PhD of Tashkent State University of Economics, Tashkent, Republic of Uzbekistan.

Abstract---Despite the wide opportunities created for investors in the countries, there are some problems in the field, in order to solve them, scientific achievements, modern technologies, including digital technologies, are of great importance.

In this article, the country's investment climate and the need to improve its attractiveness are revealed. Also, factors affecting the attractiveness of the investment environment, including a new methodology for evaluating the effectiveness of the introduction of digital technologies, are proposed. Based on the objectives of the research, it is most appropriate to use a generalized evaluation methodology in assessing the attractiveness of the investment environment of digital technologies and its effectiveness, that is, to reflect the broad goals.

Keywords---Investment, Economic Development, Effectiveness, Digital Technologies, Indicators, GDP.

I. Introduction

The "driver" that accelerates any economic development processes is investment, through which new techniques and technologies, innovative ideas, as well as capital of various tangible or intangible forms are attracted to the branches and sectors of the country's economy.

The beginning of the economic reforms carried out in the country is to attract more investments to the country's economy and, as a result, to create competitive products in international markets in accordance with the requirements of world standards. Investment is the main factor of economic development and the investment process is the key to economic restructuring. At present, a number of scientific and practical works and researches are being carried out in our country to increase the attractiveness of the investment environment, attract more investments to economic sectors and fields, and develop investment processes.

The development of the 21st century and its recognition as the information age leads to the widespread use of digital technologies and artificial intelligence capabilities in all industries. This, in particular, accelerates the exchange of information, provides convenient opportunities for investors to invest their funds in which sector or industry and evaluate its future prospects, achieve reliable provard results through scientific achievements, including digital technologies, and ensures high efficiency of the direct investment environment.

Despite the wide opportunities created for investors in many countries, there are some problems in the field, in order to solve them, scientific achievements, modern technologies, including digital technologies, are of great importance.

Under the conditions of the digital economy, the necessary infrastructure for inventors is not sufficiently developed, including the formation of modern instruments such as "digital guide", electronic notebooks, development of an investment map for free economic zones and special industrial economic zones based on digital technologies, improvement of the regulatory and legal frameworks related to the sector, effective use of digital technologies, modern information communication systems and mobile technologies and necessary conditions for investors, training of specialists who develop and serve the necessary instruments serving investors is considered one of the current issues.

II. Literature Review

Mohanty R.P., Agarwal R., Choudhury Rwanda, R.Aghwal, R.Choudhury for the evaluation of the net present value of the investment project and the rate of return on indefinite financial indicators on the basis of uncertain financial indicators on the basis of the uncertain investment project portfolio, Tiwari M.K. (1994), Dimova, Sevastianova P., Sevastianov D. (2006), Mohamed S., McSowan, AK. (2001), Samuelson, Paul A. on ways to identify risks and delusions, and prevent large numbers of delusions in analysis. Sharp U., Aleksandr G., BeyliDj. (1963), all types of securities and stock markets, theory and practice of their operations, methods of investment

management, and problems of invasion globalization. (2010), global aspects of investment activity, role of investment in the economy, strategy and tools for achieving investment objectives, Lorenz Dj.Gitman, Michael D. Dunk (2007), focusing on key economic issues: credit, financial and tax policies, global economics, and CR McConnell and S. Brewer (2002).

In the CIS countries R.B.Karasheva (2016) provides a dynamic programming approach in the optimal distribution of investment, the advantages of dynamic programming and optimal allocation of investment, VA Gorin provides the analysis of the capital-labor level in investment in the Russian economy, sources of investment activity, methods, forms, methods of their optimization, conditions for attraction of foreign investments N.G.Guskova, I.K.Kravovskaya, Yu.Yu.Slushkina, V.Makolev (2006), There are, of investment projects aimed at economic analysis of problems, the main methods of economic evaluation of the effectiveness of capital investments, financing of investment projects and business risk assessments and practical aspects of Vasyuxin O.V., Pavlova EA (2013).

Improvement of the investment climate in the Republic of Uzbekistan, ways and methods of their effective utilization and modeling of these processes were presented by S.S.Gulomov (2007), B.Yu.Khodiev (2006), Sh.Shodiev (1998), B.B.Berkinov, (2006), Y. Abdullaev (1987), R.H.Alimov (2014), B.Talimov (1995), N.M.Makhmudov (2012), D.M.Rasulev (2006) Kholmuminov S.(2021), Tursunov B.(2022) as well as in the works of scientists.

The models offered by these scientists do not take into account the uncertainty, risk and risk limits for investment and the modernization conditions of enterprises and companies. The proposed econometric and economic-mathematical modeling model, combined with the abovementioned facts, is a scientifically-practical development of the current state of the national economy and development perspective directions, considering the conditions of modernization and technical and technological re-equipment of enterprises.

III. Methodology

Based on the objectives of the research, it is most appropriate to use a generalized evaluation methodology in assessing the attractiveness of the investment environment of digital technologies and its effectiveness, that is, to reflect the broad goals.

The selected indicators and theoretical and practical results collected in a certain period of time, in accordance with the collected basis, indicators for the generalized assessment methodology should comply with a number of selection criteria.

General assessment

- importance and usefulness: to reflect the specific situation of the surrounding environment, to reflect the dynamics over time, to be able to provide international comparison;
- to have an analytical character: to have a scientific theoretical description, to be based on international standards, to be able to be included in economic models;
- measurability: it is possible to find statistical information, it is taken from official documents, it can be regularly updated.

Thus, in order to assess the effectiveness of digital technologies in increasing the attractiveness of the country's investment environment, it is necessary to form a set of important indicators that meet the necessary selected criteria.

These criteria can be conditionally divided into 3 groups, namely general indicators, indicators related to innovation and indicators related to digital technologies (Figure 1).

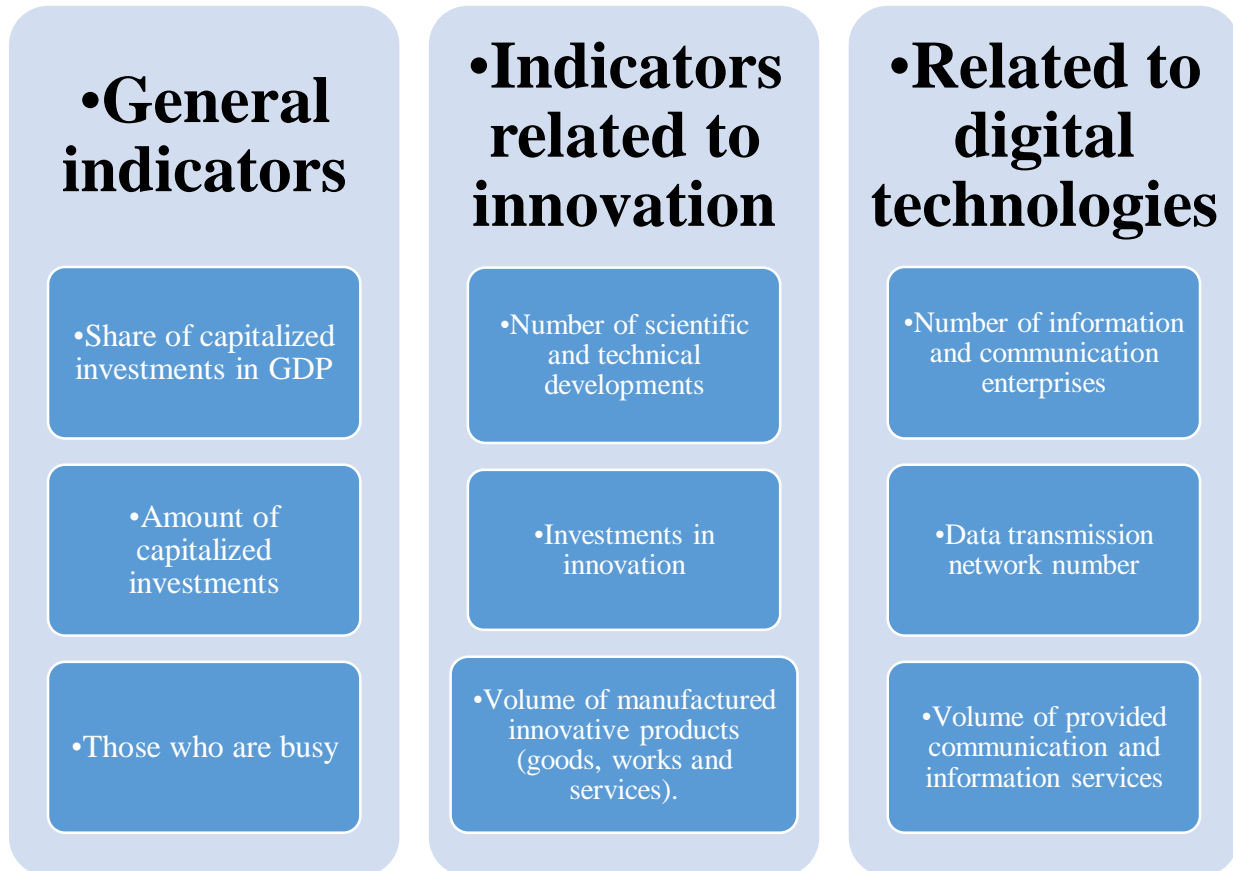


Figure 1: Indicators for Assessing the Impact of Digital Technologies on the Attractiveness of the Investment Environment and its Effectiveness

The purpose of the selection of these indicators presented in Figure 1 is to fully cover the indicators of the effectiveness of the investment environment and the processes of implementing digital technologies. To evaluate the quality and efficiency of the investment environment, we used a system of selected indicators and, based on them, special cumulative (complex) indices, which allows us to evaluate the effectiveness of the introduction of digital technologies aimed at increasing the attractiveness of the investment environment in the country and some of its regions.

The peculiarity of this method of evaluating the effectiveness of the introduction of digital technologies in increasing the investment attractiveness is that the necessary complex system of indicators, special indicators have not been developed to date. Based on the purpose and task of the research work, 9 main indicators allow a comprehensive assessment of the effectiveness of increasing the attractiveness of the investment environment in the country or some of its regions through the introduction of digital technologies. Selected indicators often represent not only the national economy, but also social and environmental spheres. For example, indicators of labor resources, capital, natural resources, innovation, investment, fixed capital investment and financial performance. Another indicator is energy consumption, which is expressed indirectly from an ecological point of view, because this indicator is related to the quality of use of natural resources (Table 1).

Table 1: Evaluation of Digital Technologies based on the Index of Key Indicators affecting the Attractiveness of the Investment Environment and Increasing its Efficiency

| № | Indicators | CS | The effect | 2011 | 2013 | 2015 | 2017 | 2019 | 2020 |
|---|---|----------------|------------|-------|------|------|------|------|-------|
| I | General indicators | | | | | | | | |
| 1 | The share of fixed capital investments in GDP, in % | S ₁ | - | -0,11 | 0,04 | 0,00 | 0,11 | 0,20 | -0,06 |
| 2 | Investments in fixed capital - total, bln. soum | S ₂ | - | 0,16 | 0,20 | 0,16 | 0,29 | 0,37 | 0,07 |

| | | | | | | | | | |
|--|---|----------------|---|-------|-------|------|-------|-------|-------|
| 3 | Those who are busy | P ₁ | + | -0,01 | 0,01 | 0,01 | 0,01 | 0,01 | -0,03 |
| II Indicators related to innovation | | | | | | | | | |
| 4 | Number of scientific and technical developments | P ₂ | + | 0,09 | 0,02 | 0,03 | -0,09 | -0,57 | 0,00 |
| 5 | Investments in innovation | S ₃ | - | 0,41 | 13,86 | 0,47 | 0,62 | 0,40 | 0,03 |
| 6 | Volume of manufactured innovative products (goods, works and services). | P ₅ | + | -0,27 | 0,27 | 0,14 | 0,73 | -0,07 | 0,16 |
| III Related to digital technologies | | | | | | | | | |
| 7 | Number of information and communication enterprises | P ₆ | + | 0,38 | 0,17 | 0,08 | 0,00 | 0,13 | 0,20 |
| 8 | Data transmission network number | P ₇ | + | 0,09 | 0,08 | 0,06 | 0,06 | 0,11 | 0,18 |
| 9 | Volume of provided communication and information services | P ₈ | + | 0,09 | 0,03 | 0,11 | 0,30 | 0,05 | 0,27 |

Source: Compiled by the author based on the information of the State Statistics Committee of the Republic of Uzbekistan.

Based on the introduction of digital technologies, the country's investment environment is divided into positive "+" and negative "-" groups in terms of costs and benefits, while increasing the attractiveness of the country's investment environment and analyzing indicators affecting its efficiency. The general indicators of quality and efficiency in the introduction of digital technologies through their systematized indicators and, as a result, increasing the attractiveness of the investment environment, are calculated using the following formulas:

Overall quality index:

$$U_{sif} = \frac{|\sum_{i=1}^n X_i - \sum_{i=1}^n K_i|}{n} \quad (1)$$

Here: U_{sif} – general quality index of digital technology implementation;

X_i – growth rate (index) of group indicators selected as positive;

K_i – growth rate (index) of group indicators selected as negative;

n – number of pointers.

General efficiency index:

$$U_{sam} = \frac{|\Delta U_{sif}|}{t} = \frac{|U_{sifT} - U_{sifT-t}|}{t} \quad (2)$$

Here: U_{sam} – general efficiency index of digital technology implementation;

ΔU_{sif} – the change in the overall efficiency index over a specific period of time;

T – the year of introduction of digital technologies;

t – period of introduction of digital technologies.

In the process, the selected period is taken as $T_0 = 0$, calculations are made by adding 1 to the following years, structural change by introducing digital technologies to the development of the country's investment environment - general efficiency indices of S are determined:

$$C = \frac{M}{X} 100\% = \frac{\sum_{i=1}^n X_i}{\sum_{i=1}^n K_i} 100\% \quad (3)$$

Here: C – effectiveness of factors affecting the attractiveness of investitsya;

X_i – growth rate (index) of positive influencing indicators;

K_i – growth rate (index) of negatively affecting indicators.

Each selected indicator is calculated by means of change values compared to the previous year based on a number of sub-indicators.

IV. Discussion and Results

According to the data presented in the table, it can be observed that the efficiency indicators of the introduction of digital technologies in increasing the attractiveness of the country's investment environment in 2010-2020 are increasing.

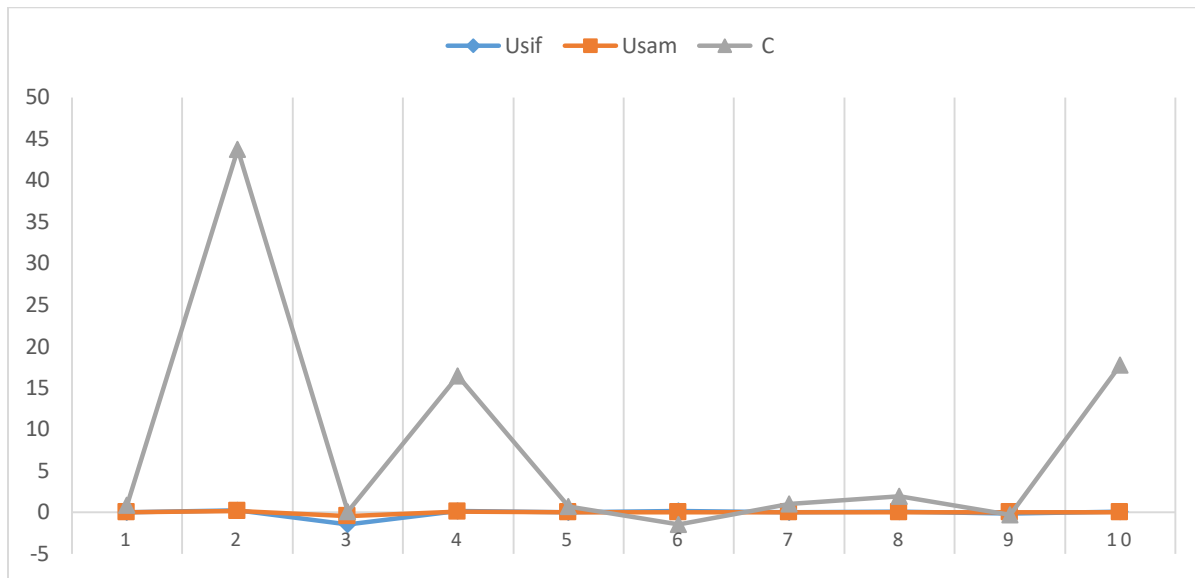


Figure 2: Changing Performance Indicators of Digital Technologies in Increasing the Attractiveness of the Investment Environment

It should be noted that the attraction of investments in the economy is considered a positive situation, but since it means an increase in indebtedness of this sector or sector, it was seen as a negative indicator. The analysis shows that the effectiveness of the introduction of digital technologies in the development of the investment environment has a positive effect in 2012, 2014, 2016 and 2017, and a negative effect in 2011, 2013 and 2015.

It should be noted that an important aspect of reforms aimed at increasing the attractiveness of the investment climate is its effectiveness, that is, the effectiveness of the implemented reforms shows that it is an important approach to ensuring the attractiveness of the investment climate in that country.

The attractiveness of the investment environment is evaluated by the high volume of directly attracted investments. Research work, observations and conducted analysis have shown that the effectiveness of the measures implemented in ensuring the attractiveness of the investment environment requires a comprehensive assessment of the influencing factors in this process and systematically taking into account all aspects. In particular, in order to improve the effectiveness of the implementation of digital technologies, the introduction of technologies alone is not enough, in turn, necessary personnel, a favorable environment, necessary infrastructures, as well as a necessary regulatory legal base are required.

V. Conclusions

According to the results of the research work, efficiency cannot be adequately evaluated by 2 factors in the evaluation of efficiency. In order to evaluate the effectiveness, it is desirable to systematically study the interrelationships of all the factors involved in this process and determine the connections between them, and draw a conclusion accordingly. The research conducted based on this approach allows to achieve the goal correctly and reliably.

It should be noted that now it is recommended to use econometric models for reliable and scientifically based assessment of economic processes. Since this process is specific to the existing time period and space, we tried to use mathematical-statistical formulas. This, in turn, leads to the high efficiency of the process of managing short-term strategic plans to achieve long-term goals.

References

- [1] Mohanty, R.P., Agarwal, R., Choudhury, A.K. and Tiwari, M.K. (1994). A fuzzy and-based approach to r&d project selection: a case study, *Int. j. Production research*, 43, 5199-5216.
- [2] Dimova I., Sevastianova P., Sevastianov D. (2006) Modern in a fuzzy setting: investment projects assessment application. *Int. j. production economics*, 100, 10-29.
- [3] Mohamed S., McCowan, AK. (2001) Modelling project investment decisions under uncertainty using possibility theory. *Int. j. Project management*, 19, 231-241.
- [4] Samuelson, Paul, 1963, "Risk and Uncertainty: A Fallacy of Large Numbers," *Scientia*, 98, 1963, 108–13.
- [5] Sharp U., Alexander G., Bailey J., (2010). *Investments: Trans.* - M.: Infra-M, - 1028.
- [6] Lawrence J. Gitman, Michael D. Jonck. (2007) *Investment Basics*. M.: "Case", p-10.

- [7] McConnell, K.R., Bru, S.L. (2003). *Economics: Principles, Problems and Policies*. 14th ed., Dorab. and rev. - M.: Infra-M, 2003. -972.
- [8] R. Karaseva. Optimal distribution of investments by investment objects using dynamic programming methods. *Scientific-methodical electronic journal "Concept"*. - 2016. -№ 7 (July). - 0.3. <http://e-koncept.ru/2016/16141.htm>
- [9] Gorin V.A. Sectoral distribution of fixed capital investments and profits in modern Russia. *Internet magazine "SCIENCE"*, Vol. 7, No. 6 (2015) <http://naukovedenie.ru/PDF/27EVN615.pdf> (free access). The title from the screen. Yazrus DOI: 10.15862 / 27EVN615
- [10] Guskova N.D., Kravovskaya I.N., Slushkina Yu.Yu., Makolev V.I. (2006) *Investment Management*. M.: Dashko and K, - 351 p.
- [11] Vasyukhin OV, Pavlova EA. *Economic appraisal of investment: study guide*. -SPb: SPb ITU ITMO, 2013. - 98 p.
- [12] Gulyamov S.S., Abdullaev A.M. et al. (2007). *Forecasting and Modeling of the National Economy*. / Edited by acad. Ss Gulyamova. - T.: Fan vatechnology.-214 p.
- [13] Shodiev T.Sh. (1988). *Problems of modeling the development of agriculture* (on the example of Uzbekistan): dis.dok.ekon.nauk.-T.: TSEU, -380 p.
- [14] Hodiev B. Yu, Berkinov B.B., Kravchenko A.N. (2006) *Evaluation of business value. Educational manual*. Under the supervision of Prof. B.Yu.Hodiyev - Tashkent: Fan, -228 b.
- [15] Abdullaev Yo. (1987). *"The Problems of Regional Economics's Efficiency Statistics"*. Fan dock dis - M: MESI.
- [16] Alimov R. X. et al. (2014) Econometric modeling of investment processes of enterprises efficiently. Teaching aids-T: Science and Technology, p. 104.
- [17] Gulyamov S.S., Salimov B.T. (1995) Modeling the use and development of the production potential of a region. T: Teacher, 154.
- [18] Maxmudov N. (2012). *Forecasting socio-economic processes*. Educational manual. T: "Economics" -192b.
- [19] Tursunov B. Provincial Features of Industrial Production Dynamics in the Research of Textile Enterprises' Financial Security in Uzbekistan. *Lecture Notes in Networks and Systems*, 2022, 368 LNNS, pp. 601–610.
- [20] Kholmuminov, S., Tursunov, B., Saidova, M., Abduhalilova, L., Sadridinova, N. Improving the analysis of business processes in digital era. *ACM International Conference Proceeding Series*, 2021, 775–789.
- [21] Rasulev D.M. (2006) Introduction to the dynamics of general economic equilibrium. Textbook.-Tashkent, ed. TSUE, -C-88.
- [22] Zadeh L.A. (1965) «Fuzze sets» *Information and Control* 8, 338-353. <https://www.liphy.ujf-grenoble>.
- [23] Chan D.Y. (1996) «Application of extent analysis method in fuzzy ahp». *European journal of operation research*, 95, 649-655.
- [24] Tursunbaevich, B.B., Axmadjonovich, Q.S. Improving Management based on the Forecast of Investment Utilization in Industrial Enterprises. *European Journal of Molecular & Clinical Medicine* ISSN 2515-8260 2020 y. Volume 07, Issue 07. 809-816. https://ejmcm.com/pdf_3289_6c1e6ba3e.htm.
- [25] Tursunbaevich, B.B. Abdulhakimov, Z.T., Khalilov, N.Kh., Colieva, G.A. Analysis of the development of the economy of the Republic of Uzbekistan on the basis of reducing the effects of the pandemia. / *Journal of Contemporary Issues in Business and Government*, 27(5), 2021. <https://cibg.org.au/> P-ISSN: 2204-1990; E-ISSN: 1323-6903 DOI: 10.47750/cibg.2021.27.05.013
- [26] Zade L.A. (1976) *"The concept of linguistic variable and its application to the adoption of approximate solutions"* publishing house "Mir", Moscow, 165.
- [27] Gmurman V.E. (1979) A guide to solving problems in probability theory and mathematical statistics. M.: "High School", 400.
- [28] Sturges H. (1926). The choice of a class-interval. *J. Amer. Statist. Assoc.*, 21, 65-66.