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THE ROLE OF NATIONAL PLANS IN DEVELOPING THE COMPETITIVENESS OF THE STATE ECONOMY

Nikolay I. Dorogov [1], Ivan A. Kapitonov [2], Nazygul T. Batyrova [3]

[1,2] Higher School of Tariff Regulation, Plekhanov Russian University of Economics, 117997, 36 Stremiannyy Lane, Moscow, Russian Federation
[2] Department of Energy Policy, Institute of Economics of the Russian Academy of Sciences, 117218, 32 Nakhimovsky Ave., Moscow, Russian Federation
[3] Higher School of Public Administration and Economics, Akhmet Yassawi International Kazakh-Turkish University, 161205, 29 B. Sattarkhanov Ave, Turkestan, Republic of Kazakhstan

E-mails: [1]nik.dorogov@ubogazici.in; [2]i.kapitonov@national-univesity.info; [3] naz.batyrova5187@tanu.pro

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Abstract. Competition at its core allows to acquire additional benefits to an enterprise by improving the quality of their activities. The activity of an enterprise, in turn, is based on the desire of state authorities to provide an environment for a comfortable business. In the context of the growing crisis, it becomes extremely relevant to determine the principles that can serve the development of the business environment and, accordingly, form the prerequisites for the qualitative development of the country as a whole. The novelty of the study is determined by the fact that the state puts business plans of the national type at the basis of the development of the business environment, which affect not only the possibility of developing entrepreneurial activity in gross form, but also personalised data. The authors show that a similar basis can be expressed in the development of intellectual capital. The practical significance of the study is determined by the need to ensure the development of entrepreneurial activity in the face of overcoming a systemic crisis. It is proposed to reduce the participation of the state as an institutional participant in favour of infrastructure support.

Keywords: business plan; entrepreneurial activity; strategy; crisis; intellectual innovation

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JEL Classifications: F30, F36, G15, G20

1. Introduction

The key tool for the development of any national economy is now becoming intellectual capital – a new and more complex form of capital with significant socio-economic potential (Oh et al., 2011). It is characterised by a high degree of development in comparison with the already known forms of capital (Chatzkel, 2006). Countries, in

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2020 Volume 8 Number 1 (September)
http://doi.org/10.9770/jesi.2020.8.1(46)

which intellectual capital and new knowledge and high technologies are actively formed and used and the basis for the competitiveness of goods, services, firms, are characterised by a sustainable level of economic development (Maltseva, & Monakhov, 2014; Zavadskyi et al., 2020).

Currently, the technological revolution with information technology in the centre is re-forming the material basis of society. In the new information economy – a knowledge-based economy – the source of productivity lies in knowledge generation technology. The concept of "information economy" was introduced into scientific circulation in the early 60s of the last century (Chowdhury et al., 2019). Knowledge and information are critical elements in all economic systems, since the production process always takes place on the basis of the gained knowledge and the processing of relevant specialised information. The development of fixed capital is an indicator of the extent to which general social knowledge is turning into a direct productive force, and hence an indicator of the extent to which the conditions of the social life process itself are subordinated to the control of universal intelligence and are transformed in accordance with it (Tseng, & Goo, 2005; Vigliarolo, 2020).

It should be noted that factors of economic development have always been the subject of research by scientists (Korshenkov, Ignatyev, 2020). Economists tried to explain the reason for the rapid development of some economic systems in comparison with others. Representatives of theories of economic growth tried to explain this contradiction. It was they who focused considerable attention on the role of knowledge in the socio-economic development of society. Today, advanced technology is radically changing entire sectors of the economy at a rapid pace. The era of innovation, the so-called Fourth Industrial Revolution, is accompanied by the creation of a completely new type of industrial production, which is based on big data, robotics, augmented reality technologies, artificial intelligence. On the one hand, this is a logical and natural course of the technical process, which is designed to bring the life of mankind to a new, qualitatively higher level. On the other hand, the question arises of what negative consequences this may lead to (Tvaronavičienė, 2018; Plėta et al., 2020; Chehabeddine, & Tvaronavičienė, 2020). Partial or full use of materials is allowed only if the first paragraph of the article contains a link to the source (for Internet resources – hyperactive and open for indexing by search engines).

Business is mainly looking for simple ways, which is, first of all, "capitalisation on natural resources". However, for "capitalisation on the intellect", the key is the state's activity aimed at creating incentives for digitalisation and the formation of digitalisation needs. Otherwise, the "resource economy" will win in the future. As is known, the official and objective vision of the development of "intellectually intensive, creative, innovative markets", including "digital", is only being formed. The key principle of successful policy in this area is not the expectation that everything will go away by itself, but stimulation, help – in order to develop, increase and use the capabilities of the intellect to create digital value added (Rudenko, 2019; Rudenko, & Hochradel, 2017).

2. Literature Review

The integration of knowledge allows to solve new problems, relying on experience, avoiding mistakes repetition. Knowledge management in today's economy is an important task. Today, production efficiency largely depends on the speed and quality of processing knowledge accumulated by the company's specialists (Popkova et al., 2015). After all, knowledge that is not used and does not grow – become obsolete and useless, in turn, the knowledge that is distributed and exchanged, on the contrary, generates new knowledge. Many modern companies that have achieved success and have won a significant percentage of the market have already recognised the fact that knowledge, the ability to use it correctly and generate new knowledge is the secret to their success (McPhail, 2009). Based on this, knowledge can be defined as information organised to solve a particular problem. In the process of its development, knowledge acquires new qualities through the addition of additional skills and experience. Knowledge involves taking advantage of data and information enriched by individual experience, talents, and skills in order to be able to make the right decisions (Young et al., 2009).

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2020 Volume 8 Number 1 (September)
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Obviously, there is a way to make wise and informed decisions, which is built on the basis of data through training and knowledge assessment. This decision-making process is summarised using a learning curve that goes a few lines. The data set is not yet information; it needs to be processed (Van Hoa et al., 2018). Information is generated during the processing of data that relate to descriptions, definitions, classifications and answer questions: how, what, who, when, where. Knowledge is formed, in turn, in the conditions of information processing, when the picture and consequences will be realised. Therefore, the answer to the question of "how" includes a strategy, experience, method or approach. Knowledge contains patterns and must be defined for codification. Information and society are the environment in which a person function. Man is a creative organisational and unifying element of the information environment with society. Intellectual capital is created by a person who turns information into knowledge. Almost all components of intellectual capital can function only in conjunction with a person, since their direct or indirect carriers are driven by human knowledge and skills (Kong, 2010). Therefore, the absence or inappropriate investment in the development of human resources leads to the depreciation of intellectual capital. Based on this, it is worth noting that the "information – knowledge" system is the main economic component of intellectual capital (Sharma, & Dharni, 2017; Nurgaliyev et al., 2014).

As they are used, information and knowledge, acquiring new properties in the production process, are realised in the form of intellectual capital. The rapid development of services and intangible production increase the role and importance of information and knowledge in the modern economy of the world. A high level of development of the service sector means profound changes in production factors, when information and knowledge turn into the main production resource, and a person is the carrier of this factor and the force that applies and uses it takes the form of intellectual capital (Mustafin et al., 2016). Intellectual capital characterises the formation and development of the information post-industrial society, in which information and knowledge play an increasingly important role. In the modern informational post-industrial society, a person is a carrier of knowledge, since they are its property. Owing to his own labour force, which is manifested in experience, abilities, skills, a person turns knowledge into production results. Thus, a new type of capital is formed – human capital, which is capable of independently using its own knowledge and ability to generate new products (Nadeem et al., 2017).

It should be emphasised that competitive advantages are achieved precisely through the use of intellectual resources that support a more flexible business model. Therefore, in addition to the development of traditional economic factors (capital, land, labour), an analysis of theoretical problems and improvement of the process of using intellectual capital is necessary. Humanity is already living in the era of the information society and intellectual economy. Today, without attracting serious investment in science, it is impossible to talk not only about economic leadership, but also about economic development as such. Recent trends in the development of the global economy prove that production, science and education are the most economically viable and interconnected industries (Molodchik et al., 2014). The world is undergoing a rapid process of intellectualisation of the economy (Nurgaliyev et al., 2015; Konurbayeva et al., 2015).

It can be concluded that the concept of intellectual capital reflects the stage in the development of society in which information and knowledge become qualitatively new factors of production. In the case of such traditional factors of production as land, labour and capital, the realisation and multiplication of the physical forces of a person took place, and as for intellectual capital, the mental potential of a person is realised and increased (Maji, & Goswami, 2016). In addition, if the use of traditional factors of production reduced their measurement, the use of information and knowledge, on the contrary, increases their number.

3. Materials and Methods

The study of intellectual capital and its impact on socio-economic development pays considerable attention, both among foreign and domestic scientists. In this case, it is necessary to note a somewhat limited number of works

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2020 Volume 8 Number 1 (September)
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by scientists devoted to this issue. Therefore, the authors faced the task of constructing a model of the relationship of the components of intellectual capital with the main development indicator, in particular, statistical data on the gross domestic product were taken for analysis.

When determining an econometric model, the choice of an econometric modelling method is essential, which must satisfy the following conditions: high values of the correlation and determination coefficients of the model; statistical significance of the obtained estimates of the model parameters. Based on the data of the official site of Rosstat, for the construction of an economic and mathematical model of the relationship between the components of intellectual capital and gross domestic product, the initial data were generated (Table 1).

Table 1. Dynamics of macroeconomic indicators for constructing an economic and mathematical model of the relationship between the components of intellectual capital and gross domestic product

Indicators	2012	2013	2014	2015	2016	2017	2018	2019
Share of the population (graduated specialists) with higher education (HE), %	5.6	5.6	5.2	5.2	4.4	4	3.6	4
The proportion of the number of employees involved in the implementation of R&D, %	16	15.2	14.4	13.6	12	11.6	9.2	8.8
The share of domestic spending on R&D in GDP, %	2.8	2.4	2.8	2.8	2.4	2.4	2	1.6
The share of exports of goods and services in GDP, %	202.8	215.2	203.6	187.6	196.8	211.2	197.2	191.6
The share of foreign investment in capital, %	8.4	8.4	7.2	6.8	10.4	12	10.8	5.6
Nominal GDP, billion dollars	4330.4	5266.4	5635.6	5819.6	6266.8	7918	9532.8	11931.6

It should be noted that the relationship between the coefficient of the nominal gross domestic product total for the country characterises its economic development (Y) in billions of dollars with the components of intellectual capital: the share of the population (graduated specialists) with higher education (X_{il}) – human capital, the proportion of the number of workers involved in R&D (X_{i2}), the share of internal R&D costs in GDP (X_{i3}) – structural capital, and the share of exports of goods and services in GDP (X_{i4}), the share of investment in capital (X_{i5}) – client capital. Thus, linear regression will have the following form:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \varepsilon_i \quad (1)$$

where: β – regression parameters (coefficients), x – influence factors, i – number of model factors.

Results and Discussion

Checking the resulting model for the phenomenon of multicollinearity is of great importance during correlation and regression analysis. For a more visual presentation, the input data on macroeconomic indicators were reduced

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2020 Volume 8 Number 1 (September)
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to a correlation matrix, which is used to measure the strength of the relationship between the selected factor values and the effective indicator (Table 2). Calculation of the correlation matrix allows to conclude that there is a significant relationship between the effective GDP and factor values, and especially with the share of the population with higher education, the share of workers involved in performing research and the share of internal research costs. On the worksheet the source data in the form of columns of an array is formulated (Table 2).

Table 2. The correlation matrix of the relationship of the components of intellectual capital and gross domestic product

	Share of the population (graduated specialists) with higher education (HE), %	**The proportion of the number of employees involved in the implementation of R&D, %**	**The share of domestic spending on R&D in GDP, %**	**The share of exports of goods and services in GDP, %**	**The share of foreign investment in capital, %**	**Nominal GDP, billion dollars**
Share of the population (graduated specialists) with higher education (HE), %	1					
The proportion of the number of employees involved in the implementation of R&D, %	0.9500	1				
The share of domestic spending on R&D in GDP, %	0.7416	0.8607	1			
The share of exports of goods and services in GDP, %	0.2668	0.4296	0.1939	1		
The share of foreign investment in capital, %	-0.4261	-0.1479	0.2431	0.4466	1	
Nominal GDP, billion dollars	-0.8413	-0.9459	-0.9236	-0.3619	-0.6569	1

Using these indicators, a regression analysis of variance was performed and the influence of all factors on the effective indicator of the gross domestic product was analysed (Table 3).

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2020 Volume 8 Number 1 (September)
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Table 3. Regression analysis between the components of intellectual capital and gross domestic product

Regression equations	Determination coefficient
$Y = 5346 - 2971x_1 + 32x_2 - 1695x_3 + 43x_4 - 600x_5$ where: x_1 – share of the population (graduated specialists) with higher education, %; x_2 – the proportion of the number of employees involved in the implementation of R&D, %; x_3 – the share of domestic spending on R&D in GDP, %; x_4 – the share of exports of goods and services in GDP, %; x_5 – the share of foreign investment in assets, %.	$R^2 = 0,9863$

There are the following results: a correlation coefficient $(r = 0,9931)$ that lies within (-1; 1) and indicates a direct, strong, linear relationship; the results of the study show that a 98.63% variation in the gross domestic product (determination coefficient $R^2 = 0,9863$) depends on a variation in the values of the components of intellectual capital – human, structural, and client – and only 1.37% from other random variables, including the stochastic component.

Also, to check the constructed linear regression model, F-statistics were calculated, in this case $F_{pozp} > F_{tabl}$ $\left(F_{pozp} = 28,76, F_{tabl} = 19,3\right)$. Based on this, the model is considered adequate. Moreover, the calculated t-criterion of Student's statistics (1.55) is greater than the tabular value $(t_{tabl} = 1,39)$), but not for all indicators due to insufficient information series (the 5-factor model should contain 40 points for analysis). Since the points on the graph schematically form an ascending line, it can be noted that the data are distributed approximately normally (Fig. 1).

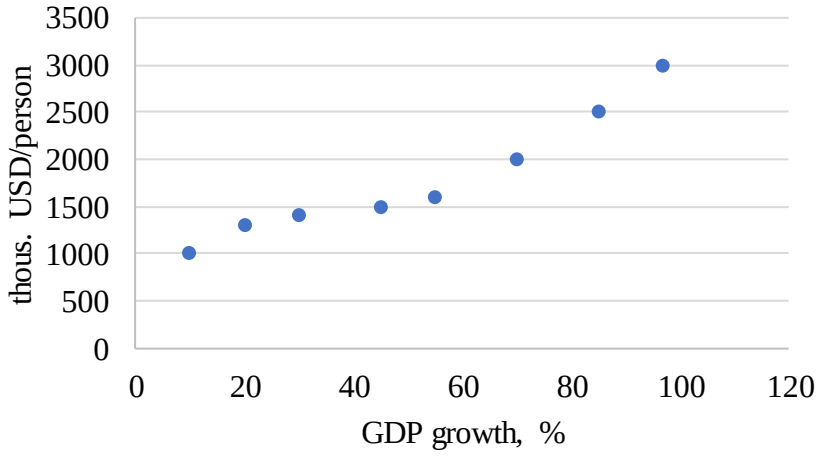

Fig. 1. The graph of the normal distribution of gross domestic product

In addition, the graphs of residuals on the absence of disturbance in the autocorrelation model, as well as on the possible absence of heteroskedasticity were studied (Figs. 2-4). Having analysed the graph of the residuals of the linear model of the dependence of the gross domestic product coefficient on the structural capital indicator

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2020 Volume 8 Number 1 (September)
http://doi.org/10.9770/jesi.2020.8.1(46)

represented by the specific gravity of the number of workers involved in R&D, it can be concluded that there is no disturbance in the autocorrelation model, as well as a possible lack of heteroskedasticity (Fig. 2).

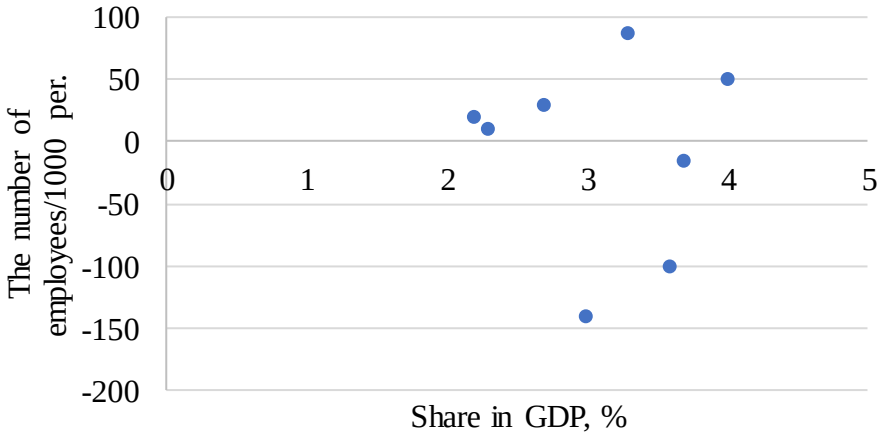

Fig. 2. Graph of the residues of the share of the population with higher education, %

The same thing happens with the schedule of balances from human and client capital, which helps us to verify the adequacy of the model and the possibility of its use for further forecasting (Fig. 3-4).

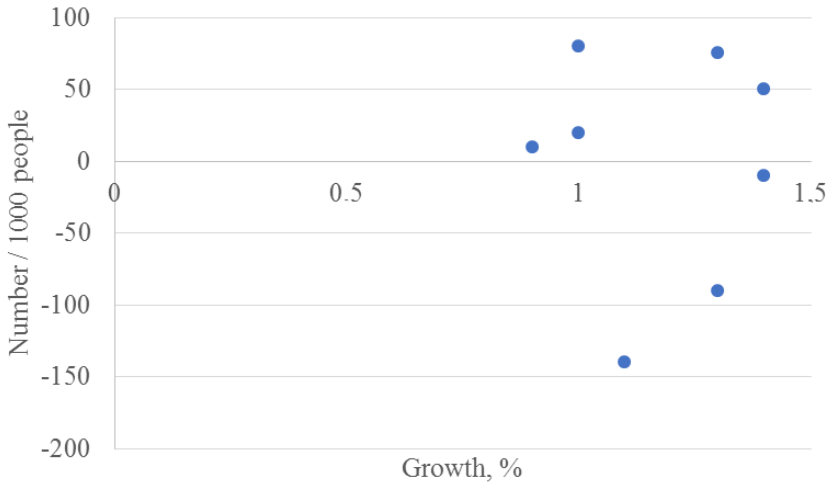

Fig. 3. Graph of the remainder of the share of the population with higher education, %

As it can be seen, the residues are concentrated on the horizontal axis along the abscissa, so the linear model can be considered adequate.

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2020 Volume 8 Number 1 (September)
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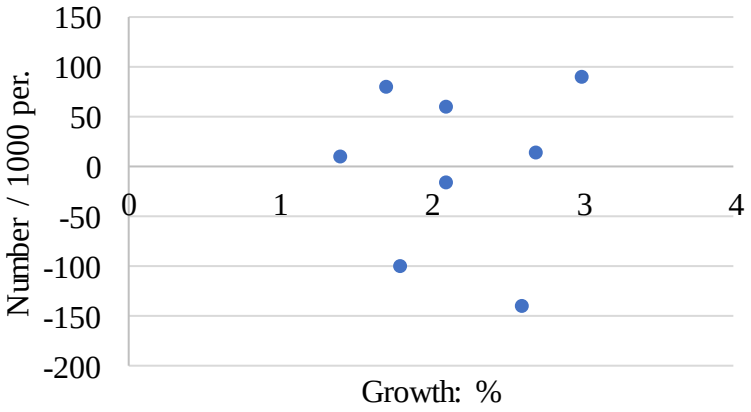

Fig. 4. Graph of the balance of the share of investments in intangible assets, %

Following all the changes in the regression statistics of the constructed model, the following result can be summarised: the results obtained correspond to the logical interpretation of economic processes and reflect the close relationship between the indicators. In this case, the country's economic development and its competitive position is associated with the development of intellectual capital, and this indicates the country's ability to improve its position by developing an effective mechanism for managing the components of intellectual capital.

Having made sure that the components of intellectual capital are interconnected with the development of the country as a whole, it was decided to build a forecast for the development of the coefficient of efficiency of use of intellectual capital using the Excel environment. The forecast was decided to be implemented using several options: based on the use of the trend line, using the Moving Average methodology and the "Forecast Sheet" setting. Using the trend line, the level of development of intellectual capital for the next four years was predicted, and this our case, 2020-2023 fell into this range (Fig. 5).

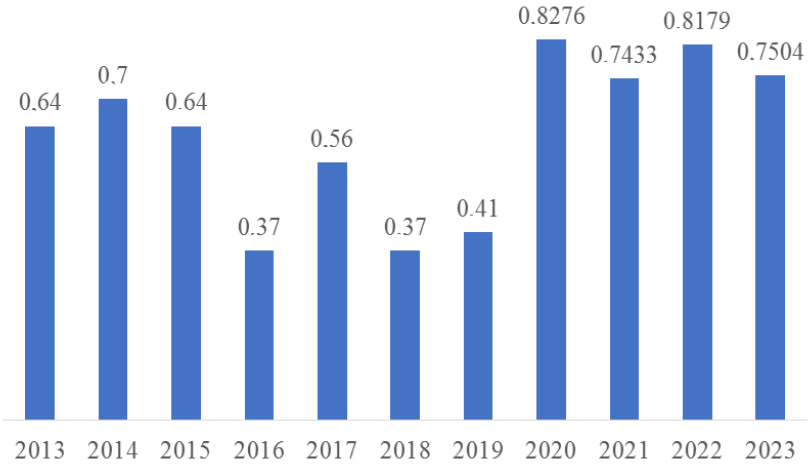

Fig. 5. Dynamics of the efficiency coefficient of intellectual capital use for 2013-2019 and forecast for 2020-2023

Having found the most successful trend equation, time series were presented in the form of a histogram relative to the indicator of intellectual capital, and the results are grouped in Table 4.

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2020 Volume 8 Number 1 (September)
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Table 4. Selection of a trend equation in Excel

Equation form	Equation value	Determination coefficient, R^2
Linear	$y = -0,073x + 0,8473$	$R^2 = 0,7504$
Logarithm	$y = -0,241ln(x) + 0,8481$	$R^2 = 0,8179$
Polynomial of the 2nd order	$y = 0,0135x^2 - 0,1813x1 + 1,0097$	$R^2 = 0,8276$
Exponential	Y=0,879x-0,416	$R^2 = 0,7433$

Taking into account the results of analytical alignment, for the mathematical model of the trend, a polynomial equation of the 2nd order is selected, since the determination coefficient is the highest. As it can be seen, in the forecast case, the value of the intellectual capital indicator will fall more and more under constant circumstances, including the dynamics of past years on the basis of three models (linear, logarithmic and exponential). However, the most adequate model of the trend of the second-order polynomial equation indicates a partial stabilisation of the indicator and its alignment to a value of 0.43 unit in 2020 and 0.48 unit in 2020, which is still less than the results of 2013-2015.

The predicted values of the coefficient of effective use of intellectual capital, which were calculated using the Excel setting "Forecast Sheet", allowed to simulate the situation for the period 2020-2023 and identified certain confidence intervals with an upper and lower limit. Confidence intervals are formed in order to overlap the forecast of fluctuations and take into account the forecast accuracy of about 95%. The constructed forecast showed very disappointing values for 2020-2023. On average, a decrease occurs by – 0.08 percentage points and amounts to 0.23 unit in 2020 and 0.25 unit in 2021, which demonstrates a downward trend and indicates the need for active action on the part of state authorities in order to avoid a negative effect on all spheres of economic life (Fig. 6).

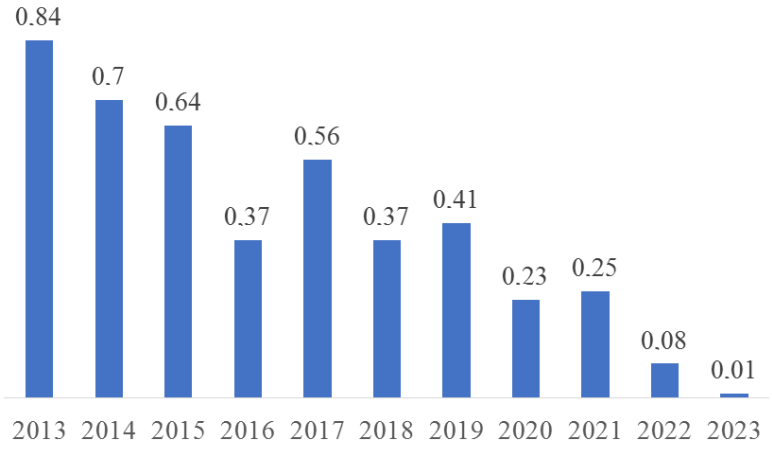

Fig. 6. The predicted value of the indicator of the effectiveness of the use of intellectual capital for 2020-2023

As for the third method of forecasting "Moving average", it can be used for short periods of time, this is both an advantage and a disadvantage, since it will not be indicative for a long-term period of time. To verify the adequacy of the forecast for 2020 and 2021, a forecast was built for the period of actual calculation data, namely for 2017-2020. Also, the accuracy of the forecast was calculated, which made it possible to determine the correctness of such an approach. The accuracy of the forecast, which is within 10%, indicates a high accuracy of the forecast made, in this case, 2018-2020. A high percentage of discrepancies in 2017, due to fundamental changes in the socio-economic situation. A similar tool can be used, but more in the short term. In this case, the forecast figure is 0.44 unit in 2021 and 0.39 unit in 2022 (Table 5).

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2020 Volume 8 Number 1 (September)
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Table 5. The predicted value of the intellectual capital effectiveness ratio according to the method of "Moving average"

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Intellectual capital effectiveness ratio (|ICER)	0.84	0.7	0	0.64	0.37	0.56	0.37	0.41		
ICER fforecast according to «Moving average»					0.73	0.57	0.52	0.43	0.44	0.39
Error forecast predicting its accuracy					49%	3%	9%	6%		

It should be noted that the constructed forecasts, according to the three above methods, passed the test for adequacy and can be recommended for further use.Based on the forecasts made, it was decided to form the so-called scenarios for the development of intellectual capital effectiveness ratio for 2020 and 2022: optimistic, realistic, pessimistic and optimally realistic. The optimistic scenario database (Table 6) contains the results of the linear trend of the second order polynomial equation, the realistic scenario is based on the forecast using the Moving average method, the pessimistic forecast is built by setting the "Forecast Sheet" with the indicated high probability of execution within 95%.

Table 6. Scenarios for the development intellectual capital effectiveness ratio (ICER) for 2020 and 2022

Development scenarios	2020	2022
Optimistic	0.43	0.48
Realistic	0.44	0.39
Pessimistic	0.23	0.25
Optimally realistic	0.38	0.40

As for the alternative scenario, the basis is the constructed upper confidence border of the forecast for setting the "Forecast Sheet". As it can be seen, each of the forecast scenarios does not show high results in the next 2 years. The most optimistic forecast indicator is 0.48 unit in 2022, which will allow to slightly improve a position compared to 2019, but still lags behind 2013-2015. The most pessimistic forecast indicator is 0.23 unit in 2020, of course, this value is quite low and causes some doubts, but in the case of inaction and lack of proper support for the development of the country's intellectual capital is highly probable.

Thus, the obtained simulation result indicates a direct, fairly close relationship between intellectual capital and gross domestic product, and the predicted values of the analysed indicator according to three calculation methods, and, accordingly, the formed development scenarios, indicate its decline and require operational decisions to improve the existing situations of development of intellectual capital in the country. An important step is to determine the significance of the influence of each component of intellectual capital on the competitiveness of the national economy. For this purpose, an expert group was created, the members of which determined the ranks of the identified areas of development of the components of intellectual capital according to the degree of materiality of influence.

The experts were specialists from various fields of activity whose positions are as follows: accountant, English teacher, project coordinator for launching new products, programmer, business development specialist, forecasting coordinator, etc. The paired method was chosen to simplify the expert assessment procedure comparisons, which does not require expert knowledge of mathematics or statistics. The essence of this method can be described as follows. It is necessary to compare the elements in pairs by the strength of their influence on the trait under study, namely: the competitiveness of the national economy. The next step is to write into the matrix of numbers, which reflects the agreement reached in the judgment in the judgments, and calculate the eigenvector with the largest eigenvalue. The eigenvector provides an ordering of priorities, and the eigenvalue acts as a measure of consistency of judgments.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2020 Volume 8 Number 1 (September)
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For further analysis on the importance of the components of intellectual capital on the competitiveness of the national economy, the following general areas of the state were identified:

1. Science (the number of employees involved in the implementation of research and development, participants in doctoral studies, the proportion of the volume of research and scientific and technical work performed in the gross domestic product, etc.).
2. Education (the proportion of the population with higher education, the share of household spending on education, etc.).
3. Innovation (the number of organisations engaged in research and development, research and development costs, etc.).
4. Technologies (the number of enterprises that have created advanced technologies, the number of technologies created).
5. Reputation/Brand (export share, public debt, etc.).
6. Investments (the share of foreign investment in capital, the share of investments in intangible assets, etc.).

The second step was a pairwise comparison of factors. For comparison, the scale developed by Saati was used (Table 7).

Table 7. The scale of the relative importance of objects

Importance degree	Definition	Characteristics
1	Equal significance	Two factors have the same effect.
3	Some prevalence of the significance of one factor over another (weak significance)	Experience and judgment provide a slight advantage of one factor over another.
5	Significant or strong significance	Experience and judgment give prerogative to one factor over another
7	Very strong or obvious significance	A significant advantage of one factor over another. Its priority is almost overt.
9	Absolute value	The dominance of one factor over another
2, 4, 6, 8	Intermediate values between adjacent scale indicators	Compromise options
Numbers refer to the above	If, in comparing the object x_i with the object x_j, the first object received one of the above ranks, then the other object receives a rank inverse to the value the first object's rank	

By general agreement, a comparison is always made for the factor in the left column, relative to the factor from the top row. Thus, there is a matrix of pairwise comparisons for six columns and six rows (6x6 matrix). The results of the analysis are shown in Table 8.

Table 8. The matrix of pairwise comparisons according to Saati method

	Science	Education	Innovation	Technologies	Reputation / Brand	Investments
Science	1	1	2	1/4	1/5	1/8
Education	1	1	2	1/5	1/4	1/6
Innovation	1/2	1/2	1	1/8	1/6	1/8
Technologies	4	5	8	1	2	1/3
Reputation/Brand	5	4	6	1/2	1	1/2
Investments	8	6	8	3	2	1

Based on the matrix presented in Table 8, using the geometric mean formula W_i, the relative value of each combination is calculated:

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2020 Volume 8 Number 1 (September)
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$$W_i = \frac{\sqrt[m]{a_{i1}...a_{im}}}{\sum_{i=1}^{m}\sqrt[m]{a_{i1}...a_{im}}} \quad (2)$$

where a_i – the elements of the matrix; m – number of objects; $i = \overline{1,m}$ – index.

$$W = \begin{pmatrix} 0,054396 \\ 0,057068 \\ 0,033242 \\ 0,245898 \\ 0,199038 \\ 0,410358 \end{pmatrix} \quad (3)$$

Note that the vector of relative values calculated above makes it possible not only to determine the weighting coefficients for the main components of the state's intellectual capital, but also to streamline priorities. The next phase of the process of calculating weight coefficients is to determine the degree of consistency of expert judgments. To do this, according to the algorithm, it is necessary to multiply the original matrix of pairwise comparisons by the corresponding values of geometric mean:

$$A_w = \begin{pmatrix} 1 & 1 & 2 & 1/4 & 1/5 & 1/8 \\ 1 & 1 & 2 & 1/5 & 1/4 & 1/6 \\ 1/2 & 1/2 & 1 & 1/8 & 1/6 & 1/8 \\ 4 & 5 & 8 & 1 & 2 & 1/3 \\ 5 & 4 & 6 & 1/2 & 1 & 1/2 \\ 8 & 6 & 8 & 3 & 2 & 1 \end{pmatrix} \times \begin{pmatrix} 0,054396 \\ 0,057068 \\ 0,033242 \\ 0,245898 \\ 0,199038 \\ 0,410358 \end{pmatrix} = \begin{pmatrix} 0,330524 \\ 0,345280 \\ 0,204179 \\ 1,549618 \\ 1,226869 \\ 2,589638 \end{pmatrix} \quad (4)$$

The result A_w is divided by components into the corresponding values of the relative values of the objects:

$$\lambda_1 = \begin{pmatrix} 6,076248 \\ 6,050342 \\ 6,142232 \\ 6,301882 \\ 6,163986 \\ 6,310673 \end{pmatrix} \quad (5)$$

And to calculate the maximum eigenvalue of the matrix λ_{max} as the arithmetic mean:

$$\lambda_{max} = \frac{\sum_{i=1}^{m}\lambda_i}{m} = 6,1 \quad (6)$$

The final step in determining the consistency of expert responses is to calculate the Saati Consistency Index using the formula:

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2020 Volume 8 Number 1 (September)
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$$J = \frac{\lambda_{max} - m}{m-1} = \frac{6{,}1-6}{5} = 0{,}02 \quad (7)$$

It should be noted that expert answers are considered consistent if the calculated consistency index is up to 10% of the reference. The reference value for a given number of objects is determined using the table of reference values of the consistency index depending on the number of compared objects (Table 9).

Table 9. Reference Consistency Index

The number of compared objects	3	4	5	6	7	8	9	10	11	12	13	14	15
Reference value	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.54	1.56	1.57	1.59

In this case, the reference value is 1.24. It follows that the consistency index is 1.61% of the benchmark. Such a value of the level of consistency gives grounds to assert that weighting factors for the components of intellectual capital can be indicated. The development of weight coefficients of intellectual capital in the Table 10, which can be used for further research was conducted, namely when developing a national plan to improve the competitiveness of the country's economy. Based on the obtained weight coefficients, it is possible to build a model for the development of the country's intellectual capital (4), according to which the state should stimulate and support primarily client capital.

Table 10. Weight coefficients for priority components of intellectual capital as a competitive factor

Factor name	**Weight coefficient**
Science	0.054396
Education	0.057068
Innovation	0.033242
Technologies	0.245898
Reputation/Brand	0.199038
Investments	0.410358

In this analysis, client capital is represented by the country's investments and reputation. The data of Table 10 indicate the necessity to focus on paragraph 6 (investment), which is of the utmost importance among the experts surveyed, which is also confirmed by the positive results of the investment attractiveness index. The results of the index indicate negative business sentiment at the end of 2019 (the indicator was 3.03 points out of 5 possible), 58% of entrepreneurs are not satisfied with the investment climate. The lowest values of the index were recorded in 2017 and the beginning of 2018 (in January-February 2018, it amounted to 2.51 points out of 5 possible), which was largely due to political instability and the economic downturn. Structural capital, namely technology, requires special attention, and further on, human capital – science and education. And the final component, according to experts, is innovation.

Conclusions

Now scientists pay considerable attention to the importance of intellectual capital in achieving the effective functioning of economic systems and raising the level of production. This problem is relevant for countries whose economies are undergoing a deep recession. A sharp devaluation of the national currency, high inflation and a prolonged decline in industrial production significantly reduce economic activity, domestic demand, and weaken the position of the banking system. The prospect of the development of civilised states in the transition to a post-industrial society is associated with solving the problems of protecting, supporting, building up, using and commercialising intellectual capital as one of the most important strategic factors of economic growth. In the

developed countries of the world, the process of formation and development of a new branch of social production, the industry of the so-called "information-intellectual products", is underway. In this situation, the development of the market of information and intellectual products and services becomes the main strategic direction.

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Nikolay I. DOROGOV
ORCID ID: orcid.org/0000-0002-3098-2741

Ivan A. KAPITONOV
ORCID ID: orcid.org/0000-0001-9713-4563

Nazygul T. BATYROVA
ORCID ID: orcid.org/0000-0002-6964-6200