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DIAGNOSTICS OF INNOVATIVE DEVELOPMENT OF ENTERPRISES IN KYIV CITY

ABSTRACT

The article substantiates the need to diagnose the state of innovative development of enterprises in Kyiv. It is determined that the solution to the problems of destabilization of enterprises is seen primarily in the formation of a system of conceptual foundations for ensuring innovative development and its diagnostics. The prerequisites for diagnosing the innovative development of enterprises in the city of Kyiv are determined: lack of conditions for effective innovative development of enterprises in the current globalization environment; the need to develop a scientifically sound conceptual framework for diagnosing the status of enterprises; the need to develop appropriate mechanisms to support and manage the innovative development of enterprises in the city of Kyiv. The author proposes a methodology for assessing the innovative development of enterprises based on the criteria of business performance, namely: the ability of enterprises to optimally allocate and efficiently use resources (resource component); social component; market component; innovation component. Various scientific studies on the problem of diagnosing the innovative development of enterprises in Kyiv have been summarized, which allowed to distinguish two main methods of calculating: Euclidean metric, which allows for each indicator of innovative development of enterprises; on the basis of the second method, it is advisable to make a comparison for each presented functional component of the innovative development of enterprises in Kyiv and assess its contribution to the overall level of development. The key feature of assessing the level of innovative development of enterprises to the presented algorithm is that its practical implementation allows to satisfy the interests of both enterprises in the city of Kyiv and their constituent sub-levels.

Keywords: innovative development, strategy, enterprises, diagnostics, resources, efficiency

JEL Classification: L21, M15, M21, O12, O32

INTRODUCTION

In order to ensure effective functioning, the assessment of innovative development of enterprises is becoming increasingly important. The negative consequences of transformations in Ukraine are the prolonged depletion of business resources of its innovative development. The solution to the problems of destabilization of enterprises is seen primarily in the formation of a system of conceptual foundations for ensuring innovative development and its diagnostics. The state has an important role in ensuring the innovative development of enterprises. The lack of conditions for effective innovative development of enterprises in the current globalization environment necessitates the development of a scientifically sound conceptual framework for its diagnosis with a view to developing appropriate support and management mechanisms in the future. The article represents a conceptual approach to building an algorithm for diagnosing the innovative development of enterprises in Kyiv.

LITERATURE REVIEW

In its content, the diagnostic of innovative development of enterprises is a process of harmonization between the subject of evaluation and the criteria for achieving the level of development, which allows to substantiate the logic of achieving strategic business

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goals under the influence of internal and external destabilizing factors [1-5]. The versatility of scientific views on the nature and methodology of diagnosing innovative development, which can be applied to business entities, actualizes the issue of studying key approaches to its assessment, where the subject of assessment is:

- the object of research (we have chosen to study the activities of enterprises in Kyiv);
- factors of influence on the object of the relevant research (external and internal threats) [10];
- the system of ensuring the innovative development of enterprises [4].

The methodology for diagnosing the innovative development of Kyiv city enterprises is based on: analysis of the determining conditions of their functioning for a certain period; possible scenarios of threats and their likely impact on the object. Accordingly, the diagnostics of innovative development of Kyiv enterprises can be carried out on the basis of using different approaches (systemic; casual; functional; process) [5-8].

AIMS AND OBJECTIVES

The goal is to develop a scientific and methodical approach to diagnosing the state of innovative development of Kyiv enterprises with the aim of developing measures to promote the effective use of their innovative potential.

METHODS

The study was conducted using general scientific and special research methods, in particular: theoretical generalization, comparison and morphological analysis - in the process of forming the conceptual and categorical apparatus of the study; system analysis - to identify opportunities and justify the innovative development of Kyiv the theoretical and methodological aspects of its organizational and economic support.

RESULTS

It is the diagnostics of the innovative development of Kyiv enterprises that is an important component of the development of the national economy and a lower-level subsystem that has its own structure and internal logic of formation. From the point of view of system analysis, research objects of different levels can use similar methods of analysis, because each level, which is a subsystem, has a certain projection on a higher-level system.

We propose to describe the diagnostics of the innovative development of Kyiv city enterprises ($F(x)$) by system elements by formula (1) [5, 6]:

$$F(x) = \frac{\sum_{i=1}^n w_i E_i}{\sum_{i=1}^n w_i}, \quad (1)$$

where n - is the number of presented elements that will form the level of innovative development of Kyiv enterprises, $i=1,2,\dots,n$; w_i - is the weight of each i -st element; E_i - is the established level of the i -st element for Kyiv enterprises.

Given that the systemic formulation of tasks for diagnosing the innovative development of Kyiv enterprises can be assessed in the context of taking into account the individual characteristics of the functioning of the presented elements of the innovative development of Kyiv enterprises, we propose to use a functional-systemic approach that allows to form a universal algorithm for diagnosing the innovative development of Kyiv enterprises and to calculate an integral indicator that allows to generalize the characteristics that reflect the in Figure 1, we present an algorithm for diagnosing the innovative development of enterprises in Kyiv.

The methodology for assessing the innovative development of enterprises is based on the criteria of business efficiency, namely: the ability of enterprises to optimally allocate and efficiently use resources (resource component); the ability to ensure the needs and goals of consumers at the proper level, the availability of labour resources (social component); support for the national interests of the enterprise in the context of the impact of globalization processes (market component); intensification of enterprise development (innovative component) [7, 8, 16].

Having summarized various scientific studies on the problem of diagnosing the innovative development of enterprises in Kyiv, we distinguish two main methods of calculating the general integral indicator. The first one is the modified Euclidean

metric, which makes it possible for each indicator of innovative development of enterprises $x \in \{1, 2, \dots, n\}$ at certain coordinates to determine the Euclidean distances from the set points of the set to the possible minimum $a_x = \min\{a_{x1}, a_{x2}\}$ and maximum $a_x = \max\{a_i | i = \overline{1, n}\}$ values, which allows to properly calculate the integral index, to present its lower optimal and upper optimal values [6]. This method is advisable to use in conditions of insignificant variation in the presented values of various evaluation indicators. Based on the second method, it is advisable to make a comparison for each presented functional component of the innovative development of Kyiv city enterprises and assess its contribution to the overall level of development. The assessment of the level of innovative development of Kyiv enterprises ($F(x)$) by this method can be represented by formula (2):

$$F_x = \frac{\sum_{i=1}^n w_i E_i}{\sum_{i=1}^n w_i} \quad (2)$$

where n - is the number of functional components (resource, market, social and innovative) that will form the innovative development of enterprises; $i=1, 2, \dots, n$; w_i - the weight of the i -th functional component of the innovative development of enterprises in Kyiv; E_i - the value of each functional component of the innovative development of enterprises in Kyiv.

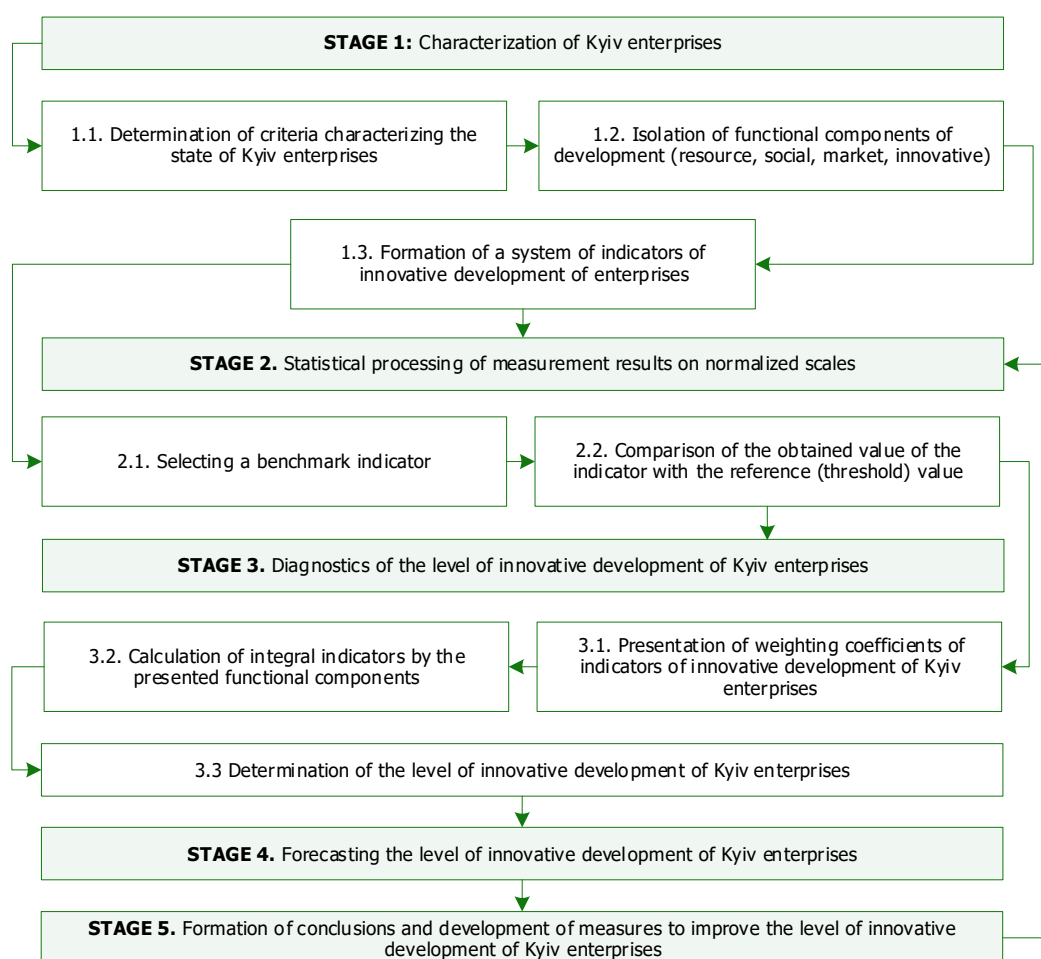


Figure 1. Conceptualization of the algorithm for diagnosing the innovative development of enterprises in Kyiv.

The obtained result of the level of innovative development of Kyiv city enterprises can be characterized depending on the defined ranges of the obtained values, which we propose to determine by clear proportional segments from $[0; 1]$, or on the basis of using the Harrington Scale, which is more universal and can be used in various modifications to assess the quality indicators [5-6]. After adapting the presented methodology to our object of study, we obtain the following ranges of values (Table 1).

Table 1. Ranges of values of the level of innovative development of Kyiv city enterprises according to the Harrington scale. (Source: systematized and adapted from [6])

Range of values, %	Characteristic values
From 70 to 100	effective development
From 50 to 69	moderate development
From 30 to 49	not sustainable development
From 15 to 29	no development
From 0 to 14	not stability

Determining the weight of the impact of each of the presented input indicators on the overall integrated indicator of innovative development of Kyiv enterprises for each of the identified functional components will be carried out using the principal components method.

In order to calculate the resource functional component of the innovative development of Kyiv enterprises (Table 2), the optimal values for the indicators of the state of the resource component of the innovative development of Kyiv enterprises are determined by the analogue method. On the basis of the obtained initial indicators and establishing the level of optimal values, their normalization was carried out.

Such a transition from absolute to normalized values of indicators allows them to be measured on a scale from 0 to 1 or as a percentage: that is, 0 corresponds to 0%, and 1 - 100%. Thus, the obtained normalized value of the indicators characterizes the level of approximation to the recognized optimal value [8].

Table 2. Indicators of the resource component of innovative development of Kyiv enterprises in 2017-2021. (Source: [3])

Indicators	Years				
	2017	2018	2019	2020	2021
Number of employees, thousand people	1815	1978	2143	2278	2256
The volume of products (goods and services) sold by enterprises by region, UAH thousand	2688251461.6	3384440738.1	4153562624.9	4365438342.7	4549151792.7
Labour productivity	1403.0	1703.3	2034.1	2005.3	2110.9
Staff salary costs, UAH thousand	131351485.4	173123099.3	218328356.9	267359659.9	290339157.3
Net profit (loss) of enterprises, UAH million	11277.8	93777.9	137282.5	243609.2	-14367.8
The efficiency of the payroll fund, %	8.6	54.2	62.9	91.1	-4.9
Consumer price index	114.0	113.4	108.8	103.9	105.8
Industrial production index	104.2	95.1	97.8	96.6	97.1

The influence of each of the presented factors is determined by the total share of variance on the integral indicator. After the rotation of the factor axes by the well-known varimax method, the values of the presented factor load of the main components on the resulting indicator are increased and it has been substantiated (Table 3) of the $F1_{fg}$ factor after the rotation is 29.15%. Also, the total variance for the second factor ($F2_{fg}$) is formed by the consumer price index and the industrial production index. The total variance of this factor on the indicator is 27.95%. Accordingly, the third ($F3_{fg}$) is determined: labour costs net profit with of 24.58%.

Table 3. Matrix of factor loads to normalized coefficients for the resource component of the innovative development of enterprises in Kyiv for 2017-2021. (Source: Statista 8.0 package)

Indicators	Symbol	Factors			
		$F1_{fg}$	$F2_{fg}$	$F3_{fg}$	$F3_{fg}$
1	2	3	4	5	6
Number of employed workers in business entities, persons	X1	-0.890112	0.092762	0.360780	0.297306
Labour productivity, thousand/person	X2	0.798868	0.19803	0.279923	0.396614
The efficiency of the payroll fund, %	X3	0.932877	0.20917	-0.05845	0.138286
Consumer price index	X4	0.400993	-0.83454	-0.24275	0.28372
The volume of products (goods, services) sold by business entities by region, UAH thousand	X5	0.381724	0.16572	0.124193	-0.85323
Staff salary expenses, UAH thousand	X6	0.198969	0.094556	0.929858	0.216257
Net profit (loss) of business entities, UAH million	X7	0.038460	0.229074	-0.85153	0.398104
Index of industrial production	X8	0.061754	0.875505	-0.20502	0.412299
Eigenvalues		3.365371	2.653985	2.439368	2.962068
Share in the variance, %		28.14	26.94	23.48	21.44

If we take the total variance as a unit, then the tendency of the influence of factors on the resource component of the innovative development of Kyiv enterprises can be described:

$$I_{fg} = 0.38 F1_{fg} + 0.27 F2_{fg} + 0.24 F3_{fg} + 0.22 F4_{fg} \quad (3)$$

where $F1_{fg}$, $F2_{fg}$, $F3_{fg}$, $F4_{fg}$ - principal components are constructed from the set of the resource component.

In Table 4 the calculation of coefficients for such input indicators will be obtained and factor loadings for each presented indicator to its own principal component.

Table 4. Calculation of the proportion of indicators of the resource component of the innovative development of enterprises in Kyiv for 2017-2021. (Source: Statistica 8.0 package)

Indicator	Factor.				$f_1 \sum f_i \times 0.36$	$f_2 \sum f_i \times 0.3$	$f_3 \sum f_i \times 0.36$	$f_4 \sum f_i \times 0.26$	Scale
	$F1_{fg}$	$F2_{fg}$	$F3_{fg}$	$F3_{fg}$					
X1	-0.88	-	-		-0.11	-	-	-	-0.11
X2	0.82	-	-		0.12	-	-	-	+0.12
X3	0.95	-	-		0.12	-	-	-	+0.12
X4	-	-0.85	-		-	-0.12	-	-	-0.12
X5	-	-	-	-0.85	-	-	-	0.14	+0.14
X6	-	-	0.93		-	-	-0.14	-	-0.14
X7	-	-	-0.84		-	-	-0.14	-	-0.14
X8	-	0.87	-		-	+0.13	-	-	+0.13
Total	2.59	2.59	1.77	-	-	-	-	-	

Thus, we propose to diagnose the innovative development enterprises:

$$I_r = -0.12X1 + 0.13X2 + 0.13X3 - 0.13X4 - 0.15X5 + 0.15X6 - 0.15X7 + 0.14X8 \quad (4)$$

where $X1$ is the number of employed workers at enterprises, persons; $X2$ is labour productivity, thousand/person; $X3$ is the efficiency of the wage fund, %; $X4$ is the consumer price index; $X5$ is the volume of products (goods, services) sold

by enterprises by region, UAH thousand; X6 is the cost of staff salaries, UAH thousand; X7 is the net profit (loss) of enterprises, UAH million; X8 is the industrial production index.

Based on the results of the diagnostics, it was found that the level of innovative development of enterprises in terms of the resource component in 2021 reached a critical level. In 2017-2020, securing the innovative development of enterprises allowed for maintaining a moderate level of development. However, in 2021, the resource component of the innovative development of enterprises in Kyiv. First of all, to the performance of enterprises, the industrial production index, and developing a development action plan.

Innovative development of Kyiv enterprises by the social component (Table 5). The calculations (Table 6) show that the indicators that conceptualize the social component of the innovative development of Kyiv enterprises are significantly influenced.

Table 5. Dynamics of innovative development of Kyiv enterprises in 2017-2021. (Source: compiled by the author based on [3])

Indicators	Years				
	2017	2018	2019	2020	2021
Migration growth (decline) of the population	13.3	4.2	13.9	17.2	0.2
The share of employed workers in the total number of employed workers at enterprises in Ukraine, %	26.9	27.3	28.1	27.9	27.8
Wage arrears, UAH million	78.5	97.6	161.6	213.9	338.6
Gross regional product per capita, UAH	216584	237687	284175	321897	312912
The unemployment rate of the population aged 15-70 years, %	6.7	6.9	6.2	5.8	6.8

Table 6. Matrix of factor loads of the social component of the innovative development of enterprises in Kyiv in 2016-2020.

Indicators	Symbols	Factors.		
		F1 _s	F2 _s	F3 _s
Gross regional product per capita, UAH	S1	0.854747	0.025426	-0.421099
Migration growth (decline) of the population (thousand people)	S2	0.028113	0.012074	-0.996057
The share of employed workers in the total number of employed workers at enterprises in Ukraine, %	S3	0.963028	-0.028926	0.282672
Wage arrears, UAH million	S4	0.247365	0.863361	-0.311665
The unemployment rate of the population aged 15-70 years, %	S5	0.258923	0.812101	-0.390497
Eigenvalues		1.646187	1.406025	1.493427
Share of the total variance, %		0.399220	0.281205	0.298685

If we take the total variance to be 1, the trend in the influence of factors on the development of enterprises in Kyiv by the social component can be described by the following equation (4):

$$I_s = 0.39F1_s + 0.28F2_s + 0.29F3_s \quad (4)$$

where $F1_s$, $F2_s$, $F3_s$ are the main factors formed from the set of output indicators [S1 ... S5] of the innovative development of Kyiv city enterprises.

The calculated variance of the main components and the factor loadings of certain initial indicators allow us to estimate the value of the weighting coefficients for the social component of the innovative development of Kyiv enterprises (Table 7).

Table 7. Calculation of the share of indicators of the social component of innovative development of enterprises in Kyiv.

Symbols	Factors			$f_{1i} \sum f_{1i} \times 0,54$	$f_{2i} \sum f_{2i} \times 0,46$	$f_{3i} \sum f_{3i} \times 0,32$	Scale
	F1 _s	F2 _s	F3 _s				
S1	0.86	-	-	0.26	-	-	0.26
S2	-	-	-0.986	-	-	-0.33	-0.33
S3	0.96	-	-	0.20	-	-	0.20
S4	-	0.87	-	-	0.17	-	0.17
S5	-	0.83	-	-	0.15	-	0.15
Total	1.82	1.70	0.986	-	-	-	-

We propose to diagnose the innovative development of Kyiv enterprises by the social component based:

$$I_s = 0.27S1 - 0.34S2 + 0.21S3 + 0.16S4 + 0.15S5. \quad (5)$$

where S1 is the gross regional product per capita, UAH; S2 is the migration increase (decrease) in the population (thousand people); S3 is the share of employed workers in the total number of employed workers at enterprises in Ukraine, %; S4 is wage arrears, million UAH; S5 is the unemployment rate of the population aged 15-70, %.

During the analyzed reporting period, we observe fairly positive dynamics of the level of innovative development of enterprises in Kyiv in terms of the social component with a slight decrease in 2021.

Let's calculate the level of the market component of the innovative development of enterprises in Kyiv (Table 8).

Table 8. Dynamics of indicators of the market component of innovative development of Kyiv enterprises in 2017-2021. (Source: systematized by the author based on [3])

Indicators	Years				
	2017	2018	2019	2020	2021
Profitability level of operating activities of enterprises, %	8.7	10.2	9.4	13.5	4.5
Growth (decline) rate of imports of goods, %	112.5	122.9	120.1	109.5	87.5
Growth rate (decline) of exports of goods, %	108.6	115.6	103.4	122.4	98.8
Index of physical volume of retail trade turnover of retailers	104.5	108.3	102.7	114.6	106.9

The market component of the level of innovative development of Kyiv enterprises, according to the "rock-bottom" criterion, is formed by three key factors that explain 87% of the total variation from each component in the load of the integral indicator (Table 9).

Table 9. Matrix of factor loads of the market component of innovative development of Kyiv enterprises in 2017-2020. (Source: calculated by the author using the Statistica 8.0 package)

Indicators	Symbols	Factor	
		F1 _r	F2 _r
Growth rate (decline) in imports of goods, %	P1	0.712468	-0.528977
Growth (decline) rate of exports of goods, %	P2	0.718857	0.108441
The level of profitability of operating activities of enterprises, %	P3	0.947936	-0.257376
Index of the physical volume of retail trade turnover of retailers	P4	-0.001229	0.746375
Eigenvalues		2.378032	0.068463
Share in the dispersion, %		0.451595	0.238709

Taking the variance as one, the trend of the factors' influence on the level of innovative development of Kyiv city enterprises by the market component can be described by the equation:

$$I_p = 0.45F1_r + 0.23F2_r \quad (6)$$

where $F1_r, F2_r$ - are the main factors formed from the set of output indicators [P1 ... P4] of the innovative development of Kyiv enterprises.

The first group of factors influencing the market component of the innovative development of Kyiv enterprises (F1) is formed by the following indicators: Growth rate (decline) of imports of goods, %; Growth rate (decline) of exports of goods, %; Level of profitability of operating activities of enterprises, %. The aggregate level of influence of such indicators on the integral indicator that characterizes the market component of the innovative development of enterprises in the city of Kyiv is the highest and amounts to 45%.

The calculation of values for determining the weighting coefficients of the presented indicators will be based on the variance of the principal components and the factor loadings of all indicators. The significance of the impact of each of the presented indicators on the market component of the innovative development of Kyiv enterprises is presented in Table 10. The data in Table 10 show that the most significant impact on the development of Kyiv enterprises in terms of the market component is the level of profitability of the operating activities of enterprises.

Table 10. Calculation of the weighting coefficients of innovative development of Kyiv enterprises by market component in 2017-2021.

Symbols	Factors		$f_{1i} \sum f_{1i} \times 0,47$	$f_{1i} \sum f_{1i} \times 0,37$	Scale
	$F1_r$	$F2_r$			
1	2	3	4	5	6
P1	0.71	-	0.120	-	0.16
P2	0.72	-	0.121	-	0.16
P3	0.95	-	0.159	-	0.25
P4	-	0.75	-	0.145	0.19
Total	2.38	0.75	-	-	-

The calculation of the innovative development of Kyiv enterprises by the market component can be described by the equation:

$$I_p = 0.16P1 + 0.16P2 + 0.25P3 + 0.19P4 \quad (7)$$

where P1 - Growth rate (decline) of imports of goods, %; P2 - Growth rate (decline) of exports of goods, %; P3 - Level of profitability of operating activities of enterprises, %; P4 - Index of physical volume of retail turnover of retail trade enterprises. During the analyzed period, we observe negative dynamics of the integral indicator of innovative development of enterprises in Kyiv by the market component.

In a similar way, the level of innovative development of enterprises in Kyiv for 2017-2021 was calculated using the innovative component (Table 11).

Table 11. Indicators of the innovative component of innovative development of Kyiv enterprises in 2017-2021. (Source: systematized by the author based on [3])

Indicators	Years				
	2017	2018	2019	2020	2021
Profitability of professional, scientific and technical activities, %	7.5	8.2	9.6	29.6	2.7
Capital investments per person, UAH thousand	36.7	47.1	69.0	73.0	55.8
Percentage of innovative industrial products (goods, services) sold, %	0.4	0.5	0.4	0.3	0.9
Share of capital investments in professional, scientific and technical activities, %	2.9	3.9	3.4	3.6	5.2

Quantitative calculation of the level of innovative development of Kyiv city enterprises in 2017-2021 by the innovation component (Table 12).

The trend of the factors' influence on the innovative development of Kyiv city enterprises in 2017-2021 is described by the equation:

$$I_p = 0.57F1_p + 0.43F2_p \quad (8)$$

where $F1_p, F2_p$ are the main factors formed from the set of initial indicators [C1...C4] of the innovative development of Kyiv city enterprises in 2017-2021 by the innovative component.

Table 12. Matrix of factor loads for the innovative component of the innovative development of Kyiv enterprises in 2017-2021. (Source: Statistica 8.0 package)

Indicators	Symbols	Factors	
		$F1_p$	$F2_p$
Profitability of professional. scientific and technical activities, %	S1	0.294754	0.958639
Capital investments per person, UAH thousand	S2	0.721039	0.641292
Percentage of innovative industrial products (goods. services) sold, %	S3	0.869887	0.470573
Share of capital investments in professional. scientific and technical activities, %	S4	0.513928	0.849571
Eigenvalues		2.541447	1.787970
Share in the total variance, %		0.573574	0.436328

DISCUSSION

The weight of the influence of each of the presented indicators on the integral value of the innovative development of Kyiv enterprises is presented in Table 13, which shows that the percentage of sold innovative industrial products (goods. services) has a significant impact on the innovative component of the innovative development of Kyiv enterprises in 2017-2021, %.

Table 13. Weight coefficients of the innovative component of the innovative development of Kyiv enterprises in 2017-2021.

Symbol	Factors		$f_{1i} \sum f_{1i} \times 0,56$	$f_{2i} \sum f_{2i} \times 0,44$	Scale
	$F1_p$	$F2_p$			
1	2	3	4	5	6
C1	-	0.95	-	0.23	0.23
C2	0.72	-	0.16	-	0.18
C3	0.87	-	0.19	-	0.25
C4	-	0.84	-	0.21	0.21
Total	2.54	1.79	-	-	-

Thus, the level of the innovative component of the innovative development of Kyiv city enterprises in 2016-2020 can be described by the equation:

$$c = 0.23S1 + 0.18S2 + 0.25S3 + 0.21S4 \quad (9)$$

Adaptive search for model parameters and their weighting coefficients gives the prospect of obtaining integrated diagnostic models, thereby allowing to diagnose the state of innovative development of enterprises, as well as obtaining forecasts from retrospective data. Having calculated the quantitative values of the components of the innovative development of

Kyiv city enterprises identified by us, we can calculate the generalizing integral indicator (S^i) by the formula:

$$s_I = \sum_{I=1}^n I_I \times W_I \quad (10)$$

where W_I - is the weighting coefficient for the i -th component of the innovative development of Kyiv enterprises; I_I - functional components (resource; social; market and innovation); n - the number of components that will form the innovative development of Kyiv enterprises ($n=4$).

The calculation of the weighting coefficients for the overall integrated indicator of innovative development of Kyiv enterprises will be carried out using the tested principal component method. The initial data for calculating the level of innovative development of Kyiv city enterprises are presented in Table 14.

№	Functional component	Symbol	Years				
			2017	2018	2019	2020	2021
1	Resource	I_r	31.5	38.2	41.4	39.5	24.1
2	Social	I_s	49.78	50.14	54.81	62.15	55.12
3	Market	I_p	34.5	20.2	32.1	41.4	46.7
4	Innovative	I_c	23	28	31	27	33

The calculations carried out using the statistical analysis package " Statistica" allow us to propose a model of a comprehensive assessment of the level of innovative development of enterprises in Kyiv by components in 2017-2021. which can be described by equation (11).

$$Si = 0.26I_r + 0.23I_s + 0.27I_p + 0.24I_c \quad (11)$$

where S_i is the level of innovative development of enterprises in Kyiv in 2017-2021; I_r – resource, I_s – social, I_p – market, I_c - innovative components of the innovative development of enterprises in the city of Kyiv.

Having substantiated the optimal range of the level of innovative development of Kyiv enterprises from 80% and above. we see that the maximum value of the integral indicator for the studied period was observed in 2020 - 45. A reflection of negative trends is the dangerously low value of the indicator in 2017 at 33.

CONCLUSIONS

The generalization of methodological approaches to diagnosing the level of innovative development of enterprises made it possible to justify a functional approach to the formation of an algorithm for evaluating the level of innovative development of enterprises in Kyiv, which consists of a set of stages: assessment of the research object; conducting statistical processing of assessment results in the system; assessment of the level of innovative development of Kyiv enterprises; formation of conclusions and corrective actions to ensure an increase in the level of innovative development of Kyiv enterprises. It is substantiated that the key criterion for the innovative development of Kyiv enterprises is the effective use of available resources. The structure of the integral indicator of the level of innovative development of Kyiv enterprises was determined: resource, innovation, social, and market. Therefore, in the modern conditions of the functioning of Kyiv enterprises, one of the most important tools for ensuring their innovative development is the effectiveness of state regulation and support mechanisms.

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ДІАГНОСТИКА ІННОВАЦІЙНОГО РОЗВИТКУ ПІДПРИЄМСТВ МІСТА КИЄВА

У статті обґрунтовано необхідність діагностики стану інноваційного розвитку підприємств Києва. Визначено, що вирішення проблем дестабілізації підприємств убачається насамперед у формуванні системи концептуальних засад забезпечення інноваційного розвитку та його діагностики. Визначено передумови для діагностики інноваційного розвитку підприємств міста Києва: відсутність умов для ефективного інноваційного розвитку підприємств у сучасних умовах глобалізації; необхідність розробки науково обґрунтованої концептуальної основи діагностики стану підприємств; необхідність розробки відповідних механізмів підтримки та управління інноваційним розвитком підприємств міста Києва. Автором запропоновано методику оцінки інноваційного розвитку підприємств на основі критеріїв ефективності бізнесу, а саме: здатність підприємств оптимально розподіляти та ефективно використовувати ресурси (ресурсний компонент); соціальна складова; ринкова складова; інноваційна складова. Узагальнено різноманітні наукові дослідження з проблеми діагностики інноваційного розвитку підприємств Києва, що дозволило виділити дві основні методики розрахунку: евклідову метрику, яка враховує кожний показник інноваційного розвитку підприємств; на основі другого методу доцільно провести порівняння для кожної представленої функціональної складової інноваційного розвитку підприємств Києва та оцінити її внесок у загальний рівень розвитку. Ключовою особливістю оцінки рівня інноваційного розвитку підприємств за представленим алгоритмом є те, що його практична реалізація дозволяє задовольнити інтереси й підприємств Києва, і їхніх складових підрівнів.

Ключові слова: інноваційний розвиток, стратегія, підприємства, діагностика, ресурси, ефективність

JEL Класифікація: L21, M15, M21, O12, O32