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Developing Theoretical and Methodological Provisions for Improving the Mechanism of Labour Efficiency

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Abstract: The article presents a theoretical generalisation and solution of a current scientific and applied problem which develops theoretical principles, methodological approaches and scientific and practical recommendations for improving the mechanism of labour efficiency management in terms of innovation-oriented development of enterprises. It is substantiated that in the conditions of innovation-oriented development of ecosystems, including enterprises, the disclosure of the essence of labour efficiency requires introduction of a dual quantitative–qualitative approach: on the one hand, labour efficiency reflects the ratio of the manufactured products (tangible and intangible benefits) and corresponding living labour costs (quantitative aspect) and, on the other hand, it is the result of using productive abilities of people, characterised by manufactured products of a particular consumer quality with the creation of added value (qualitative aspect). Conceptual bases of improvement of the mechanism of labour efficiency management at enterprises were developed. They are based on certain tasks, functions, principles, methods of labour efficiency management and the formed system of factors of influence and the revealed factors and reserves of an increase in labour efficiency. They presuppose development and realisation of the corresponding programme, which aims to: optimise total labour costs; improve quality of products at a constant mass and satisfaction with the work process of all its participants; ensure positive changes in material well-being and quality of life on the basis of the formation of modern innovation infrastructure of the enterprise.

Keywords: labour efficiency; labour productivity; innovation-oriented development; enterprises; labour efficiency management; management mechanism

JEL Classification: A10; J08; L25

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1. Introduction

Ensuring a high level of labour efficiency is an indisputable condition for achieving stability and effectiveness of economic activity, as well as innovative development of enterprises. The systematic improvement of the labour efficiency management mechanism is a priority for increasing the efficiency of any enterprise or industry sector and the entire economic complex.

The formation of an effective mechanism for managing labour efficiency, taking into account the priorities of innovative development of enterprises, is an extremely important component of reforming the national economy. There is a need to change the concepts and new requirements for management, primarily related to the regulation of socially significant processes and updating methodological tools that can provide enterprises with high economic efficiency, a stable competitive position in the market and the ability to adapt to changes in the external environment.

In addition, an important task is to determine the structure and concept of improving the mechanism of labour efficiency management in the context of innovation-oriented development of enterprises.

When choosing and building a mechanism for managing labour efficiency at an enterprise, it is important to take into account the factors and tools for creating an algorithm for forming a labour efficiency management programme and the sequence of its implementation, as well as strategic planning.

Previously Unsolved Parts of the Overall Problem

It should be noted that the existing substantial developments of researchers need to be deepened, since the organisational foundations for improving the mechanism of labour efficiency management at enterprises focused on innovative development are not sufficiently studied. The proposed organisational framework, unlike the existing ones, focuses on the systemic, multifunctional interconnection of the enterprise's production potential and labour relations, which, based on coordinated actions of all participants in such relations, ensures achievement of a certain level of productivity, quality and efficiency of labour and enables a flexible response of the labour efficiency management system to any changes occurring in the internal and external environment of the enterprise.

The objective of the research is to deepen theoretical and methodological provisions and develop scientific and practical recommendations for improving the mechanism of labour efficiency management in the context of innovation-oriented development of enterprises.

2. Analysis of Recent Research and Publications

The most important qualitative indicator of social production is its efficiency. The concept of "efficiency" appeared earlier in the economic literature than in other branches of science, where it was also featured. After all, it is from the economic point of view that the problem that has always confronted mankind—to achieve the desired result at the lowest cost—is natural.

Smith (2018), a representative of the classical school, did not define "efficiency" as an independent economic concept. He used the term "productivity" in the sense of effectiveness and applied it to evaluate public or private goals depending on whether they contributed to the improvement of the economic situation or not. The laws of the division of labour and the growth of its productivity discovered by Smith (2018) are considered fundamental: "...the division of labour in any craft, no matter how large it is introduced, causes a corresponding increase in labour productivity".

The concept of "efficiency" acquired the status of an economic category when the classical political economy scholar Ricardo (2001) used the term "efficiency" as the ratio of the result to a certain type of cost. That is, the category of "efficiency" already acquires specific meaning that is important from the point of view of economics when assessing certain actions.

An extremely important contribution to the development of the concept of "efficiency" was made by the American scientist Harrington Emerson (2010) in his work "Twelve Principles of Productivity" published in 1912. He defined efficiency, or productivity, as the most favourable ratio between economic results and total costs. Since then, the term "efficiency" in the most general sense of the concept has not changed much.

According to Marx and Engels (1975), productive labour is not only the production of goods, but also the production of surplus value. Thus, Marx noted: "Only that producer is productive which produces surplus value for the capitalist or serves the self-increase of the value of capital". Therefore, Marx reveals labour productivity through capitalist production relations.

A representative of the neoclassical school, Clark (2005), in his theory of marginal productivity of labour and capital, defined efficiency as the maximum income of an entrepreneur at the minimum cost of production resources.

An important achievement on the way to today's understanding of efficiency was the Pareto model ("Pareto optimum") (Mornati 2013) of economic equilibrium, which actually shows the duality of labour results: maximising the consumer effect and minimising the producer's costs. A Pareto optimum is an equilibrium state in which no redistribution of

resources or products can improve the position of one rational actor without worsening the position of another. When the economy reaches the Pareto optimum, further improvement of its most important parameters is possible only through deep structural changes (Stiglitz 1981).

Mescon et al. (1988) believe that efficiency is defined as the ratio between the volume of output and the resources required for its production, i.e., as an internal parameter of the enterprise's functioning that reflects the efficiency of resource use.

In the modern economic literature, there are different approaches to the definition of "efficiency".

Mocherniy (2000) explained that efficiency is the ability to produce an effect, which is defined as the ratio of the result to the costs that provided this result.

The category of "efficiency" is the most important qualitative and quantitative characteristic of the economic performance of an enterprise, household, industry, region and the economy of the state as a whole (Herasymenko 2023).

The modern stage of functioning of industrial relations is characterised by efficiency as a concept that has expanded, developed and is applied to any type of activity. That is, efficiency expresses the effectiveness of the functioning of the labour force, means of production within the national economy, industries, regions, enterprises, their subdivisions and certain processes (Golo 2023).

There are dozens of types of efficiency in economic science. The most common ones include the following: economic, production, social, socio-economic, technical, environmental, structural, absolute and relative, comparative, investment, individual industries and regions, activities of individual business entities, units, processes, employees, etc. (Lazareva 2017).

Economic and social efficiency are closely linked. Increasing economic efficiency contributes to the growth of social efficiency. Social efficiency of labour characterises the compliance of the results of economic activity with the basic social needs, goals and interests of both society and individuals.

In modern conditions, the theory of economic efficiency is focused on the process of forming the economic added value of enterprises and the factors that determine it (Myrzaliyev et al. 2020).

It should be noted that the forms of manifestation of economic efficiency include various economic effects: increased labour productivity, reduced production costs, increased profits, reduced material intensity, capital intensity, labour intensity of products, etc. (Gunasekaran et al. 1994).

Labour efficiency is the ratio between labour productivity and costs, i.e., the degree of rational use of resources, which is expressed in achieving maximum effect at minimum cost (Mocherniy 2000).

The free encyclopedia Wikipedia, as an online research tool, offers a definition of labour efficiency as a socio-economic category that determines the level of achievement of a certain goal correlated with the level of rationality of the resources used in this process.

Thus, labour efficiency is a key factor and one of the prerequisites for ensuring the effective functioning of an enterprise and its competitiveness, which is manifested in the successful achievement of planned results through the rational use of all types of resources and the maximum possible economic return on each unit of labour (Demeter et al. 2011).

Thus, the genesis and generalisation of scientific thought on understanding and perception of labour efficiency as a socio-economic category allow us to assert that labour efficiency is a multidimensional category, the essence of which is revealed through the symbiosis of its individual characteristics expressed by labour productivity, labour quality and labour efficiency (Cornwall and Cornwall 2002).

Labour productivity means the ratio of output to labour hours or number of employees. It is measured in natural or conventional natural units (tonnes, pieces, etc.), labour indicators (labour hours, hours) and value indicators (output is measured in value terms). By dividing the total costs of living labour by the result (for example, the quantity of output),

the labour intensity per unit of output is obtained. Productive labour power (or potential labour productivity) is the average estimated amount of work that can be performed by one employee in a certain time under specific conditions. A qualitative characteristic of labour productivity and intensity is the category of labour quality, which is measured by indicators of labour efficiency and cost-effectiveness (Mikiashvili 2017).

Labour performance is the production of goods and services of such quality and competitiveness that exceed the corresponding indicators in labour productivity. Cost-effectiveness is characterised by labour intensity and the amount of output per unit of resources (primarily material) used (Tarancón et al. 2018).

Regarding the interpretation of the term "mechanism of labour efficiency management", the definition of this concept is extremely infrequent in scientific sources.

According to Vorobyova and Odintsov (2015), the mechanism of labour efficiency management is a multilevel one, which combines components of different natures: organisational, technical, economic and social. According to them, the most successful is the organisational and economic mechanism of labour efficiency management, because it contains the largest number of heterogeneous mechanisms in their combination. Such factors are: the method of reproduction of fixed assets and depreciation policy; work and rest of employees; introduction of scientific and technological progress; concentration of production; level of financing of social measures and motivation to work.

Turchina (2013) considers the mechanism of labour efficiency management as a complex of interrelated management functions, organisational and economic methods, relevant tools and resources aimed at improving the quantitative and qualitative characteristics of the management object to increase the level of organisational, social and economic efficiency of labour.

Lazareva (2017) formulated the definition of "organisational and economic mechanism of enterprise performance management" as a system of interrelated elements, including methods, organisational structure, operations, information and technical means, levers and tools, which, interacting with each other, perform a cyclic set of strategic and operational tasks and functions for measuring and evaluating performance.

We suggest focusing on explaining some key terms, such as manager and employee.

The key findings by scientists Peráček and Kaššaj (2023) show that the manager in a limited liability company has one of the most important functions and they have a wide range of rights and responsibilities. Such a wide range of rights and duties also requires a high level of responsibility. Managers are some of the best-paid employees of individual companies and they are therefore also required to be highly professional and competent.

The results of study Ali et al. (2024) advocate the importance of four major HRM practices in retaining Gen Z employees: working environment, pay, role clarity and training and development. Employers need to ensure that the working environment is supportive for Gen Z employees. This can be achieved by designing effective organisational policies and practices and ensuring that social and physical work environments allow active engagement and match the expectations of Gen Z employees.

The results of the study Liu et al. (2023) show that there are five sufficient configurations for high employee performance and three for poor performance. Relation-oriented leadership, HRMPs and enterprise property are more important conditions to employee performance than others. Furthermore, no single condition constitutes a necessary condition for high or low employee performance. Compared to previous studies that mainly focused on linear relationships, this study applies the fsQCA method to explore how matching different leadership styles and HRM practices could bring about high and low employee performance, which provides evidence for the three propositions of "multiple conjunctural causation", "equifinality" and "asymmetry".

3. Results and Discussion

In order to improve management of labour efficiency by purposeful influence on the factors of enterprise development, we (Kornieieva 2016) developed the method of building

a model for calculating the coefficients of influence of enterprise development factors on "average hourly output per employee".

To determine the rating of the influence of factors of enterprise development on labour efficiency, we introduced the concept of coefficient of rating factor, which can be the coefficient $X_i (B_i = tg\phi_i)$ of the linear model factor. That is, the greater the angle φ_i between the linearised functional and the abscissa, the faster the growth of labour efficiency when the value of the factor changes. That is, we accept B_i as the criterion of significance of the factor X_i (designations and names of the factors are given in Table 1, column 1).

Table 1. The level of influence of factors on the average hourly output of one employee (y_1) at enterprise № 1 with a high level of labour efficiency.

Factor	Name of the Factors by Group	Influence of Factors		
		Significantly Influence	**Insignificantly Influence**	**Do Not Influence**
1	2	3	4	5
	State of use of fixed capital			
X_1	The share of the active part of fixed capital	+		
X_2	The share of machinery and equipment in the active part of fixed capital	+		
X_3	Technological equipment of labour	+		
X_4	Renewal coefficient	+		
X_5	Intellectualisation coefficient of fixed capital	+		
	Investment activity			
X_6	The share of investments in fixed capital to the total amount	+		
X_7	The share of investments in capital construction to the total amount	+		
X_8	The share of investments in machinery, equipment and inventory to the total amount	+		
X_9	The coefficient of intellectualisation of fixed capital investment	+		
	Innovation activity			
X_{10}	The number of acquired new technologies (technical achievements), accumulated	+		
X_{11}	The number of new technological processes introduced into production, accumulated	+		
X_{12}	The number of introduced innovative types of products, by name, accumulated	+		
	Use of working time			
X_{13}	Coefficient of losses of working time fund due to annual leave			+
X_{14}	Coefficient of losses of working time fund due to temporary incapacity for work			+
X_{15}	Coefficient of losses of working time fund due to training, vacations and other absences			+
	Composition of the payroll budget			
X_{16}	The share of basic salary in the payroll budget	+		
X_{17}	The share of additional wage in the payroll budget		+	
X_{18}	The share of incentive and compensation payments in the payroll budget		+	

Table 1. *Cont.*

Factor	Name of the Factors by Group	Influence of Factors		
		Significantly Influence	**Insignificantly Influence**	**Do Not Influence**
X_{19}	The share of payment for time not worked in the payroll budget			+
	Formation and use of personnel			
X_{20}	The share of employees who have achieved the educational qualification level of a Bachelor's degree	+		
X_{21}	The share of employees who have received a Master's degree	+		
X_{22}	Coefficient of advanced training of the average number of full-time employees	+		
X_{23}	Coefficient of professional training of employees	+		
X_{24}	Coefficient of professional training of managers	+		
X_{25}	Coefficient of professional training of professionals, specialists	+		
X_{26}	Coefficient "Trained in new professions in relation to the average number of full-time employees"	+		

Note. Developed and calculated by the authors on the basis of internal reporting and forms of state statistical reporting of machine-building enterprise. Source: calculated and plotted by the authors according to data (Main Department of Statistics in Kirovohrad Region 2023; European Commission Eurostat 2023; State Statistics Service of Ukraine 2023; World Bank 2022).

It is impossible to compare the coefficients $B_i(tg\phi_i)$ in the model $y_i = f(X_i)$, because the scales of the values of the factors along the axis X_i are different and depend on the measurement units.

To make it possible to compare the criteria of significance of factors, they are presented in code form.

For a two-dimensional linear model,

$$y = a + B_i \times X_i \tag{1}$$

where X_i is the abscissa (factor by volume with the appropriate measurement unit). After transferring the beginning of the ordinate to the point $y = a$, the transition to the values of factors in the code form x_i^* was carried out with the range of values for all factors $(x_i^* \ldots x_k^*)$ from "0" to "1".

After the transformations of Formula (1) in the new coordinate system, the value b_i^* (rating coefficient of the i-th factor in the comparison format) was obtained on a single scale $x_i^*(0-1)$ equivalent to the natural value X_i. For calculations, we have accepted compliance $X_{i\ max} \rightarrow x_{i\ max}^*$, where according to the condition $\left(x_i^* = 0 \ldots 1\right)\ x_{i\ max}^* = 1$. So,

$$b_i^* = B_i \times X_{i\ max} \tag{2}$$

For practical verification of the developed methodology and analysis of research results, as an example, we chose a machine-building enterprise that is developing rapidly, has modern technologies, applies best world experience in management and systematically develops personnel (Kornieieva 2016).

We found that the value of the rating factor does not indicate the absolute level of its influence. It is used to identify relative influence of factors on the functionality, that is, labour efficiency and factors ranking with the analysis within one enterprise.

Thus, the values of the rating coefficients of the influence of enterprise development factors on labour efficiency cannot be compared for different enterprises, as they are determined for different databases. Therefore, to compare ratings of the impact of factors on labour efficiency, we introduce the following indicator: "specific rating coefficient

(SRC) of the impact of factors of enterprise development on labour efficiency", which was determined by Formula (3):

$$(SRC)_i = \frac{(\mathrm{K})_i}{\sum_{i=1}^{\mathrm{K}}(\mathrm{K})_i} \quad (3)$$

where $(SRC)_i$ is the specific rating coefficient of the influence of the i-th factor of enterprise development on labour efficiency; $(\mathrm{K})_i$ is the rating coefficient of influence of the i-th factor of enterprise development on labour efficiency; k is the number of factors of enterprise development.

The values of specific rating coefficients (SRCs) of the influence of enterprise development factors on the average hourly output for a group of machine-building enterprises were calculated by Formula (3) and determined statistical characteristics of the studied set of SRC values as follows.

$\overline{SRC_i}$ is the average value of the specific rating coefficients of the i-th factor:

$$\overline{SRC_i} = \sum_{n=1}^{N} \frac{SRC_{in}}{N} \quad (4)$$

where SRC_{in} is a specific rating factor of the i-th factor of the n-enterprise; n is a serial number of the enterprise; N is the quantity of enterprises (N = 5).

$\overline{SRC_n}$ is the average value of specific rating coefficients of factors for enterprise n:

$$\overline{SRC_n} = \frac{1}{m} \times \sum_{i=1}^{m} SRC_{ni} \quad (5)$$

where $\overline{SRC_{ni}}$ is the specific rating coefficient for the n-enterprise of factor i, m is the number of factors (m = 26).

S_i is the standard deviation of the specific rating coefficient of the i-th factor of the enterprise n (random variable $\overline{SRC_{in}}$) from its mathematical expectation, the estimate of which is $\overline{SRC_n}$:

$$S_i = \sqrt{\frac{\sum_{n=1}^{N}\left(\overline{SRC_i} - SRC_{in}\right)^2}{N-1}} \quad (6)$$

S_n is the standard deviation of the specific rating coefficient of the n-enterprise for the i-th factor (random variable $\overline{SRC_{ni}}$) from its mathematical expectation, the estimate of which is $\overline{SRC_i}$:

$$S_n = \sqrt{\frac{\sum_{i=1}^{m}\left(\overline{SRC_n} - SRC_{ni}\right)^2}{i-1}} \quad (7)$$

A_i is a measure of the asymmetry of the distribution graph compared to the symmetric distribution graph of each series X_{in} (n = 1…N, N = 5):

$$A_i = \frac{1}{N \times S_i^3} \sum_{n=1}^{N}\left(\overline{SRC_i} - SRC_{in}\right)^3 \quad (8)$$

A_n is a measure of asymmetry of the distribution graph compared to the symmetric distribution graph of each series X_{ni} (i = 1…m, m = 26):

$$A_n = \frac{1}{m \times S_n^3} \sum_{i=1}^{m}\left(\overline{SRC_n} - SRC_{ni}\right)^3 \quad (9)$$

E_i is a kurtosis measure of the elongation of the density graph of the actual distribution compared to the normal distribution of the series X_{in} (n = 1…N, N = 5):

$$E_i = \frac{1}{N \times S_i^4} \sum_{n=1}^{N}\left(\overline{SRC_i} - SRC_{in}\right)^4 \quad (10)$$

E_n is a kurtosis measure of the elongation of the density graph of the actual distribution compared to the normal distribution of the series X_{ni} ($i = 1...m$, $m = 26$):

$$E_n = \frac{1}{m \times S_n^4} \sum_{i=1}^{m} \left(\overline{SRC_n} - SRC_{ni}\right)^4 \quad (11)$$

According to the obtained data, we worked out the system of the level of influence of factors on the average hourly output of one employee at the enterprise with a high level of labour efficiency in three categories: significantly influential, insignificantly influential, non-influential (Table 1).

To determine development factors that affect the average hourly output for machine-building enterprise № 1, we used the concept of kurtosis coefficient, which determines the distribution or measure of the peak in the distribution of the random variable.

The analysis of the data showed that the negative values have kurtosis for the distribution of the following factors as the values E_i decrease in modulus:

- X_{13}—coefficient of losses of working time fund due to annual leave;
- X_{14}—coefficient of losses of working time fund due to temporary incapacity for work;
- X_{15}—coefficient of losses of working time fund due to training, vacations and other absences;
- X_{17}—the share of additional wage in the payroll budget;
- X_{18}—the share of incentive and compensation payments in the payroll budget;
- X_{19}—the share of payment for time not worked in the payroll budget.

Thus, the above-mentioned factors have insignificant influence or no influence at all on the average hourly output (y_1) for surveyed machine-building enterprise № 1.

In our case, the criterion of economic efficiency must express the purpose of economic activity of the enterprise and the conditions for its achievement. Based on this essence, the criterion of efficiency must meet the following requirement: to reflect the results of economic activity (manufactured products and created value added).

As a generalised quantitative criterion for evaluating labour efficiency at the enterprise, we propose to consider labour productivity, namely the average hourly output of one employee (functional y_1), which is defined as the ratio of output (EUR 1000) to hours worked (man-hours).

A method of building a model for determination of rating coefficients of influence of development factors of the enterprise on the increase in labour efficiency is offered. As a result of the analysis of these coefficients, priorities are set in the development of fixed capital components, investment and innovation activities, personnel formation and its use, use of working time and structure of payroll budget. It allows influencing the dynamics of labour efficiency growth. Therefore, it will lead to a more rational use of resources aimed at enterprise development (Yousaf 2023).

It is impossible to direct modern enterprises towards further innovative development without strategic planning of labour efficiency. The main tasks to be set and implemented based on the results of such planning are as follows:

- ensuring the growth of labour efficiency of the enterprise and its structural units compared to the previous periods of activity;
- achievement of the industry average labour efficiency level (ideally, exceeding it);
- achieving a higher level of labour efficiency compared to potential competitors.

However, it should be noted that without appropriate investment in the competitive potential of the enterprise, the implementation of the above-mentioned tasks will be difficult. The elements of the competitive potential of enterprises aimed at improving labour efficiency and ensuring their sustainable innovative development are organisational and managerial (implementation of operational management systems, implementation of ERP systems, implementation and certification of quality management systems, development of external innovative communications), human resource (professional and innovative training programmes, implementation of rationalisation proposals, material and

moral incentives for employees) and technical and technological (introduction of advanced processing technologies; introduction of flexible systems for regulating the utilisation of production facilities; modernisation of technological equipment; research and development of new products) capabilities in terms of investments (Novotná et al. 2021).

Conceptual bases of improvement of the mechanism of labour efficiency management at enterprises were developed. They are based on certain tasks, functions, principles, methods of labour efficiency management and the formed system of factors of influence and the revealed factors and reserves of increase in labour efficiency. They presuppose development and realisation of the corresponding programme, which aims to: optimise total labour costs; improve quality of products at a constant mass and satisfaction with the work process of all its participants; ensure positive changes in material well-being and quality of life.

Summing up, we believe that the implementation of the proposed concept of improving the mechanism of labour efficiency management will ensure rational use of human capital, increase the level of satisfaction with the work process, improve the level of material well-being, standard and quality of life of employees and contribute to the growth of a company's innovation potential.

4. Methodology

According to the studies of the content and essence of labour efficiency, we believe that the characteristic features of labour efficiency are labour productivity, labour quality and labour efficiency, and the main elements of labour efficiency are economic and social efficiency of labour (Figure 1).

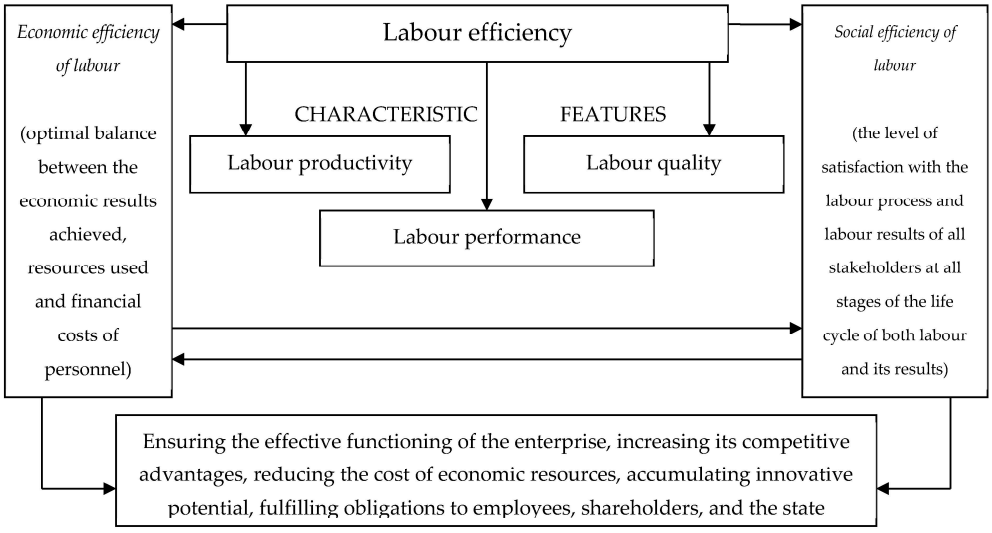

Figure 1. Characteristics and elements of labour efficiency. Source: plotted by the authors.

Labour efficiency, like any economic phenomenon, is manifested in the quantity and quality of labour. The higher the quality of labour is, the higher the quality of products will be, and the more fully social needs are met. Increasing the value added at an enterprise is achieved through optimisation of all production processes. Taking into account the characteristic features of labour efficiency, we propose to consider the category under study with due regard to quantitative and qualitative approaches. The essence of the quantitative approach is that labour efficiency reflects the amount of tangible and intangible goods produced with appropriate saving of working time, while the essence of the qualitative approach is the formation of economic added value at the enterprise (at the stages of creation of products, goods, works and services and their sale) (Singh 2023).

In the context of innovation-oriented development of ecosystems, a dual quantitative and qualitative approach should be used to reveal the essence of labour efficiency: on

the one hand, labour efficiency reflects the ratio of output (tangible and intangible goods) and the corresponding costs of living labour (quantitative approach) and, on the other hand, it reflects the result of the use of the involved human capital, characterised by the manufactured products of a specific consumer quality with the creation of added value (qualitative approach).

In view of this, labour efficiency is proposed to be understood as a socio-economic category that dually reflects the quantitative and qualitative characteristics of the effectiveness of the use of human capital in the labour process:

1. through the ratio of output (tangible and intangible goods) and the amount of labour expended on it;
2. through the achievement of the usefulness of the labour result, which is manifested in the form of manufactured products (tangible and intangible goods) of a specific consumer quality with the creation of added value.

Labour efficiency management at an enterprise plays the role of an important tool, which, if skilfully used, can increase the efficiency of not only the personnel but also the entire production process and the life of the structural units of an enterprise. In other words, the mechanism of labour efficiency formation is an important stage on the way to increasing the profitability and competitiveness of an enterprise (Stănescu 2021).

The organisational and economic mechanism for managing complex organisational systems is understood as an interdependent set of the following basic elements:

- forms and methods of economic management;
- forms and methods of tactical and operational management;
- methods and levers of forming a system of control parameters with the ability to self-organise;
- a system of reasonable financial and administrative restrictions;
- an information system for the formation of the legal and regulatory framework for management decisions.

When defining the structure of the management mechanism, most authors take into account such components as: goals, principles and objectives of management, methods, levers and tools of management, areas and functions of management, organisational, institutional, legal, informational, financial and other support. In a number of studies, we find a combination of three systems in the management mechanism: the support system, the functional system and the direct system (Roth 2019).

The system of support of the organisational and economic mechanism consists of subsystems of legal, resource, regulatory and methodological, scientific, technical and information support of management. The organisational and economic mechanism of management includes the following main functional subsystems: planning, organisation, motivation, control and regulation. The direct system of the organisational and economic mechanism includes the goals and main results of the enterprise's activity, as well as the criteria for selecting and evaluating the achievement of certain goals and results of the enterprise's activity. The content of each of the systems and the number of subsystems in each of the systems of the organisational and economic mechanism of enterprise management depend on the type of enterprise, the scope and scale of its activities, the degree of influence of the external environment and the results of the enterprise's activities and other factors (Organisation for Economic Co-Operation and Development 2022).

In our opinion, in order to understand and define the structure of the labour efficiency management mechanism in the context of innovation-oriented development of enterprises, it is necessary to use a comprehensive (systemic) approach that simultaneously ensures: rational use of human capital; increase in productivity, quality and efficiency of labour and formation of modern innovation infrastructure of the enterprise.

Therefore, we propose to consider the mechanism of labour efficiency management as a system of functions, principles and methods of managerial influence on the participants of the labour process, which, taking into account certain factors and tools for improving labour

efficiency (socio-economic; innovative; investment; technical; information technology; organisational), are aimed at increasing the level of economic and social efficiency of labour.

Thus, taking into account the existing approaches to the formation of the labour efficiency management mechanism and the authors' own developments, we believe that it is possible to propose a concept for improving the mechanism of labour efficiency management of enterprises in the context of their innovation-oriented development, according to which the labour efficiency management mechanism consists of five main blocks: general tasks, functions, principles, methods, factors of influence and tools for improving labour efficiency and includes a labour efficiency management programme (Figure 2).

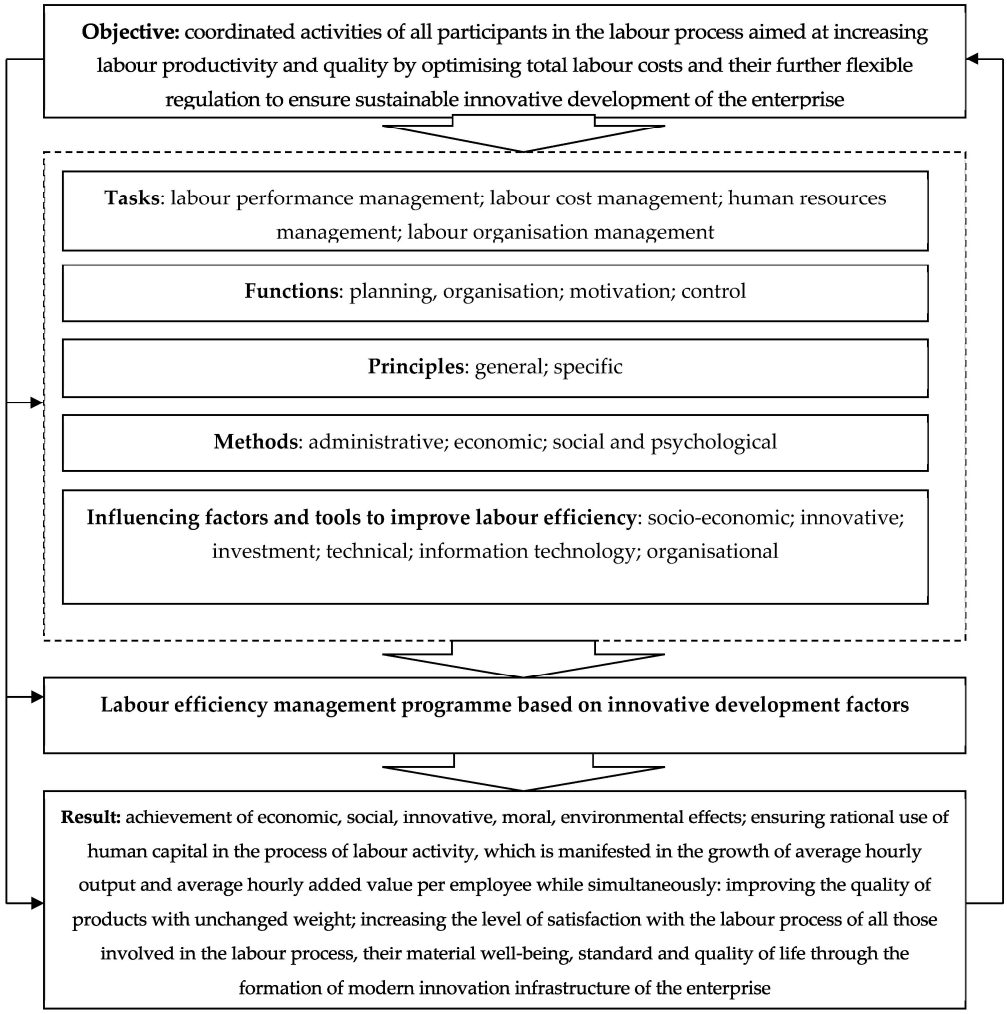

Figure 2. Illustration of the concept of improving the mechanism of labour efficiency management in the context of innovation-oriented development of enterprises. Source: plotted by the authors.

The purpose of management is to coordinate the activities of all labour process participants aimed at improving labour productivity and quality by optimising total labour costs and their subsequent flexible regulation to ensure sustainable innovative development of the enterprise (Sustainable Development in the European Union 2022).

This goal is achieved as a result of solving certain interrelated tasks, which are reduced to:

- labour performance management (development of labour efficiency standards that contain its targets and allow assessing the degree of compliance of the enterprise's personnel with the expected results from the enterprise);

- labour cost management (regulation of the number and structure of the company's staff, ensuring efficient use of working time and payroll);
- human resource management (ensuring timely professional development, formation of a culture of efficient work and internal motivation);
- management of labour organisation (proper organisation and equipment of workplaces, formation and development of corporate culture).

The main functions of the labour efficiency management mechanism are:

- planning (assessment of the actual level of labour efficiency, determination of planned labour performance indicators, development of an action plan to achieve the normative values of labour efficiency of employees);
- organisation (formation of the organisational structure of enterprise management, management style, development of a set of labour efficiency management tools);
- motivation (identification of material and moral incentives that affect labour efficiency, ensuring that the system of identified incentives is balanced with the company's goals and financial capabilities, development of a system of motivation for effective labour activity);
- control (formation of a system of labour efficiency assessment indicators, determination of actual labour efficiency indicators and their comparison with planned indicators, assessment of satisfaction with the labour process, preparation and implementation of corrective actions if necessary).

Principle (from Latin principium—basis, beginning)—(1) basic, initial provisions of any theory, basic rules of activity; (2) established, rooted, generally accepted, widespread rules of economic actions and properties of economic processes (Kazekami 2019). As already noted, the principles of labour efficiency management are divided into general and specific ones.

The general principles of labour efficiency management include:

1. the principle of systematicity involves considering each element of labour efficiency management as a complex dynamic system consisting of a number of links, in a certain way connected with each other and with the external environment;
2. the principle of objectivity implies an impartial consideration of processes and the exclusion of the maximum possible number of distortions of reality in subjective interests;
3. the principle of complexity includes combining all management decisions into a single system, which allows determining priorities in labour efficiency management and ensuring the appropriate interrelation of decisions made in the process of their implementation;
4. the principle of optimality is manifested in ensuring the optimal choice between the priority of tasks for each element of the labour efficiency management system and within each element;
5. the principle of efficiency implies, based on the use of a systematic approach to management, achieving optimisation of total labour costs and their further flexible regulation to ensure sustainable innovative development of the enterprise, as well as improving the quality of products with a constant weight; increasing the level of satisfaction with the labour process of all those involved in the labour process, their material well-being, standard of living and quality of life;
6. the principle of adaptability lies in the ability of the labour efficiency management system to quickly adapt to changing conditions of the internal and external environment while maintaining a progressive innovation-oriented vector of the enterprise's development;
7. the principle of purposefulness is ensured by continuous monitoring of the activities of management entities for compliance with the set goals and objectives.

When developing a mechanism for managing labour efficiency at enterprises, it is essential to determine the specific principles of this process: the value of labour efficiency (labour efficiency management is an integral part of the overall management system of

the enterprise, in line with the goal of achieving sustainable innovative development of the enterprise to ensure its current and strategic competitiveness), management support (managers at all levels of the enterprise accept and share the task of improving labour efficiency, participate in the implementation of all programmes aimed at improving it), social partnership (creation of harmonious social and labour relations that ensure labour efficiency by balancing the interests of employees and management in the course of labour activity: safety, social security, decent remuneration, development and improvement of the quality of working life, subject to the norms and standards set by the enterprise), competent personnel (managers at all levels of management should have the appropriate skills and knowledge to manage labour efficiency: introduce modern technologies and tools to improve labour results and reduce labour costs, and the company's personnel should have personal qualities and professional knowledge, skills and abilities to perform work in the best possible way), involvement and engagement (increasing the interest of all participants in the labour process (management, company personnel) in managing labour productivity and efficiency and enhancing their involvement in this process) (Tripathy et al. 2021).

Among management methods for labour efficiency management, it is possible to use administrative, economic and socio-psychological methods. Administrative methods are methods of direct action and are implemented through organisational stabilising, administrative and disciplinary measures. Economic methods are indirect methods based on material incentives for employees. The essence of socio-psychological methods (methods of indirect action) is to regulate employees' value orientations (Budhiraja 2023).

When choosing and building a mechanism for managing labour efficiency at an enterprise, it is important to take into account the factors and tools for improving labour efficiency (socio-economic; innovative; investment; technical; information technology; organisational) (Table 2).

Table 2. Influencing factors and tools to improve labour efficiency.

Factors and Tools to Improve Labour Efficiency	Components
Social and economic	The level of salary and other material benefits; level of qualification and professional knowledge, skills, abilities; competence; responsibility; adaptability; innovation and professional mobility; discipline; motivation; labour activity; improvement of working conditions; development of creative and organisational skills; social and psychological climate in the team, corporate culture, career opportunities
Innovative	New technological (technical) achievements, introduction of new technological processes, introduction of innovative products
Investment	Financial investments, investments in means of production, investments in human capital
Technical	Equipment with fixed and current assets, transport, equipment and technology, computerisation, automation, robotisation
Information and technology	Implementation of IT technologies (IT data processing, IT management, IT decision support, IT expert assessments)
Organisational	Occupational health and safety, working hours, working conditions, workplace organisation, labour standards, employee appraisal system, professional development, management policy

Source: plotted by the authors.

The classification of factors is important because it allows moving from simply recording changes in the level of labour efficiency to actively identifying the causes of these changes and therefore forms the basis for further development of the labour efficiency management programme aimed at improving it.

The final stage of implementing the labour efficiency management mechanism is the creation of a labour efficiency management programme, the functional orientation of which should be aimed at improving labour efficiency.

As noted in the scientific literature, the specific detailed goals of implementing a labour productivity management programme at any enterprise are:

- improving skills and practical experience in management, planning and problem solving;
- improvement of relations between team members;
- creation of an effective performance information system;
- growth of key performance indicators of the organisation;
- revitalisation of the organisation's activities and a favourable social and psychological climate (Cruz 2023).

The main advantages of creating such a programme at an enterprise are:

- increased awareness of employees and management of the factors that affect productivity;
- creating a link between existing methods of measuring productivity and regular monitoring of performance;
- setting new competitive standards and norms;
- stimulating continuous attention to improving labour productivity;
- wider and more conscious use of labour productivity improvement methods and techniques by the staff.

In general, labour productivity management programmes at an enterprise include the following stages:

1. Measurement and evaluation of the achieved level of productivity at the enterprise in general and by individual types of labour in particular.
2. Searching for and analysing reserves for increasing productivity on the basis of information obtained in the course of measurement and assessment.
3. Developing a plan for the use of productivity improvement reserves, which should include specific deadlines and measures for their implementation, provide financing for these measures and the expected economic effect of their implementation and identify responsible executors.
4. Developing employee motivation systems to achieve the planned level of productivity.
5. Control over the implementation of the measures envisaged by the plan and the entire programme, and regulation of their implementation; measurement and assessment of the real impact of the envisaged measures on labour productivity growth.

A holistic programme of labour efficiency management can only be formed on the basis of the use of a range of methods and approaches that include various methods and systems of general management of the enterprise. This expands the possibilities of using a wide range of tools in labour efficiency management: from performance assessments to performance evaluations; from computerisation to robotisation; from collective bargaining methods to specific forms of close cooperation between management and administration; from the use of material incentives to the prevalence of non-material forms of motivation; from investing in the development of equipment to investing in the development of human capital; from professional training to training of managers; from training of employees to training of employees in the field of management (Campbell 2009). The programme of labour efficiency management should be developed by the relevant specialists of the enterprise and be based on their knowledge and experience (managers of different levels).

Successful implementation of a performance management programme requires mandatory participation of all staff groups. Supporting staff in their efforts to improve labour efficiency contributes to the success of the programme. At the same time, there is no need to create any structural units to monitor the implementation of the programme. However, control over the level of labour efficiency is necessary, as it provides the basis for appropriate incentives, encouragement and remuneration of employees.

Depending on the traditions of the enterprise and its structure, control can be carried out directly at the workplace by the participants of labour processes, site managers, human resource departments and other units. This may involve the use of timekeeping methods, statistical and calculation methods, norms, regulations and standards and personnel certification data (Gale 1991).

Taking into consideration the multifaceted nature of the labour efficiency management process, it becomes obvious that it requires constant strategic and operational planning, measurement and control (Funta and Buttler 2023). In this regard, programmes and concepts of labour efficiency management should be developed taking into account the factors that influence it, and innovations should be introduced into the structure and process of management.

Taking into account the approaches to the formation of a labour efficiency management programme available in scientific sources, we consider it appropriate, based on the generalisation of our own scientific research and established approaches to measuring and evaluating labour efficiency, to propose the algorithm for the formation of a labour efficiency management programme and the sequence of its implementation (Figure 3).

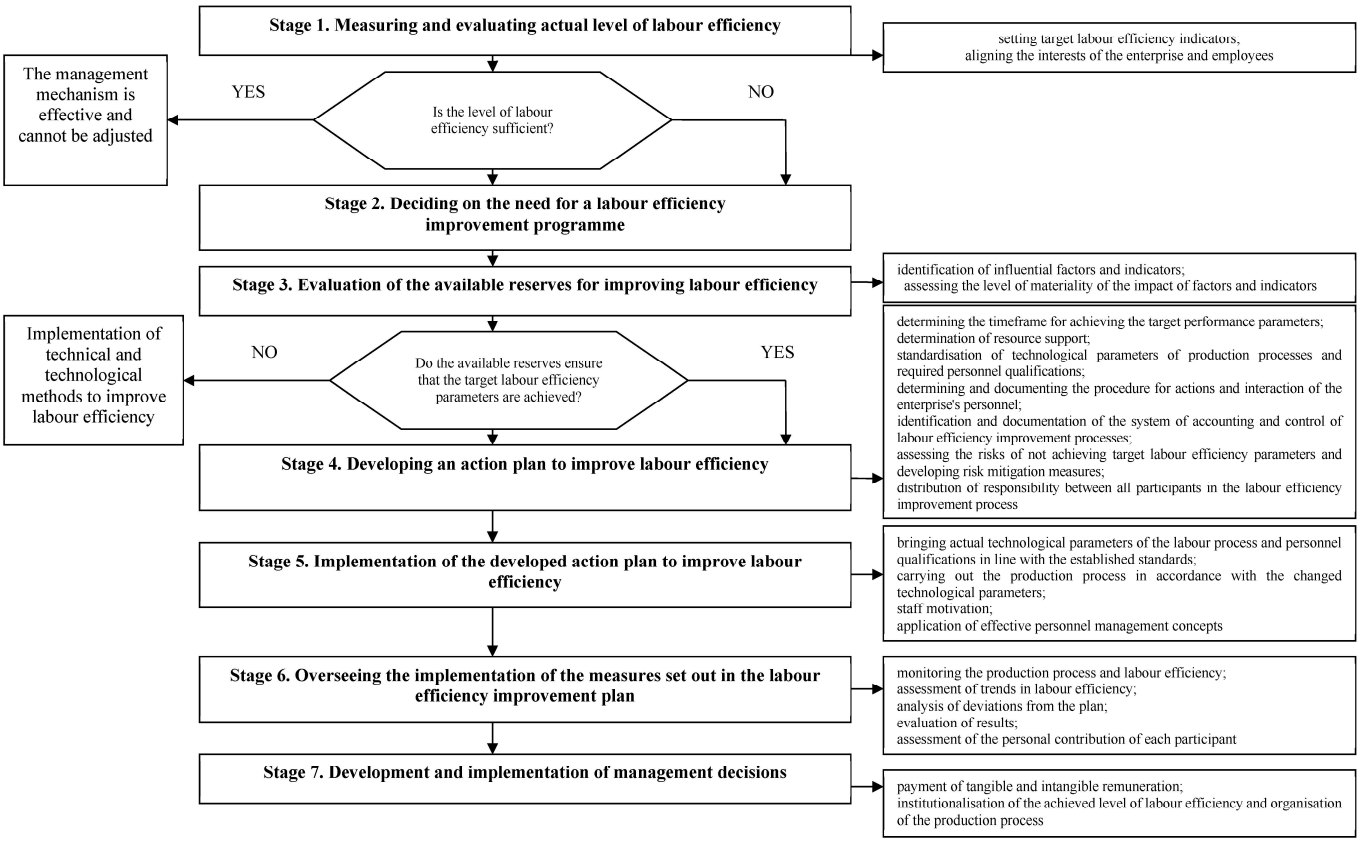

Figure 3. Algorithm for creating a performance management programme. Source: developed and plotted by the authors.

In our opinion, the formation of the labour efficiency management programme at an enterprise should include seven stages.

At the first stage, the actual level of labour efficiency is measured and assessed. It involves setting targets of labour efficiency indicators and determining whether the company's interests are aligned with those of its employees. If the actual level of labour efficiency indicators meets the set targets, the labour efficiency management mechanism is recognised as effective and no further actions are taken to develop or adjust the labour efficiency programme.

At the second stage, if the target labour efficiency indicators are not achieved, a decision is made on the need to develop a labour efficiency improvement programme.

The third stage involves assessing the available reserves for improving labour efficiency, which is based on identifying the factors and indicators that affect labour efficiency and assessing the level of materiality of such an impact. If the identified reserves are insufficient to achieve the target labour efficiency parameters, a decision is made to apply and implement technical and technological methods to improve labour efficiency.

The fourth stage is directly related to the development of an action plan to improve labour efficiency and includes: determining the timeframe for achieving target labour efficiency parameters; determining resource provision; standardising the technological parameters of production processes and the required qualifications of personnel; determining and documenting the procedure for actions and interaction of the enterprise's personnel; determining and documenting the system of accounting and control of labour efficiency processes; assessing the risks of not achieving the target labour efficiency parameters. As part of this stage, it is necessary to build a clear organisational structure for managing labour efficiency. It can be adapted to the usual enterprise management structure by assigning the relevant functions to specific management units: marketing service, financial and economic service, personnel management service, production preparation service and supply department.

The fifth stage is based on the implementation of the developed action plan to improve labour efficiency and includes: bringing the actual technological parameters of the labour process and personnel qualifications in line with the defined standards; conducting the production process in accordance with the changed technological parameters; motivating personnel to achieve the target labour efficiency benchmarks; applying effective personnel management concepts. Staff motivation is based on the following relevant elements: remuneration, benefits, compensation, training, creation of favourable working conditions, career prospects, etc. An important element of employee motivation in the performance management mechanism is the use of a bonus programme based on the identification and appropriate achievement of key performance indicators.

The sixth stage involves monitoring the implementation of the measures envisaged by the labour efficiency improvement plan, including: monitoring the production process and the level of labour efficiency in the context of the changes implemented; assessing trends in labour efficiency and analysing deviations from the plan; evaluating the results of the labour efficiency improvement process and the personal contribution of each participant in the labour process.

The seventh and final stage of the labour efficiency management programme involves the development and implementation of management decisions aimed at consolidating the achieved target parameters of labour efficiency by paying material remuneration and providing intangible benefits to all employees who, in the course of their professional duties, contributed to the improvement of labour efficiency, as well as institutionalising the achieved level of labour efficiency and organisation of the production process.

5. Conclusions

On the basis of the conducted research on theoretical and methodological foundations of labour efficiency management in the context of innovation-oriented development of enterprises, we can draw the following conclusions.

1. In the context of innovation-oriented development of ecosystems, a dual quantitative and qualitative approach should be used to reveal the essence of labour efficiency: on the one hand, labour efficiency reflects the ratio of output (tangible and intangible goods) and the corresponding costs of living labour (quantitative approach) and, on the other hand, it reflects the result of the use of the involved human capital, characterised by the manufactured products of a specific consumer quality with the creation of added value (qualitative approach).

2. In order to understand and define the structure of the labour efficiency management mechanism in the context of innovation-oriented development of enterprises, it is necessary to use a comprehensive (systemic) approach that simultaneously ensures: rational use of human capital; increase in productivity, quality and efficiency of labour and formation of modern innovation infrastructure of the enterprise.
3. The concept for improving the mechanism of labour efficiency management of enterprises in the context of their innovation-oriented development was elaborated. According to the concept, the labour efficiency management mechanism consists of five main blocks: general tasks, functions, principles, methods, factors of influence and tools to increase labour efficiency.
4. The algorithm of forming a programme for managing labour efficiency at enterprises has been proposed. It includes seven stages in the sequence of its implementation (measuring and assessing the actual level of labour efficiency; making a decision on the need to form a programme for improving labour efficiency; evaluating the available reserves for improving labour efficiency; developing an action plan for improving labour efficiency; implementing the developed action plan for improving labour efficiency; monitoring the implementation of measures envisaged by the plan for improving labour efficiency; development and implementation of management decisions).

The programme is aimed at increasing productivity and quality of labour by optimising total labour costs, improving the quality of manufactured products with a constant weight and satisfaction with the labour process of all its participants.

The ways to improve the mechanism of labour efficiency management in the context of innovation-oriented development of enterprises presented in the paper can be adapted to any sector of the economy with adjustment of goals, factors and indicators.

The aim of our future research will be to apply the results of this theoretical study in practice. We will apply the proposed structure of the mechanism for managing labour efficiency at a specific enterprise that manufactures products. At the selected enterprise, we will use the algorithm for forming a labour efficiency management programme and implement its stages in a sequential manner.

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