DOI: 10.55643/fcaptp.4.51.2023.4101

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Received: 04/07/2023
Accepted: 15/08/2023
Published: 31/08/2023

CONCEPTUAL PRINCIPLES OF LABOR INTENSITY DETERMINATION FOR RATIONING OF INNOVATIVE WORK AT THE ENTERPRISE

ABSTRACT

The level of profitability of innovative products depends on the correct determination and justification of the labor intensity of innovative works. The purpose of the study is to substantiate the methodological approach to determining the labor intensity of innovative work at the enterprise. The following research methods were used in the study: grouping and systematization; logical generalization and comparison; analysis and synthesis.

The sequence of determining the labor intensity for rationing of innovative work is proposed. Generalization of existing methods, approaches, and tools for determining labor intensity allowed to substantiate the conceptual basis for determining the labor intensity of innovative work at the enterprise regarding the features of calculating the labor intensity of innovative work for each group of rationing methods; substantiation of recommendations for determining the labor intensity depending on the method of rationing of innovative work and determining the labor intensity on separate stages of the innovation process and management work.

The proposed approach for determining the labor intensity of innovative work at the enterprise is based on the justification of the content of stages and steps of the innovation process; and on the suggested classification of labor operations into creative and inventive operations, creative and managerial operations, and routine operations. The key role in the proposed approach is given to determining the conformity of rationing methods to the scopes of works to the stages of the innovation process, which is realized with the matrix for choosing methods for determining labor intensity.

The introduction of theoretical and methodological principles and practical recommendations for determining the labor intensity of innovative work at the enterprise allows to differentiate stages and types of work. Also? it gives an opportunity to choose the rationing method for different types of innovative work and to determine the labor intensity of innovative work for increasing management decisions efficiency.

Keywords: innovative labor operations, innovative work, labor intensity of innovative work, rationing of innovative work

JEL Classification: O32

INTRODUCTION

Labor standards are the necessary condition for effective labor management at the enterprise. They contribute to the sound organization of employees' work. Nowadays the urgency of labor rationing is increasing as the efficiency of innovative work is improving. The basic element in the cost structure for the creation and sale of innovative products is their labor intensity. Therefore, the level of profitability of innovative products depends on the correct evaluation and justification of the labor intensity of innovative works. The difficulty of determining the labor intensity of innovative work is caused by its specificity and impossibility of applying methods of labor rationing used in the planned economy.

DOI: 10.55643/fcaptp.4.51.2023.4101

An integrated approach to methods of determining labor standards contributes to the rationalization of the work process. The information economy is characterized by complications of the workflow. The share of innovation operations is growing in almost all types of labor processes, so it is important to justify universal methods for determining the labor intensity and rationing of innovation work at the enterprises.

LITERATURE REVIEW

The issue of discussing universal methods for determining the labor intensity and rationing of innovative work at the enterprises is the subject of scientific interest of foreign and domestic scientists: G. Sysun, A. Joshi, D. Yadransky, I. Bagrova, S. Dziuba, I. Gaidai, V. Yeromenko, E. Kovalenko, V. Ryzhykov, A. Kolot, O. Herasymenko, and others.

Sysun G. and Joshi O. do not clearly consider the features of rationing the labor intensity of innovative work for each type of work [6]. These authors also emphasize that when comparing the analytical-calculation and analytical-research methods, then analytical-calculation has significant advantages.

Yeromenko V., Kovalenko E., V. Ryzhykov V. [3] also consider that the methods of mathematical statistics of rationing are quite popular and it is preferable to apply it for rationing the management specialist's work.

I. Bagrova believes that the allocation of the number of specialists should be based on the most important factors specific to each functional department. Specialists engaged in innovative work within these departments demonstrate creativity, necessitating the use of mathematical statistics methods for their calculation. I. Bagrova [1] also asserts that the methods of mathematical statistics for determining the number of specialists should take into account the prominent factors and the span of control. According to I. Bagrova [1], the optimal number of structural departments that can be supervised by a single manager should be established based on the optimal span of control. Additionally, I. Bagrova [1] emphasizes that the informational nature of innovative work results in a higher proportion of managerial personnel within the overall workforce. This is due to the need for additional processing of current information into a more advanced format, consequently complicating the responsibilities of management specialists.

Yadransky D. believes that for calculating the optimal number of innovative employees, it is necessary to use correlation regression analysis [9].

Kolot A. and Gerasimenko O. pay more attention to the essence and content of innovative work itself, as well as its features at different stages of the innovation process.

However, with all the variety of research in this area [1-16], the methods of determining the labor intensity of innovative work depending on the types of innovative labor operations remain insufficiently studied.

Based on the analysis of the essence of modern innovative work [4; 5; 10], the content of innovative labor operations, and the features of innovative work at different stages and steps of the innovation process are examined. Given that the content of innovative work differs significantly from other types of work and establishing time standards for it is challenging due to its creative nature, it becomes necessary to enhance the rationing of this type of work within the context of a functioning enterprise and select the appropriate method of rationing.

AIMS AND OBJECTIVES

The purpose of the study is to substantiate the methodological approach to determining the labor intensity of innovative work at the enterprise. The object of research is the process of innovative work.

To achieve the goal of the study the following scientific objectives are identified:

- to analyze the features of calculating the labor intensity of innovative work;
- substantiate the approach to determining the labor intensity of innovative work in terms of their significant complexity;
- to formulate conceptual provisions for determining the labor intensity of innovative work at the enterprise.

METHODS

The following general and special research methods were used in the research process: methods of grouping and systematization - to highlight the features of innovative work; to substantiate the conceptual provisions for determining the labor intensity of innovative work at the enterprise; logical generalization and comparison – for the analysis of approaches to standardization and determination of labor intensity of innovative work at the enterprise; to study the differentiation of innovative work by types of work; for the analysis of available methods of rationing of innovative work; to generalize existing methods, approaches, models and tools to justify their applicability in modern industrial enterprises; analysis and synthesis - for systematization and grouping of methods for determining the labor intensity of innovative work at the enterprises.

RESULTS

Based on the research conducted on the features of determining the labor intensity for rationing of management specialist's work [1; 2; 3; 6], as well as the consolidation of existing methods for determining the labor intensity of innovative work, the following conceptual foundations of the proposed methodological approach have been established.

Provision 1. For rationing of innovative work, the evaluation of labor intensity should take into account the peculiarities of innovative work itself and correspond to the differentiation by types of work.

On the basis of the results of the analysis, it has been established that different types of innovative work have the following characteristics of work operations:

- creative and inventive operations, which require a high degree of creativity and novelty (e.g. fundamental, exploratory, and applied research, R&D (inventions and discoveries), heuristic tasks), and the result of them is the generation of innovative ideas and products;
- creative and managerial operations, which have an individual character but do not require a high level of novelty (e.g. design work, applied research and development (R&D), R&D without significant novelty, development, formatting, and publication of textual information, as well as operations which are included in the list of standard functional responsibilities and performed by managers, design engineers, technological engineers, engineers-economists of research and design departments, etc.);
- routine operations are multiple repetitive operations of the same type which do not require novelty (e.g. development and preparation of manufacturing of new products; commercialization of innovations, development of drawings, accounting, graphics, computing and stationery, quarterly and annual reports, preparing of meetings and conferences, etc.).

Based on the analysis of the economic scientific literature, the factors that affect the labor intensity of innovative work are identified [2; 7; 11]:

- scope of work;
- the degree of novelty of the work performed;
- complexity and level of preparation of materials;
- conditions that affect the results of work;
- the level of qualification of the specialist;
- frequency of repetition of the same type of operations;
- quality of raw materials;
- personal abilities of the specialist;
- type and nature of work performed;
- availability of scientific support for this type of work;
- the nature of the technological process.

Provision 2. For each group of management specialists, depending on the functions performed, exist specific approaches to the rationing of innovative work and determining its labor intensity.

It is expedient to determine that the presence of features of the nature of innovative work of management specialists, depending on the functions performed, involves different approaches to the rationing of management work. It is necessary

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to consider approaches to rationing the number of staff depending on the groups of management specialists. The results of the analysis of the work of management specialists' groups and approaches to rationing the number of staff depending on these groups are summarized and given in Table 1.

Table 1. Approaches to rationing the number of staff depending on groups of management specialists. *(Source: developed by the authors based on studies [1; 9])*

Groups of management specialists	Approaches to the rationing of the number of staff
Line managers	1. The number of staff is determined according to the span of control, which fixes the maximum number of persons subordinate to one manager. Also, a span of control determines the optimal number of subordinates of the one-line manager at the unit. The scope of the manager's work increases in direct proportion to the increasing number of objects or persons subordinate to the supervisor [1]. 2. For the line managers (as supervisors, team leaders, and shift managers) the complexity and labor intensity of managerial processes is determined by the number of subordinates. That is why for line managers number of staff at the unit is rationed according to the span of control
Functional managers	1. The number of staff is determined according to the complexity of specialist work, the number and variety of manager's activities, and the frequency of their repetition during the day, week, quarter, and year. These factors influence on labor intensity of managerial work productivity [1]
Non-managerial specialists in the departments	1. For creative tasks it is difficult to determine labor intensity based on time standards of separate operations. That is why labor intensity is determined with methods of mathematical statistics taking into account the influence of leading factors [1]. 2. Rationing of technical and administrative staff labor is based on the duration and frequency of repetition of model operations, which constitute the main duties of staff [1]. 3. For rationing the number of specialists the consolidated methods are the most often used. With these methods, the staff number standards on separate management functions are used. At the same time, it is necessary to take into account factors that indirectly affect the labor intensity of innovative work. 4. The labor costs of specialists performing economic functions and technical preparation of production are related to the implementation of repetitive tasks and operations with different complexity during the month. 5. For rationing the number of specialist's direct methods are used. Only due to direct methods usage, it is possible to implement progressive forms of labor stimulation of individual employees and team if the volume of work increasing
Technical staff on management function	Standards of staff work [9]: 1. Standard number of employees: total and on management functions; 2. Standards of maintenance service (number of maintenance units per employee); 3. Labor intensity standards on separate stages and types of works

Further, it is necessary to analyze the category of "management operation" due to the fact that all the work of managers consists of operations. The authors [1] highlight the following approaches to the definition of this category:

- as a share of management work, through which the share of management tasks is solved by a specific specialist;
- a set of interrelated actions, homogeneous in nature, stable in content, characterized by the fact that their results do not have independent significance.

It is expedient to determine that the standard labor intensity of innovative work performed by specialists and staff can be calculated by the following methods: expert, summary (statistical), and analytical (calculation-analytical and calculation-research).

Provision 3. Each type of innovative labor operation has its own methods of determining labor intensity.

Generalization of the analysis results of the applied methods of determining labor intensity depending on types of innovative labor operations by modern scientists' publications is presented in Table 2.

Table 2. Methods of determining the labor intensity of innovative work depend on the types of innovative work.

Methods of determining labor intensity of innovative work	Types of innovative work
Method of typical stages and types of work	Noncomplex R&D with a minimal level of novelty. Applied R&D
Analytical-calculation methods	Noncomplex R&D with a minimal level of novelty. Research institutes and Design bureaus
Summary methods: 1. Analog method. 2. Experimental and statistical.	1. New project development. 2. Applied R&D.
Method of normative labor intensity (Span of control)	1. Managerial tasks. 2. Technical preparation of production and Economics functions.
Expert method	Heuristic and complicated logical tasks, forecasting tasks, and prospective planning tasks Fundamental and exploratory R&D, which require a high degree of novelty R&D according to the number of technical drawings
Unified and model time standards	1. Rationing of technical staff labor. 2. Rationing of same type operations.

Provision 4. Each rationing method of innovative work is characterized by its own features of determining the labor intensity of separate operations.

The choice of the most optimal methods of determining labor intensity may be grounded on the analysis of publications [2; 4; 5]. The results of such analysis are summarized and given in Table 3.

Table 3. Determining the labor intensity depending on rationing methods of innovative work.

Labor rationing methods	Determination of labor intensity (content of procedure)
Analytical methods: ▪ analytical-research; ▪ analytical-calculation.	Labor intensity is defined as a function of the main technical parameters of the developed product and the content of the work performed on the basis of elements of mathematical statistics and probability theory. Expert research using rank correlation of labor intensity factors (analytical research). The use of parametric models to determine the labor intensity depending on the number of product characteristics and specific standards per unit of work. Establishment of certain correlations between the labor intensity and the main technical parameters of the developed products.
Summary methods: ▪ statistical; ▪ experimental and statistical; ▪ analog method.	Determination of labor intensity is based on the processing of statistical information accumulated on similar work performed in the past, or on statistics on labor costs in the past, by comparing the normalized object with similar, as well as comparing the labor intensity of future work with previously performed similar. But it is necessary to have a pre-systematized database of such works. These methods are successfully used in the IT industry (eg Scrum methodology)
Expert method	The determination of labor intensity of future work is based on estimates given by experts. However, there are some difficulties in choosing the right experts and determining a statistically significant and reliable number of such estimates
Microelement methods	Determination of labor intensity is based on population standards or is carried out experimentally

It was found that microelement methods are not used for innovative work, but such standards should be used for certain types of routine work to create reasonable standards of labor intensity.

Provision 5. The sequence of determining the labor intensity for rationing of innovative work is offered in the results of the study. This procedure includes seven stages:

- selection of the object of rationing;
- determination of factors influencing the labor intensity of work performed;

DOI: 10.55643/fcaptp.4.51.2023.4101

- selection of the type of innovative work operations;
- selection of the method of determining the labor intensity of separate works;
- selection of the list of innovative work types;
- selection of the labor intensity standards types;
- labor intensity standard setting.

It includes also relevant methodological support for each stage.

The sequence of determining the labor intensity for rationing of innovative work which includes the seven stages mentioned above is shown in Figure 1. The dotted lines indicate feedback loops.

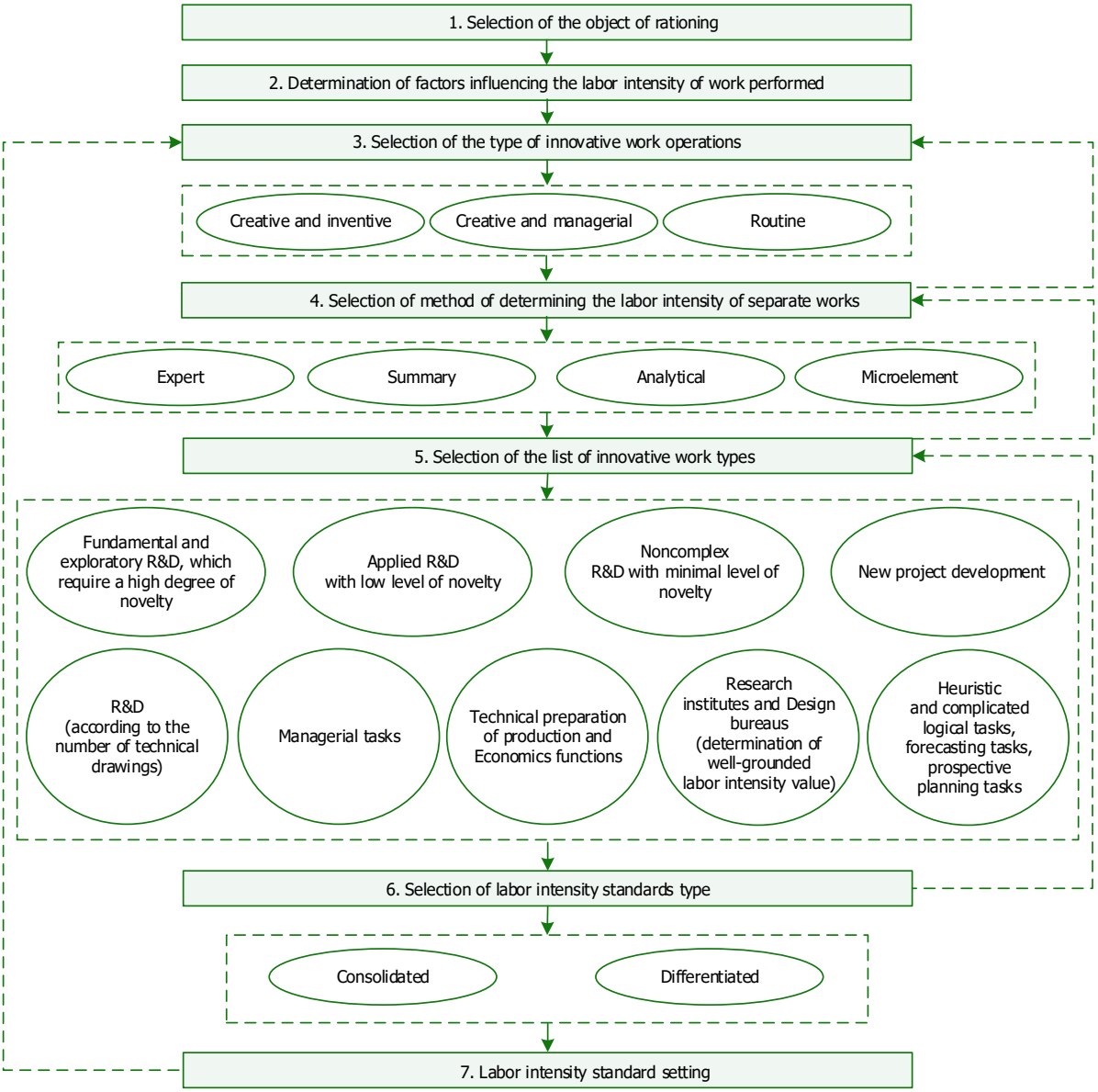

Figure 1. The sequence of determining the labor intensity for rationing of innovative work. Note: feedback loops.

Provision 6. The choice of methods for determining the labor intensity in accordance with the separate stages and steps of the innovation process can be presented in the form of a matrix in Table 4.

The matrix for choosing methods for determining the labor intensity in accordance with the separate stages and steps of the innovation process is compiled on the basis of a generalization of the above provisions on the selection of the innovation process components, labor rationing, the procedure for determining labor intensity and the classification of methods for its determination.

In each quadrant of this matrix in Table 4 the methods of determining the labor intensity according to the classification shown in Table 2 are specified.

Table 4. Matrix for choosing methods for determining the labor intensity in accordance with the separate stages and steps of the innovation process.

Innovation process		Type of innovative work		
Stages	**Steps**	**Creative and inventive**	**Creative and managerial**	**Routine**
Fundamental research	Theoretical	Expert method		
	Exploratory	Expert method, Summary method		
	Informational	Expert method		
Applied research	Evaluation research	Summary method (analog method)		
	Goal oriented R&D	Summary method		
	Action research	Summary method (analog method)		
Experimental development	Technological, designing research, industrial design	Expert method		Model time standards
	Project development	Summary method		Methods of normative labor intensity
	Value analysis		Methods of normative labor intensity	
Pilot production	Trial production			Unified and model time standards
	Marketing research	Method of typical stages and types of work		Method of typical stages and types of work
	Feasibility study			Method of typical stages and types of work (Span of control)
Production	Technical Preparation of Production			Methods of normative labor intensity (Span of control)
	Industrial manufacturing			Unified and model time standards
	Economic indicators assessment			Analytical-calculation methods
Commercialization	Testing		Method of typical stages and types of work	Analytical-calculation methods
	Diffusion	Method of typical stages and types of work	Method of typical stages and types of work	
	Mass consumption			Methods of normative labor intensity
	Decline	Analytical-calculation methods	Method of typical stages and types of work	

On the results of the study, the conceptual framework of determining the labor intensity for rationing of innovative work at the enterprise, with differentiation by type of work is substantiated. This approach consists of the following components: establishing the features of determining the labor intensity of innovative work for each group of rationing methods; substantiation of recommendations for determining the labor intensity for each group of management specialists depending on their functions performed; substantiation of recommendations for determining the labor intensity depending on the method of innovative work rationing and determining the labor intensity on separate stages of R&D and management works; development of the sequence of determining the labor intensity for rationing of innovative work.

DOI: 10.55643/fcaptp.4.51.2023.4101

DISCUSSION

Due to the fact that the share of innovative operations is increasing in all types of labor processes, the question of justifying the determination of labor intensity in the rationing of innovative work becomes particularly acute.

Based on the analysis results, it has been established that different types of labor operations are characteristic of various types of innovative work operations: creative and inventive, creative and managerial, and routine. Corresponding methods of rationing need to be applied for each of these types. Through the analysis of the applied rationing methods according to the types of innovative labor operations, it was determined that expert method and analytical-research methods are appropriate for creative and inventive work operations. Summary and experimental-statistical methods are suitable for creative and managerial work operations, while normative, experimental, and statistical, analytical calculation, analytical research, and methods of mathematical statistics are applicable for routine work operations.

In addition to the use of expert, summary, and analytical methods, the expediency of using microelement methods of rationing has been proven.

The analysis of methods for rationing and labor intensity determination used at the machine-building enterprises in the Kharkiv region has allowed for the conclusion that there is a lack of scientifically substantiated norms for innovative work and statistically established norms for labor intensity. Therefore, it is necessary to accurately define and justify the labor intensity of innovative work and the methods for determining its labor intensity, depending on the types of innovative labor operations.

The developed approach to determining the labor intensity and rationing of innovative work stands out among existing approaches by taking into account the peculiarities of the content of innovative labor operations and differentiating them based on rationing methods. This approach has allowed to build a matrix for choosing methods, corresponding to various stages and phases of the innovation process. The matrix relies on the differentiation of methods for creative and inventive, creative and managerial, and routine work operations.

This approach has been developed and brought to the level of practical recommendations, the utilization of which in the process of enterprise innovation activities will enhance the management toolkit for innovative work, and develop conceptual approaches to its rationing and organization. Unlike existing approaches, the proposed approach allows for the differentiation of stages, types of work, and the possibility of selecting the rationing method for different types of innovative work and determining their labor intensity in an industrial enterprise, with the aim of improving the effectiveness of management decisions. The generalizability of these findings to other industries or contexts may be limited, as the study focused on a specific set of data or case studies. Further research could provide a more comprehensive understanding of the relationship between labor operations and types of innovative work.

CONCLUSIONS

Based on the analysis conducted, a systematic approach for determining the labor intensity in the rationing of innovative work is proposed. This approach consists of seven stages: 1) identifying the object of rationing; 2) identifying the factors influencing the labor intensity of the work; 3) categorizing the types of innovative work operations; 4) selecting the appropriate method for determining the labor intensity of individual work operations; 5) compiling the list of innovative works; 6) determining the type of labor intensity standards; and 7) setting the labor intensity standards. Each stage is supported by relevant methodological frameworks and justifications.

The proposed procedure takes into account the following aspects: establishing the features of determining the labor intensity for each group of rationing methods; substantiation of the recommendation for determining the labor intensity for each group of management specialists depending on their functions performed; substantiation of recommendations for determining the labor intensity depending on the method of innovative work rationing and establishing the labor intensity on separate stages of R&D and management works.

Generalization of existing methods, approaches, tools for determining labor intensity allowed to formulate and justify conceptual principles that include:

- determination of the labor intensity of innovative work at the enterprise, regarding the identified features of calculating the labor intensity of innovative work for each group of rationing methods;

- substantiation of recommendations for determining the labor intensity depending on the method of rationing of innovative work and determining the labor intensity on separate stages of the innovation process and management work;
- development of the procedure for determining the labor intensity for rationing of innovative work.

It is proposed to distribute the innovative labor operations into three types: creative and inventive, creative and management, and routine. For each type, the use of different methods of determining labor intensity is justified according to the author's classification, which allows to differentiate them according to the methods of rationing and justify the sequence of the rationing process.

The matrix for choosing methods for determining the labor intensity in accordance with the separate stages and steps of the innovation process is composed of the developed provisions concerning the allocation of components of the innovative process, rationing, classification of methods for labor intensity determination, and procedure of such determination. Methods for determining labor intensity according to the accepted classification are indicated in the corresponding cell of the matrix.

The proposed approach for determining the labor intensity of innovative work at the enterprise is based on the justification of the content of stages and steps of the innovation process; and on suggested differentiation of labor operations into creative and inventive operations, creative and managerial operations, and routine operations. The key role in the proposed approach is given to determining the conformity of rationing methods to the scopes of works to the stages of the innovation process, which is realized with the matrix for choosing methods for determining labor intensity. This matrix is developed for practical use.

Implementation of theoretical and methodological principles and practical recommendations for determining the labor intensity of innovative work at the enterprise allows to differentiate stages and types of work. In turn, it gives an opportunity to implement the possibility of choosing a rationing method for different types of innovative work and to determine the labor intensity of innovative work for increasing management decisions efficiency.

The future direction of research in this subject area may be the analysis of the approbation of the proposed matrix for machine-building enterprises.

ADDITIONAL INFORMATION

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REFERENCES

1. Bagrova, I. (2003). Normuvannia pratsi. Centr. Navch. lit., Kyiv.
2. Dziuba, S., & Ghaidai, I. (2005). Normuvannia pratsi v vitchyznianii i mizhnarodnii ekonomitsi. Yugho-Vostok LTD, Donetsk.
3. Yeromenko, V., Kovalenko, G., & Ryzhykov, V. (2004). Osnovy normuvannia pratsi: Navch. Posib. DDMA, Kramatorsk.
4. Kolot, A., & Herasymenko, O. (2018). Innovatsiina pratsia ta yii intelektualizatsiia yak stratehichni vektory stanovlennia novoi ekonomiky. *Ekonomika i*

DOI: 10.55643/fcaptp.4.51.2023.4101

orghanizacija upravlinnja, 1(29), 6–23. https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAIQw7AJahcKEwiomfCgh8aAAxUAAAAAHQAAAAQAw&url=https%3A%2F%2Fjeou.donnu.edu.ua%2Farticle%2Fview%2F5732%2F5758&psig=AOvVaw0NQ_ZY0IyJDhy6uPM_NKt0&ust=1691343387586742&opi=89978449

5. Nikiforenko, V. (2019). Innovatsiina pratsia ta innovatsiina povedinka: sutnist ta chynnyky upravlinskoho vplyvu. *Scientific Bulletin of the Odessa National Economic University, 1*, 114-135. http://n-visnik.oneu.edu.ua/collections/2019/264/pdf/114-135.pdf
6. Sysun, G., & Joshi, O. (2011). Normuvannia pratsi. NUVGP, Rivne.
7. Chernoivanova, G. (2018). Orhanizatsiino-ekonomichne zabezpechennia upravlinnia innovatsiiamy ta innovatsiinoiu pratseiu: monohrafiia. FOP Liburkina L. M., Kharkiv.
8. 8. Chernoivanova, A. S. (2018). Problemy finansuvannia innovatsiinoi pratsi ta vyznachennia yii trudomistkosti. Financial and Credit Activity Problems of Theory and Practice, 1(24), 221–228. https://doi.org/10.18371/fcaptp.v1i24.128360
9. Yadransky, D. (2007). Teoretyko-metodychni zasady formuvannia yedynoi systemy normuvannia pratsi v Ukraini: Monohrafiia. Monolit, Dnipropetrovsk.
10. Yastremska, O., & Demchenko, G. (2018). Aktyvizatsiia innovatsiinoi diialnosti pidpryiemstv: Monohrafiia. FOP Liburkina L. M., Kharkiv.
11. Gontareva, I., Marcel Kurt, M., Dorokhov, O., Rusin-Grinik, R., & Galayko, N. (2022). A Systematic-Functional Approach in Managing Innovative Development of Construction Enterprises in Ukraine. *TEM Journal, 11*(1), 125–137. https://doi.org/10.18421/tem111-15
12. Messmann, G. (2012). Innovative work behavior: Investigating the nature and facilitation of vocational teachers' contributions to innovation development. Universität Regensburg, Regensburg. https://doi.org/10.5283/epub.26492
13. Pererva, P., Besprozvannykh, O., Tiutlikova, V., Kovalova, V., Kudina, O., & Dorokhov, O. (2019). Improvement of the Method for Selecting Innovation Projects on the Platform of Innovative Supermarket. *TEM Journal, 8*(2), 454-461. https://doi.org/10.18421/TEM82-19
14. Pererva, I. (2021). Functions and principles of standardization of innovative labour for it industry projects. *Innovative economy, 1–2*, 51–60. https://doi.org/10.37332/2309-1533.2021.1-2.7
15. Lepeyko, T., & Chernoivanova, A. (2015). Specifics of organizing and standardizing innovative labour in information economy. Information Technologies in Innovation Business Conference (ITIB), Kharkiv, Ukraine, 2015, 76–80, https://doi.org/10.1109/ITIB.2015.7355057
16. Chernoivanova, A., & Wackowski, K. (2018). The main trends of innovation capacity influence on environmental situation: the case of Ukraine and Poland. *International Journal of Environmental Technology and Management, 21*(5/6), 396–406. https://doi.org/10.1504/ijetm.2018.10022299

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КОНЦЕПТУАЛЬНІ ЗАСАДИ ВИЗНАЧЕННЯ ТРУДОМІСТКОСТІ ПРИ НОРМУВАННІ ІННОВАЦІЙНОЇ ПРАЦІ НА ПІДПРИЄМСТВІ

Від правильного визначення та обґрунтування трудомісткості інноваційних робіт залежить рівень рентабельності інноваційної продукції. Мета дослідження – обґрунтування методологічного підходу до визначення трудомісткості інноваційної праці на підприємстві. У процесі дослідження використані: методи групування та систематизування; логічне узагальнення й порівняння; аналіз і синтез.

Запропоновано послідовність визначення трудомісткості при нормуванні інноваційної праці. Узагальнення наявних методів, підходів та інструментарію дозволило обґрунтувати концептуальні положення щодо встановлення трудомісткості інноваційних робіт на підприємстві, визначити особливості встановлення трудомісткості інноваційної праці для кожної групи методів нормування, обґрунтувати рекомендації зі встановлення трудомісткості залежно від методу нормування інноваційної праці та визначення трудомісткості окремих етапів інноваційного процесу й управлінських робіт.

Запропонований підхід до розрахунку трудомісткості інноваційної праці на підприємстві базується на обґрунтуванні змісту стадій та етапів інноваційного процесу, запропонованій диференціації трудових операцій (креативно-винахідницькі, креативно-управлінські та рутинні). Ключова роль у підході відведена визначенню відповідності методів

нормування змісту робіт на етапах інноваційного процесу, що реалізовано за допомогою розробленої для практичного використання матриці вибору методів визначення трудомісткості.

Матриця вибору методів визначення трудомісткості відповідно до окремих стадій та етапів інноваційного процесу складена таким чином, що методи визначення трудомісткості відображаються у відповідному квадраті матриці.

Упровадження теоретико-методологічних засад та практичних рекомендацій із визначення трудомісткості інноваційної праці на підприємстві дає змогу розмежувати етапи, види інноваційних робіт та запровадити можливість вибору методу нормування різних видів інноваційної праці й установлення їхньої трудомісткості з метою підвищення ефективності управлінських рішень.

Ключові слова: інноваційні трудові операції, інноваційна праця, трудомісткість інноваційної праці, нормування інноваційної праці

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DOI: 10.55643/fcaptp.4.51.2023.4101