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"Global Challenges and Prospects of the Modern Economic Development"****CORPORATE MANAGEMENT OF LABOR RATIONING IN
CONDITIONS OF DIGITAL MODERNIZATION**

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Abstract

The article views the issues of corporate management of labor rationing. The digital economy creates new opportunities for increasing production efficiency and achieving the goals of the enterprise, which largely depends on the rationalization of labor processes, the level of organization management and labor standards. Today, labor rationing is a complex management process aimed at solving the strategic problems of production. In this regard, the aim of the research is to study the specifics and to develop a mechanism of corporate management of labor rationing in conditions of digital transformation. This study focuses on the capabilities of modern information systems and software products in the field of labor rationing and the system of monitoring of labor rationing and standards quality as a tool of optimization of the collection, analysis and evaluation of data. The results of the research were based on the study of domestic and foreign scientific literature on the management of labor rationing, the use of digital technologies in the practice of labor specialists and the analysis of the best practices in the application of corporate information systems, software in economic work, including labor rationing and the own materials of the authors. The authors of the article developed a system for monitoring labor rationing for some types of work performed by labor specialists. The article presents the mechanism of corporate management of labor rationing in conditions of the digital economy in a flow chart; information systems and software products for labor rationing are structured.

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Keywords: Corporate management of labor rationing, productivity of labor, monitoring system, information systems, software products.



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1. Introduction

The main directions of economic and social development of Russia for 2019-2024 are digital modernization of the economy and labor productivity increase. To achieve these goals, a complex approach to improving the organization of labor, based on the implementation of the principles of careful manufacturing and digital technologies in the practice of enterprises, is important. In this regard, it is very interesting to study the forms, contents and characteristics of the corporate system of labor rationing in conditions of the digital transformation of the Russian economy as the economic and organizational basis of the scientific organization of labor, as the most important function of production management and the means of efficient use of human resources. The actualization of the study of labor rationing issues is to a great extent stipulated by the concern of enterprises in reducing of the labor costs and is determined by the high complexity of standardization work due to the introduction of the latest technologies, modern automated and robotic equipment, restructuring of business processes, and a poorly developed informatization system.

2. Problem Statement

The concepts of “digital economy”, “digital transformation” and “digital modernization” are now becoming an integral part of our life. Against this background, there is a growing interest of the society in the implementation of not only external but also internal reserves of growth in production efficiency, an integral part of which is the improvement of the labor organization and rationing. In modern economic conditions labor rationing is a general managerial process aimed at solving of the strategic tasks of production: increasing of labor productivity, optimizing of the number of personnel at an enterprise, improving of the quality of work performed, reducing of production costs, including labor costs. All this makes high demands to the organization of work on the labor rationing as well as the level of their informatization.

At present the problems of labor productivity and digitalization of the economy are vividly discussed in the scientific community and the society in general (Bogatyreva, Simonova, & Privorotskaya, 2019). Obviously, these problems concern not only Russia but other countries, too. So, the subject of many international studies is the research of the impact of various factors on the growth of labor productivity: introduction of innovations in production (Kurt & Kurt, 2015); the policy of distribution of funds for information technology at the company level (Chun, Kim, & Lee, 2015); the state of labor rationing at the enterprise (Schekoldin, Bogatyreva, Ilyukhina, & Kornev, 2018); the process automatization, which reduces the possibility of human factor manufacturing errors (Jahangiri, Hoboubi, Rostamabadi, Keshavarzi, & Hosseini, 2016); work standardization (Espinosa-Garza, Loera-Hernández, & Antonyan, 2017); reduction of working time loss (Collewet & Sauermann, 2017). Recently the research of the Russian scientists has been focused on the study of new forms and contents of labor rationing at the enterprise in conditions of digitalization (Schekoldin, Bogatyreva, & Ilyukhina, 2020), digital technologies in microelement labor rationing (Sukhanova & Pikalin, 2017) and principles of labor rationing (Potudanskaya & Gorskina, 2017).

Despite the fact that at present the Russian society is rethinking the role of labor rationing in the improvement of production efficiency, its level is not high enough. The reasons are the poorly developed system of informatization of labor rationing, the use of outdated regulatory materials that do not correspond to the modern level of production as well as the use of norms as a means of maintaining a

certain level of wages. To eliminate the shortcomings in the organization and regulation of labor, it is necessary to develop a corporate system of labor rationing management, taking into account modern requirements for production and existing digital technologies.

3. Research Questions

Our analysis of various literary sources and the experience of a number of enterprises showed that many Russian companies up to now do not give enough attention to labor rationing as an effective lever in a package of measures for improving production management. However, the implementation of such corporate management functions as planning, organization of production, motivation, salaries and control, is not possible without establishing reasonable labor costs. Thus, labor rationing should be considered as the most important link in the internal management. The need to develop modern organizational and economic mechanisms to improve economic efficiency, the development of new information technologies and their widespread use in all sectors of the economy, including the field of business processes modeling, dictate the advisability of updating the methodological, organizational and information base of labor standards. So, our research is devoted to the following questions: what is the role and specifics of corporate management of labor rationing in conditions of the digital economy; what universal tool can be used to collect, analyze and evaluate the state of labor rationing and the quality of standards in the company; what modern information systems and software products should be applied in the practice of domestic enterprises to reduce the labor intensity of work of labor specialists.

4. Purpose of the Study

The objectives of the research, the results of which are reflected in this article, are the study of new forms, contents and features of corporate management of labor rationing taking into account the requirements of the digital economy and the development of a monitoring system as an effective tool of collecting, analyzing and assessing the state of labor rationing and standards quality.

To achieve this goal, the following tasks were solved during the research: an improved mechanism for corporate management of labor rationing taking into account the introduction of digital technologies was introduced; a universal monitoring system of labor rationing and standards quality was developed; modern domestic information systems and labor rationing software products were studied and structured.

5. Research Methods

The scientific works of Russian and foreign scientists devoted to the problems of labor rationing management at enterprises and the development of digital technologies in the work of labor specialists, the results of the authors' own work compiled the theoretical and methodological basis of the study. To achieve our goals, we used logical analysis methods and a graphic method. The best practices of using corporate information systems, software in economic work, including labor rationing, were studied.

6. Findings

6.1. The mechanism of corporate management of labor rationing in conditions of digitalization

The improvement of labor rationing at the corporate level requires managing of the process of development, implementation and revision of labor costs standards – managing of labor rationing at the enterprise. The study of the contents and features of the work performed by labor specialists in the current conditions of the development of the Russian economy made it possible for the authors to develop a mechanism for labor rationing management at the enterprise (see Fig. 01).

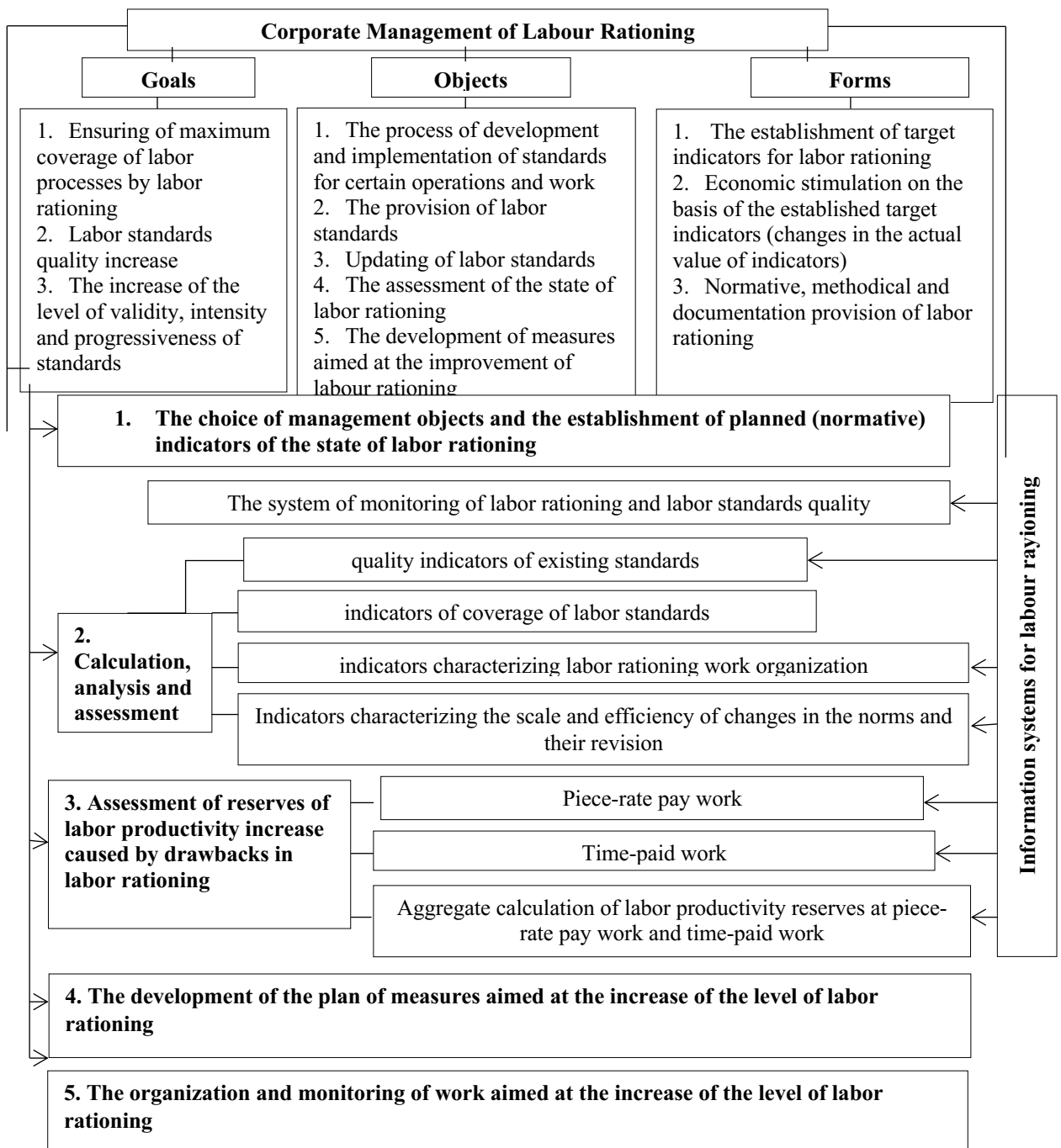


Figure 01. The Mechanism of Corporate Management of Labor Rationing Taking into Account the Introduction of Digital Technologies

Thus, corporate management of labor rationing includes goals, objects, forms, information systems and a procedure consisting of successive stages: selecting an object, analyzing and evaluating, calculating reserves for labor productivity growth, drawing up a plan to improve the state of labor rationing and organizing of control over its implementation.

6.2. Monitoring system as a tool of corporate management of labor standards

The results of our study indicate the fact that without a universal monitoring system it is impossible to manage the labor rationing system at the enterprise effectively. The development of such a system makes it possible to create a single structured database of the collection, calculation, accounting, analysis and assessment of standards, which will contribute to the rational regulation of the work of labor specialists. The completeness of the collection of information on the state of labor rationing and the quality of existing standards can be ensured by computer information technologies. Russian enterprises most often use “office” products such as Microsoft Word and Microsoft Excel. The use of "linked tables" makes it possible to perform calculations using spreadsheets, and the data of the word processor is changed automatically. In a word processor it is recommended to create patterns for the most frequently used documents and reports, and then to replace only operational, numerical data in them.

At present the increased capabilities of software, the compactness of equipment, the significant speed of data processing, determine the widespread use of corporate information systems, electronic services and intelligent information systems in economic work, including labor rationing.

The monitoring system suggested by the authors includes the list of variable and constant information. Variable information (variable support) is information about the types of work performed and the labor process, which is always initial for the functioning of the system. Permanent information is information that remains unchanged in the system for a long time (tables of time standards, tariff rates, tables of correction coefficients, standards for the implementation of a set of methods) (Table 01).

Table 01. The system of monitoring of the state of labor standards and the quality of standards for certain types of work performed by labor specialists

| Types of work | Initial information | Output indicators |
|--|---|--|
| Individual, continuous photographing of working time by a special observer | 1. Characteristics of the work performed 2. Actual working time consuming | 1. Projected working time consuming |
| Carrying out time observations of the operation with a component by a special observer | 1. Characteristics of the operation with a component 2. The table «Normative values for time series stability » 3. Time series for operation elements | 1. The average duration of the element of the operation 2. The total duration of the operation (operational time) |
| Monthly performance reporting | 1. Actual working time data-man/hour 2. Data on the worked out standard hours | Compliance with standards – by workers, by sections, by the workshop in general |
| Comparative analysis of standards, rates and actual working time | 1. Statement of rates and prices 2. Rate cards 3. Timing cards | Coefficients of correlation between standards, rates and actual working time |

So, the development of a universal monitoring system based on the use of computer information systems is one of the promising directions of the improving of labor rationing management at the enterprise in conditions of the digitalization of the economy.

6.3. Modern information systems and software products for labor rationing

Studying and analyzing of the experience of the best domestic practices in the development of corporate information systems and software products in the field of labor rationing made it possible for the authors to structure them depending on the purpose and functionality (Table 02).

Table 02. Modern domestic information systems and software products for labor rationing

| Name | Functional abilities |
|--|--|
| Automated systems of working time recording | |
| FRV-prof | It is used for automated measurement of working time by the method of "Photography of working time." The programme makes it possible to visually show the results, and analyze them immediately after the measurement. When the measurement is finished, the user receives the structure of working time, an assessment of the standards for the observed operations and the ability to record proposals for improving processes |
| Hamburg Score | Makes it possible to take a photograph of working time, to record the task performance, to conduct a questionnaire of personnel and to evaluate the accuracy of information about labor costs and the efficiency of working time use. |
| CrocoTime | Allows making automatic monitoring of time when working at the computer, recording of meetings and telephone calls. The time tracking function allows you to calculate the time for the implementation of the project, for the implementation of specific tasks within the project and to evaluate the contribution of each of its participants. |
| Motivate Clock | It is used to plan working time and to track the actual results of work, allows keeping track of the time spent in various applications and browsers; makes it possible to create personal projects for each task, to track the time spent and to analyze the statistics of personal effectiveness. |
| Automated systems of technical rationing | |
| TS-Norm | It is used to automate the regulation of technological production processes, to determine the time required for the manufacturing of products. |
| Automated system SKAT-M | It is used to assess the structural and technological complexity and to plan the complexity of machine-building parts of the body type in the absence of a developed technological process for their manufacturing |
| Automated system ASTN | It is used to provide the tasks of rationing of labor costs for the manufacturing of a machine-building product and can be used to solve a number of problems of technological preparation of production. |
| STN | Allows rationing of the labor costs of manufacturing of products based on machine-building aggregated standards and other time standards. |
| SAPR TP «RULER» | It is used for a rational calculation of the complexity of manufacturing of products according to design documentation. |
| Automated systems for microelement and factor labor rationing | |
| IS.Micro-norm | It is used to automate the calculation of time norms by microelement standardization method for manual labor processes in various types of work in various industries. |
| PO FN-prof | Allows determining of the number of staff by establishing a linear relationship between the number of employees and the factor |
| PO MOST – prof | It is used for microelement rationing of processes and operations |
| PO SOP-prof | It is used for analyzing of the technological process at the operational level, typifying of jobs and developing of labor costs standards. |

7. Conclusion

The main directions of effective management of labor rationing at the Russian enterprises are:

1. The improvement of the quality of standards with the use of centralized standards; development and application of factory standards; revision of outdated standards.

2. The increase of the coverage of work and workers by labor standards.

3. Wider use of measures of material incentives, including the introduction of higher wages when working at justified rates; inclusion of indicators characterizing the state of rationing in the regulation on employees incentives; bonuses to employees for the fulfillment and overfulfillment of standardized tasks; additional payments for work at centralized rates.

4. The improvement of the labor rationing organization with the use of digital technologies and other technical means; regulation of the main types of work of labor specialists; the regulation of work on the development of a calendar plan for changing norms and the provision of its close relationship with the plan for the technical development of the enterprise.

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