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INTEGRAL ASSESSMENT OF THE LABOR POTENTIAL OF THE ENTERPRISE

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The article focuses on the processes of assessing the labor potential of industrial enterprises. Solving the issues of formation and methodological support, as well as practical use in enterprises of different sectors of the system of assessment of labor potential based on the definition of integral assessment, becomes important. This determined the choice of the topic, setting goals and objectives of this study. The purpose of the article is to justify the methodical approach to the integrated assessment of the labor potential of industrial enterprises. Based on the goal, the following task was formulated and solved: to determine the key parameters of the assessment of the labor potential of the enterprise; to propose a methodical approach to the integrated assessment of the labor potential of industrial enterprises using the method of resource indexes and the method of control questions. The proposed structure of key parameters that reflect the state of the labor potential of the enterprise: the state of health, staff stability, physical fitness, qualification, level of education, the ratio of employees to the organization, innovation, innovative activity, profitability, labor productivity. An evaluation of the attitude of employees to the organization was conducted using questionnaires and on the following items: working conditions in the workplace; wages; the meaning and importance of work; possibility of professional development, training; career conditions; the company's interest in employees. The sequence of calculation of integral index of estimation of labor potential of the enterprise is offered. The results of integral evaluation of companies of «Interpipe» testify that the highest level of integral estimation of labor potential is observed at the enterprise Interpipe Steel and Interpipe Vtormet. It shows that these enterprises manage their labor potential using the principles of logistic approach: rapid response to internal and external changes, support of young specialists, development of labor potential taking into account individual characteristics of each employee, a system of early diagnosis of problems of labor potential development, etc. The proposed approach to the integrated assessment of labor potential allows us to develop measures to improve the state of labor potential of industrial enterprises.

Keywords: industrial enterprises, labor potential, estimation, integral indicator, methodology.

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Introduction and problem statement

In order to ensure a high level of competitiveness and obtaining stable profit, each metallurgical enterprise must objectively assess its capabilities and make efficient use of resources. First of all, it is necessary to pay special attention to labor resources, that is, to ensure the formation of a stable labor potential of the enterprise. Thus, the main prerequisite for effective activity of metallurgical enterprises is primarily the efficient and rational use of labor potential. Formation of labor potential

depends on the intensity and effectiveness of its evaluation.

Analysis and research of publications

Issues of management and evaluation of labor potential, are considered in works of many scholars-economists, in particular, such as: B.E. Bachevsky [1], N. Verkhoglyadova [2], I. Votyakova [3], L. Garmider [4], A. Goldfarb [6], I. Jain [7], I. Otenko [9], V.A. Savchenko [10], O.S. Fedonin, I. Repin, O. Oleksuk [11] and others. Scientists offer different systems of indicators and methods for

assessing the labor potential of the enterprise. The analysis of economic literature showed that nowadays there is no single methodological approach to assessing the labor potential of metallurgical enterprises. The absence of such an approach is primarily due to the fact that the proposed methods do not allow a comprehensive assessment of the labor potential of the enterprise.

The purpose of the article

Taking into account the urgency of the problem of estimating labor potential, the purpose of the article was defined as the following: to substantiate the methodical approach to the integrated assessment of the labor potential of industrial enterprises. Based on the goal, the following task was formulated and solved: to determine the key parameters of the assessment of the labor potential of the enterprise; to offer a methodological approach to the integrated assessment of the labor potential of industrial enterprises.

Presenting main material

Enterprises of the international vertically-integrated company «Interpipe», namely, Interpipe

NTRP, Interpipe Niko Tube, Interpipe NMPP, Interpipe Steel and Interpipe Vtormet were selected as the object of research. At the metallurgical enterprises under investigation, there is a problem of labor potential formation, which indicates the instability of the labor potential of the enterprise.

To determine the overall assessment of labor potential an integral estimate will be used. For its estimation, the latest methods that will allow us to obtain an integrated assessment of the various possibilities of the labor potential of metallurgical enterprises, such as: the method of resource indices and the method of control questions, will be applied [8].

The essence of the resource index method is to distinguish key parameters that reflect the state of each resource's resources. The index of importance is determined by the 5-point scale, depending on the force of influence of this key parameter on the labor potential of the enterprise. The method of resource indices is a modification of the indicator method [5], which relates to a system of methods for assessing achievements. Indicators are factors that

Table 1

The structure of key parameters that reflect the state of the labor potential of the enterprise

Kind of the key parameter	Recommended estimates
Stability factor of personnel (SF)	The ratio of the number of employees working in the enterprise for a long time (3–5 years) to the average number of employees.
Health ratio (HR)	$H_r = 1 - F_{sl}/F_{wh}$ F_{sl} – the total number of non-exits to work due to illness; F_{wh} – general amount of working hours.
Physical Fitness Capacity (FC)	The ratio of the number of employees aged 28–50 years (more productive age) to the total number.
Coefficient of qualification (KQ)	$K_q = \frac{\sqrt{Q_{ed} \times Q_{ex}}}{Q_{tot}}$ Q_{ed} – number of employees of the enterprise with education that meets qualification requirements; Q_{ex} – number of employees with experience that meets qualification requirements; Q_{tot} – total number of employees. Shows the adequacy (insufficiency) of qualifications of employees for the performance of the work entrusted to them. If $Q_{tot}=1$, this means that both education and practical experience of all employees correlate with the qualification requirements
Education Level Coefficient (EL)	The ratio of workers with higher, unfinished higher and secondary specialized education to the total number of staff.
The ratio of employees to the organization (REO)	Results of the questionnaire by groups of indicators (satisfaction with the content of work, working conditions, wages, social sphere, prospects for growth and career, staff turnover, including qualified ones).
Innovation rate (IR)	The ratio of the economic effect of introducing innovations to the costs of introducing innovations
The coefficient of innovation activity (IA)	The ratio of the number of introduction of new and improved methods of work, the introduction of technologies, inventions, rationalization proposals, new products (units) to the number of workers.
The coefficient of profitability of labor (CPL)	The ratio of profits from the main activity to the amount of wages and expenses for social benefits
Factor of labor productivity (FLP)	The ratio of the number of manufactured products to the number of employees for a certain period of time (year, day, month and year).

indicate the welfare or disadvantage of the system that reflects the availability and level of employment of the workforce in the enterprise.

On the basis of the studied scientific works and taking into account the results of the survey of the leadership of the companies Interpipe, the key parameters (indicators) that reflect the state of the labor potential of enterprises (Interpipe NTRP, Interpipe Niko Tube, Interpipe NMPP, Interpipe Steel and Interpipe Vtormet) were selected: health status, staff stability, physical fitness, qualification, level of education, employee attitude to organization, innovation, innovative activity, profitability, labor productivity (Table 1).

Data on indicators 1–5 and 7–10 are represented by the personnel service of the investigated metallurgical enterprises. An assessment of the attitude of employees to the organization was conducted on the following positions: working conditions in the workplace; wages; the meaning and importance of work; possibility of professional development, training; career conditions; the company’s interest in employees. For this purpose a standard questionnaire was used.

The criteria for assessing the ratio of employees to the enterprise were established (Table 2).

After selecting the evaluation indicators, their actual values were obtained and translated into points

Table 2

Scale of employees’ attitude towards the enterprise

Assessment of the attitude towards the organization, points	Characteristics of the ratio of the enterprise to one employee
0–10	Absolutely not satisfied
11–20	Low level of satisfaction
21–30	Average level of satisfaction
31–40	Satisfaction higher than average
41–50	High level of satisfaction

based on the developed assessment scale (Table 3).

Thus, five levels of integrated assessment of labor potential in metallurgical enterprises can be distinguished (Table 4).

Integral indicator of estimation of labor potential (IEY) of the enterprise we propose to calculate according to the formulas:

$$IEY = \sum_{j=1}^{10} 3O_{\text{III}_j};$$

$$3O_{\text{III}_j} = \beta_j \times \overline{YO_{\text{III}_j}};$$

Table 4

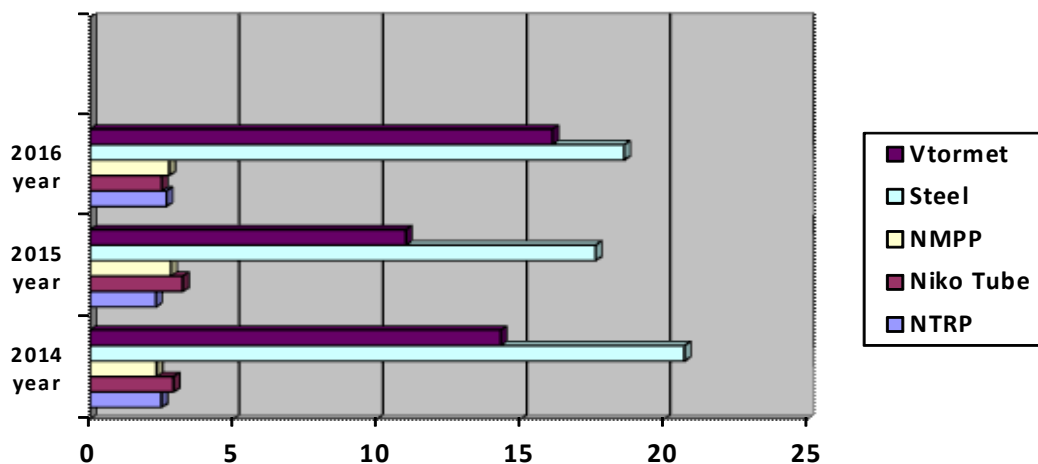
Integral assessment of the labor potential of the metallurgical industry

Level	Score points	Characteristics of the labor potential of the enterprise
1	1–5	The labor potential has a very low rating (urgent actions are needed in relation to its formation)
2	6–10	Labor potential has a low rating; it affects the implementation of the strategy of enterprise development in general. The management of an enterprise needs to identify the objectives clearly, develop a program of measures to improve the formation of labor potential.
3	11–15	The company's labor potential has an average rating. It is necessary to pay attention to improvement in accordance with the adopted strategy of enterprise development.
4	16–20	Labor potential above average. This testifies to the fact that the company develops and implements permanent measures to increase it. It is necessary to continuously monitor its compliance with the strategic objectives of the enterprise.
5	21–25	Labor potential has the highest rating, that is, has reached its benchmark value.

Table 3

Scale of the weighting factor for the importance of valuation indicators, β_i

Indicator	Weight factor	Value of weight coefficient
Stability factor of personnel (SF)	β_1	0.1
Health ratio (HR)	β_2	0.15
Physical Fitness Capacity (FC)	β_3	0.1
Coefficient of qualification (KQ)	β_4	0.25
Education Level Coefficient (EL)	β_5	0.05
The ratio of employees to the organization (REO)	β_6	0.05
Innovation rate (IR)	β_7	0.05
The coefficient of innovation activity (IA)	β_8	0.05
The coefficient of profitability of labor (CPL)	β_9	0.1
Factor of labor productivity (FLP)		β_{10}



Integral assessment of the labor potential of the investigated metallurgical enterprises for 2014–2016 years

$$\overline{yO_{\Pi_j}} = \frac{\overline{B_{jf}}}{\overline{B_{jmax}}},$$

where $\overline{3\Pi_{\Pi_j}}$ – weighted assessment of the j-th parameter of the efficiency of management of labor potential; β_j – factors of weight of j-th parameter of efficiency of management of labor potential; $\overline{yO_{\Pi_j}}$ – average generalized estimation of the j-th parameter of the efficiency of labor potential management; $\overline{B_{jfact}}$ – average actually received number of points for evaluation j-th parameter of the effectiveness of management of labor potential; $\overline{B_{jmax}}$ – the maximum possible number of points for evaluation j-th parameter of the effectiveness of management of labor potential.

The results of Integral evaluation of companies of «Interpipe» testify that the highest level of integral estimation of labor potential in 2016 is observed at the enterprise Interpipe Steel(18,6) and Interpipe Vtormet (16,1). Integral assessment of the labor potential of Interpipe NTRP, Interpipe Niko Tube, Interpipe NMPP is equal to 2.66; 2.5; 2.76 (Figure).

That is, of the five investigated companies of Interpipe, only two enterprises (Interpipe Steel, Interpipe Vtormet) have a high (fourth) level of labor potential assessment. The other three enterprises (Interpipe NTRP, Interpipe Niko Tube, Interpipe NMPP) have a very low (first) level of labor potential assessment.

This shows, first of all, that Interpipe Steel, Interpipe Vtormet enterprises manage their labor potential using the principles of logistic approach: rapid response to internal and external changes, support of young specialists, development of labor potential taking into account individual characteristics of each employee, system of early diagnostics problems of labor potential development, etc.

Conclusions

Thus, the work-formed and successfully tested approach to assessing the labor potential of industrial enterprises will not only contribute to credible and effective evaluation of labor potential, but also will allow achieving maximum efficiency in its formation and use.

Therefore, we would like to note that the improvement of the labor potential of the investigated metallurgical enterprises will contribute to the implementation of the following measures:

- positive movement of labor resources. In order to increase the labor potential, it is necessary to create appropriate conditions for the work of the personnel so that there is no outflow of the best personnel in other branches or other enterprises, as well as the attraction of new highly skilled personnel and the formation of a reserve of gifted youth;
- raising the qualification level of employees through participation in various courses of advanced training and thematic training, the use of experience exchange;
- raising the educational level of employees, promoting training of employees;
- disclosure of workers' abilities, employee incentives to develop new business ideas and innovative proposals;
- Effective motivational policy taking into account the wishes of the workers in order to increase the productivity of labor and the activity of employees;
- promoting the preservation and improvement of health of staff and the creation of appropriate conditions for work that will be able to eliminate or significantly reduce the negative impact of work on the health of workers, especially in harmful working conditions.

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ИНТЕГРАЛЬНОЕ ОЦЕНОВАНИЕ ТРУДОВОГО ПОТЕНЦИАЛА ПРЕДПРИЯТИЯ

Гармидер Л.Д., Гончар Л.А., Климович Н.И.

У статті основна увага приділена процесам оцінювання трудового потенціалу промислових підприємств. Вирішення питань формування та методичного забезпечення, а також практичного використання на підприємствах різних галузей системи оцінювання трудового потенціалу на основі визначення інтегрального оцінювання, набуває важливого значення. Це і визначило вибір теми, постановку мети і завдань даного дослідження. Метою статті є обґрунтування методичного підходу до інтегрального оцінювання трудового потенціалу промислових підприємств. Виходячи з поставленої мети, сформульовано і вирішено таке завдання: визначити ключові параметри оцінювання трудового потенціалу підприємства; запропонувати методичний підхід до інтегрального оцінювання трудового потенціалу промислових підприємств за допомогою методу індексів ресурсів і методу контрольних питань. Запропонована струк-

тура ключових параметрів, які відображають стан трудового потенціалу підприємства: стан здоров'я, стабільність персоналу, фізична працездібність, кваліфікація, рівень освіти, відношення співробітників до організації, новаторство, інноваційна активність, рентабельність праці, продуктивність праці. Оцінювання відношення співробітників до організації здійснювали за допомогою анкетування й за наступними позиціями: умови праці на робочому місці; оплата праці; зміст та важливість роботи; можливість підвищення кваліфікації, навчання; умови кар'єрного росту; зацікавленість компанії у співробітниках. Запропоновано послідовність розрахунку інтегрального показника оцінювання трудового потенціалу підприємства. Результати інтегральної оцінювання підприємств компанії «Інтерпайп» свідчать про те, що найвищий рівень інтегрального оцінювання трудового потенціалу спостерігається на підприємстві Інтерпайп ДС та Інтерпайп ДВМ. Це свідчить, що на цих підприємствах здійснюється управління трудовим потенціалом з використанням принципів логістичного підходу: швидке реагування на внутрішні та зовнішні зміни, супровід молодих спеціалістів, розвиток трудового потенціалу з урахуванням індивідуальних особливостей кожного працівника, система ранньої діагностики проблем розвитку трудового потенціалу та ін. Запропонований підхід до інтегрального оцінювання трудового потенціалу дозволяє розробити заходи щодо поліпшення стану трудового потенціалу промислових підприємств.

Ключеві слова: промислові підприємства, трудовий потенціал, оцінювання, інтегральний показник, методика.

ИНТЕГРАЛЬНАЯ ОЦЕНКА ТРУДОВОГО ПОТЕНЦИАЛА ПРЕДПРИЯТИЯ

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В статье основное внимание уделено процессам оценки трудового потенциала промышленных предприятий. Решение вопросов формирования и методического обеспечения, а также практического использования на предприятиях различных отраслей системы оценки трудового потенциала на основе определения интегральной оценки, приобретает важное значение. Это и определило выбор темы, постановку цели и задач данного исследования. Целью статьи является обоснование методического подхода к интегральной оценке трудового потенциала промышленных предприятий. Исходя из поставленной цели, сформулированы и решены такие задачи: определить ключевые параметры оценки трудового потенциала предприятия; предложить методический подход к интегральной оценке трудового потенциала промышленных предприятий с помощью метода индексов ресурсов и метода контрольных вопросов. Предложена структура ключевых параметров, отражающих состояние трудового потенциала предприятия: состояние здоровья, стабильность персонала, физическая трудоспособность, квалификация, уровень образования, отношение сотрудников к организации, новаторство, инновационная активность, рентабельность труда, производительность труда. Оценку отношения сотрудников к организации проводили с помощью анкетирования и по следующим позициям: условия труда на рабочем месте; оплата труда; содержание и важность работы; возможность повышения квалификации, обучения; условия карьерного роста; заинтересованность компании в сотрудниках. Предложена последовательность расчета интегрального показателя оценки трудового потенциала предприятия. Результаты интегральной оценки предприятий компании «Интерпайп» свидетельствуют о том, что высокий уровень интегральной оценки трудового потенциала наблюдается на предприятии Интерпайп ДС и Интерпайп ДВМ. Это свидетельствует, что на этих предприятиях осуществляется управление трудовым потенциалом с использованием принципов логистического подхода: быстрое реагирование на внутренние и внешние изменения, сопровождение молодых специалистов, развитие трудового потенциала с учетом индивиду-

альных особенностей каждого работника, система ранней диагностики проблем развития трудового потенциала и др. Предложенный подход к интегральной оценке трудового потенциала позволяет разработать мероприятия по улучшению состояния трудового потенциала промышленных предприятий.

Ключевые слова: промышленные предприятия, трудовой потенциал, оценка, интегральный показатель, методика.

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The article focuses on the processes of assessing the labor potential of industrial enterprises. Solving the issues of formation and methodological support, as well as practical use in enterprises of different sectors of the system of assessment of labor potential based on the definition of integral assessment, becomes important. This determined the choice of the topic, setting goals and objectives of this study. The purpose of the article is to justify the methodical approach to the integrated assessment of the labor potential of industrial enterprises. Based on the goal, the following task was formulated and solved: to determine the key parameters of the assessment of the labor potential of the enterprise; to propose a methodical approach to the integrated assessment of the labor potential of industrial enterprises using the method of resource indexes and the method of control questions. The proposed structure of key parameters that reflect the state of the labor potential of the enterprise: the state of health, staff stability, physical fitness, qualification, level of education, the ratio of employees to the organization, innovation, innovative activity, profitability, labor productivity. An evaluation of the attitude of employees to the organization was conducted using questionnaires and on the following items: working conditions in the workplace; wages; the meaning and importance of work; possibility of professional development, training; career conditions; the company's interest in employees. The sequence of calculation of integral index of estimation of labor potential of the enterprise is offered. The results of integral evaluation of companies of «Interpipe» testify that the highest level of integral estimation of labor potential is observed at the enterprise Interpipe Steel and Interpipe Vtormet. It shows that these enterprises manage their labor potential using the principles of logistic approach: rapid response to internal and external changes, support of young specialists, development of labor potential taking into account individual characteristics of each employee, a system of early diagnosis of problems of labor potential development, etc. The proposed approach to the integrated assessment of labor potential allows us to develop measures to improve the state of labor potential of industrial enterprises.

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