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TECHNICAL DEVELOPMENT IN HUMAN RESOURCE MANAGEMENT

Abstract. *The article provides a comprehensive analysis of the current state and development of human resource management (HRM) technologies in the context of the modern digital economy. The study traces the evolution of HRM from the early theories of scientific management and human relations to contemporary strategic approaches that treat employees as valuable intellectual assets rather than mere tools. Special attention is paid to the importance of intellectual capital in the education sector, where human resources serve as a primary factor for ensuring organizational competitiveness.*

The author details the strategic and tactical functions of HRM, highlighting the necessity of aligning personnel management with overall corporate strategy, process reengineering, and change management. The tactical level focuses on staffing, continuous training, motivation management, and maintaining employee loyalty. The research emphasizes that a synergistic effect in a professional group is achieved through the complementarity of individual characteristics and the voluntary exchange of knowledge.

Furthermore, the article explores the transition to virtual human resources and the implementation of advanced information technologies. It analyzes the transformation of recruitment into e-recruitment, utilizing social networks and specialized portals to overcome geographical barriers and enhance employer branding. Finally, the study examines the role of Human Resource Information Systems (HRIS), such as SAP and PeopleSoft, in managing big data, streamlining administrative tasks, and providing global access to training and personnel archives. The conclusion underlines that modern HRM is shifting toward a scientific paradigm requiring ontological descriptions to maximize human capital growth.

Keywords: *analyzes, human resource, technologies, information systems, management.*

ТЕХНІЧНИЙ РОЗВИТОК В УПРАВЛІННІ ЛЮДСЬКИМИ РЕСУРСАМИ

Анотація. *У статті проведено комплексний аналіз сучасного стану та перспектив розвитку технологій управління людськими ресурсами (HRM) в умовах глобалізації та цифровізації економіки. Автор розглядає еволюцію HRM від перших досліджень наукового менеджменту Тейлора та ідей Роберта Оуена до сучасних стратегічних ініціатив, спрямованих на максимізацію продуктивності працівників. Особлива увага приділяється ролі людського капіталу в освітній сфері, де інтелектуальні ресурси є ключовим фактором забезпечення конкурентоспроможності організацій.*

В роботі детально описано основні стратегічні та тактичні функції управління персоналом. До стратегічних функцій віднесено балансування HRM із бізнес-стратегією підприємства, реінжиніринг процесів та управління змінами. Тактичний рівень охоплює чотири ключові напрями: кадрове забезпечення (staffing), навчання та розвиток, менеджмент мотивації та підтримку лояльності працівників. Автор наголошує, що синергетичний ефект у групі фахівців досягається не просто механічним об'єднанням інтелектуального капіталу, а взаємодоповнюваністю індивідуальних характеристик та добровільною передачею знань.

Значну частину дослідження присвячено впровадженню інформаційних технологій у кадрову роботу. Розглянуто концепцію «віртуальних людських ресурсів» та використання віртуального моделювання для оптимізації адміністративних завдань і зниження витрат. Описано трансформацію процесів рекрутингу під впливом мережових технологій: появу e-recruiting, використання спеціалізованих порталів та соціальних мереж для формування бренду роботодавця та пошуку талантів.

Окремо проаналізовано роль інформаційних систем управління людськими ресурсами (HRIS), таких як SAP, PeopleSoft та MyTime. Впровадження HRIS дозволяє ефективно вирішувати проблему «великих даних» у кадровому діловодстві, забезпечуючи швидкий доступ до електронних архівів,

можливість дистанційного навчання та управління філіями в різних географічних локаціях. У висновках підкреслюється, що HRM еволюціонує у науковий напрям, який потребує використання онтологічних описів, а конкурентоспроможність організації безпосередньо залежить від зростання її людського капіталу через впровадження новітніх технологій управління.

Ключові слова: *аналіз, людські ресурси, технології, інформаційні системи, менеджмент.*

Formulation of the problem. Having a clear enterprise management strategy is a key factor in creating competitive advantages. Among the areas of management, a type of management is used, which is called motivation management [1]. The competitiveness of an organization is determined by its ability to carry out its activities in the conditions of market relations and is a means of survival in the competition [2, 3]. One of the problems of the low competitiveness of a modern educational organization is the insufficient use of intellectual resources [4] and insufficient human resource management. This motivates to improve the methods and technologies of human resource management [5–8]. Human resource management is especially important for the education sector, where intellectual capital and human capital play a big role.

A feature of the modern stage of human resource management in education is the widespread use of information technology in education [9, 10] and the use of information technology for personnel management [11]. It sets the features of human resource management.

Human resource management (HRM, or simply HR) is an organization's policy or internal overarching function of an organization that focuses on the recruitment, management, and performance of the people who work for the organization. All processes and programs that affect human activities are part of HR.

Human resource management as an integral function is designed to maximize the efficiency of personnel in serving the strategic goals of the employer [12]. HRM primarily focuses on managing people in organizations, highlighting HRM policies and HRM systems as dominant [5].

In organizations, usually in departments and divisions, HRM is assigned to line managers. HRM includes a number of activities, including payments to employees for participation in projects, training and development, additional certification and re-certification, for awards from public organizations [6]. HRM also includes organizational change and industrial relations, i.e. balanced organizational management with requirements arising from collective agreements and government orders.

HRM technology cannot be identified with the work of personnel, since in this technology much attention is paid to intangible assets and intellectual capital, which are not amenable to personnel and accounting. To manage human resources, a special mathematical and organizational models is used [13–15].

HRM is the result of human relations research in the early 20th century, when analysts began to document how business value was created through strategic workforce management. Initially, research on transaction costs [16], such as wages and administration benefits, dominated. Taking into account the factors of globalization, company integration and technological advances, HRM research has focused on strategic initiatives such as mergers and acquisitions, talent management, succession planning, industrial and labor relations, etc. Human resources has become a business area focused on maximizing employee productivity.

HR professionals, HR and human capital managers in organizations are involved in the implementation of human resource management policies and processes.

Communication [17] with employees solves employee problems such as harassment or discrimination. Human Resources develops compensation systems, family leave programs, discounts and other benefits that employees can receive for the quality of their work.

As part of human resource management, methodological foundations for the formation of the competitiveness of an educational organization are being developed. This is an urgent task of ensuring the competitive advantages of education in general and an individual educational institution in particular.

Analysis of recent research and publications. Considering the antecedent theoretical developments in the field of human resource management, it can be noted that human resource studies evolved from the ideas of Robert Owen and Charles Babbage during the industrial revolution. They found that people play a critical role in the success of an organization. They expressed the opinion that the well-being of the employees led to a perfect job. "Without healthy workers, an organization cannot survive" [22].

It is believed that even Taylor (1856-1915) conducted research in this direction. Taylor explored what he called "scientific management" in an effort to improve the economic efficiency of manufacturing jobs.

In England, after the First World War, the National Institute of Industrial Psychology [23] was created, which laid the foundation for the study of human relations as incentives that can lead to the formation of more productive workers.

At the end of the 20th century, advances in transport and communications greatly contributed to labor mobility and collaboration at work.

Corporations began to view employees as assets rather than cogs.

“Human resource management” is becoming the dominant term. In 1998 [24], the Society for Human Resource Management (SHRM) was founded.

The main idea of increasing human resources is that the mechanical integration into one group of specialists with a high level of intellectual capital does not create a synergistic effect. A synergistic effect is achieved only with the complementarity [25] of the individual characteristics of specialists. The growth and emergence of a human resource requires a close interdependence of the goals of individual development of individuals in a group and their mutual influence on each other, fair competition and voluntary transfer of knowledge. Only when this condition is met, the human resource of the organization as a whole can be formed from the human potential of each employee.

The authors argue that HRM targets will benefit from a better understanding of the ontological, epistemological, and axiological factors that are associated with HRM and provide greater cognitive reflection. The authors come to the conclusion that human resource management and the study of labor relations are increasingly being described ontologically and methodologically as a purely scientific paradigm.

The purposes of the article. The purpose of this study is to analyze the evolution of human resource management, identify its main strategic and tactical functions in the modern digital environment, and explore the impact of information systems and virtual technologies on the efficiency of HR processes in organizations.

The main material presentation. In small organizations, qualified specialists can perform the duties of HR managers. In large companies, a functional group provides work with employees and specializes in various tasks of human resource management. This functional group is involved in the process of making strategic decisions. In order to train specialists in a particular profession, higher education institutions, professional associations and companies themselves have developed training programs dedicated to the job responsibilities of employees.

Human resource management functions, in particular, mean:

- an individual who has key responsibility for human resources;
- identification of staffing needs;
- analysis of the problem: whether to use the services of independent contractors or hire their own employees;
- selection and training of staff;
- the best employees who provide a competitive advantage to the organization;
- the best employees, carriers of the personal brand and the brand of the organization;
- adaptive activities in the payment of employee remuneration;
- training of norms and personnel policy of all personnel;
- create and maintain an HRM policy in the organization.

It is necessary to distinguish the difference between HRM technology and Human Resource Development (HRD) technology. HRM is considered to be part of HRD because HRD includes a wide range of activities aimed at improving the skills of personnel within organizations, such as promotions, training, organization development, etc.

Recently, the technology of “talent management”, which is included in the scope of HRM, has been widely used [18]. This technology is used to refer to activities aimed at attracting, developing and retaining employees. Specialists use this term to refer to particularly talented employees or employees with high potential. Talent management is often used as a synonym for HRM, although the field of talent management is significantly smaller than that of HRM.

Human resource management is also becoming a field of scientific research, which enjoys great success in the field of management and in the field of organizational psychology [19].

As an example of a scientific approach to the study of HRM, one can consider the work “Research on employee trust: epistemological foundations and paradigmatic boundaries” [20]. It examines the epistemological roots and paradigmatic boundaries of research on employee trust growing in the field of human resource management. Using the concept of paradigmatic relations as relations of different qualities [21], the paper identifies the concept of “target employee” of an organization in order to study its strengths and weaknesses. A review of the literature in [20] on employee trust showed that most of the articles on this topic are written from a psychological point of view. They are characterized by positivist methodology, dispersion theory and quantitative data collection theory.

The analysis in [20] shows that most studies can be considered as a consequence of functionalism. While noting that functionalism and psychological positivism have their merits, the authors of [20] argue that research in these traditions sometimes limits the understanding of “employee trust” in their organizations.

Basic functions of HRM. The main strategic functions of HRM can be identified: balancing HRM and enterprise business strategy; reengineering of organization processes; information interaction with employees of the organization, change management [26]. At the macro level, HRM is responsible for overseeing organizational leadership and management culture. HRM enforces employment and labor laws, which may

vary by location. HRM functions include health and safety oversight. In cases where workers are willing and legally allowed to enter into a collective bargaining agreement, HR will typically also serve as the company's primary liaison with union representatives. This goes beyond standard staffing.

Human resource management has four tactical functions: staffing, staff training and development, motivation management and maintenance. Staffing refers to the recruitment and selection of potential employees made through interviews, applications, networks, etc. Training and development is the next step in the continuous process of learning and developing competent and adapted employees. Motivation is the key to keeping employees highly productive. This feature may include employee benefits, performance evaluations, and rewards. The last function, service, involves maintaining employee commitment and loyalty to the organization.

Virtual human resources. Among the new forms of attitude to reality is virtual reality, based on which new knowledge is obtained.

Virtuality uses an informational approach and has its own specifics. Virtuality includes such components as virtual information field, virtual information space, virtual technologies, virtual information structures, information interaction. These components determine the formation of management technologies, which include virtuality as an integral part. Virtual modeling creates new opportunities for correlating visual representations with objective reality. These factors are: scale of space, scale of time, time reversal, simulation of unreal situations, etc.

The development of virtual technologies has led to the concept of "Virtual Human Resources" [27]. This technology has a significant impact on human resource practices. Work with personnel allows the transition to virtual technology based on training, because the use of technology makes information more accessible to the entire organization, reduces time performing administrative tasks, allows companies to operate at a global level and reduces costs [27].

Recruiting and e-recruiting. Information technology has improved the practice of human resource management. There are new directions in work with personnel: recruiting (recruiting), retraining of personnel, analysis of labor relations and profit from work with personnel. Recruiting specialists are responsible for finding and hiring talented employees. Training and development of vocational training creates conditions for continuous education and professional development. This is achieved through training programs, performance appraisals and staff reward programs.

Recruiting has developed significantly under the influence of information technology, in particular network technology. In the past, recruiters relied on print in publications and confidential information to fill required positions. Under such conditions, HRM specialists were not able to publish widely and did not have access to millions of people, resulting in a long time to find new employees.

The use of network technologies has opened up new opportunities: e-recruiting has appeared. With the use of electronic recruiting tools, HR professionals can post job openings and track applicants for thousands of jobs in multiple locations all in one place. A number of characteristics - feedback, professional qualities, scientific activity, interviews, criminal record, drug addiction - can be viewed on the Internet. This helps HR professionals keep track of all their open jobs and applicants faster and easier than before. E-recruiting also helps to eliminate geographical location restrictions [27]. Job offers have become available to anyone with Internet access. Special recruiting portals have appeared. In addition to recruiting portals, HRM professionals have a social networking platform that allows them to recruit workers through the World Wide Web. On social media, HRM professionals can build a company's brand by posting company news and photos of fun company events. All this is directly related to education.

Work with personnel based on information systems (HRIS). Human resource management professionals typically need to process a significant amount of paperwork on a daily basis. In fact, they are closely facing the problem of big data. Document processing is a wide spectrum, from paperwork to requesting the transfer of a power of attorney or an employee tax form.

In addition to office processing, documents must be submitted as an electronic file, which requires a significant amount of time. The use of Human Resources Information Systems (HRIS) has made it possible for companies to store and retrieve files in electronic format. This allows you to increase the efficiency of work with staff and allows you to access information at any time. Human resource management information systems store thousands of files and free up office space.

Another advantage of HRIS is that they provide access to branches that are scattered across different geographic locations. Instead of the routine work of searching in personnel archives, HRIS allows you to get information in seconds. Examples of such information systems are MyTime, SAP, Timeco, JobsNavigator and PeopleSoft.

HRIS gives employees the ability to access information and receive training programs from anywhere in the world. This eliminates the need for face-to-face meetings with new hires when filling out the necessary paperwork to get started or retrain.

Продовження таблиці 4

Conclusions. HRM technology enables human resource professionals to train new hires in an efficient manner. Having emerged as a technology, HRM is now a scientific direction and requires the use of ontological descriptions.

Human resources are only qualified professionals who work for the organization. Human resource management is actually personnel management with an emphasis on those employees who are the asset of the enterprise. For this reason, such employees are sometimes referred to as human capital.

Human resource management also uses well-known technologies.

For example, the use of individual balanced scorecards, combined in the OBSC organization's balanced scorecard, allows you to form the organization's human resource. At the same time, the competitiveness of personnel manifests itself cyclically in the process of situational management by converting this potential into the human capital of the organization's personnel under the influence of external competitive forces.

The analysis shows that the mechanisms for the formation of general and specific human potential are not sufficiently developed. The competitiveness of the organization increases if the human capital and the level of human resources grow.

This is clearly manifested in the implementation of information technology [28] in management.

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