

Digital shifts in human resource management in the global economy

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Abstract

This article examines the key issues related to digital shifts in human resource management in the global economy. The purpose of the article is to identify the features and key trends in the introduction of digital technologies on the example of the BRICS countries. The study yielded a number of results. In the course of the research, the theoretical foundations of the digitalization of HR management are analyzed. The current situation and the contemporary level of human development in the BRICS countries is also noted. The features and problematic aspects of digital transformations in the human resource management system are outlined on the example of Russia, China and Brazil. In addition, the main digital technologies that are widely used in the countries under consideration are described.

Keywords: human resources, management, digital technologies, human resource management, BRICS, costs, resources.

JEL: J08, J18, E24.

Introduction

The modern global economy is focused on continuously increasing productivity in conditions of limited resources. Such changes are caused by the era of uncertainty in world markets, as well as turbulence in the system of economic relations, which contributes to radical transformations in economic systems at various levels. The complex competitive environment in which modern states, regional associations and business entities operate in general is caused by a significant number of aspects, such as globalization,

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informatization, the development of the Internet, the economic crisis, instability in the business environment, and the rapid spread of digital technologies (Manuti, 2018).

Currently, there is no doubt that the “digitalization” of business and industry is the core of the “digital” economy and a key driver of growth. The digital space is an extremely effective system of socio-economic relations, and digital technologies directly affect its key element, i.e. added value. Penetrating into many areas of economic activity, digital transformation projects should stimulate attraction of investments, transformation of traditional industries into efficient, high-tech competitive industries, as well as create a whole range of new opportunities for realizing human potential. Consequently, the current economic environment spurs investment in digital transformation, as emerging markets try to increase their demand for technology in order to stimulate further growth, and developed markets are looking for new ways to reduce costs and innovate. In international practice, this situation is called the “circle of prudence and growth” and its essence lies in the fact that digital technologies act as a driver of consumer demand and income, education and training, as well as an incentive for the efficient use of capital and resources, which leads to an increase in economic growth, especially in emerging markets, which include the markets of the BRICS countries (Dey, 2020).

Digital transformation changes the way management is done, transforms change management processes, stimulates digital thinking, and revolutionizes the workforce experience, requiring the actualization of existing HR technologies. The development of a digital strategy integrated with HR management becomes a necessary condition for ensuring the future competitiveness of enterprises by transforming the HR function.

According to the results of studies conducted by international consulting companies analyzing changes in the labor market, it was found that the integration of digitalization with the personnel management system at enterprises is of particular importance and relevance. Every year, more and more companies automate the function of personnel management, thereby simplifying and increasing the efficiency of recruiters and HR managers. Deloitte University Press conducted a survey of respondents who rated the importance of digitalization in HR management. The results indicate that respondents from such countries as India, China and Russia had the highest levels of demand for digitalization in HR services (Figure 1).

However, despite the great demand for digital technologies in the field of human resource management in developing countries, including the BRICS countries, for the most part, the introduction of advanced HR technologies in companies is carried out pointwise and not always consistently. There is a significant amount of disagreement regarding the vision of the need for changes among senior and line management, which, in turn, requires a deep analysis and assessment of the effectiveness of existing experience and the emphasis in the use of HR-management of a new type, which determines the choice of the topic of this article and also confirms its theoretical and practical significance. The purpose of the research is to analyze digital shifts in human resource management taking into account the challenges of the global economy on the example of the BRICS countries.



Figure 1. The importance of introducing digital technologies in HR management in different countries of the world (2017¹)

1. Methodology

The methodological basis of the research is a set of general scientific principles, methods and techniques of scientific cognition, the use of which is determined by the stated purpose of the article. The study is based on the use of the following methods: the abstract-logical method — to generalize theoretical provisions and formulate conclusions; the method of historical analysis and theoretical systematization — to study models of human resource management in different countries of the world and substantiate the conceptual provisions of human resources management taking into account globalization processes and digital technologies; the comparison method — to clarify the features of various approaches to the implementation of digital technologies in HR management; the dialectical method — to establish the relationship between the structural elements of human resources and digital competencies of employees.

2. Theoretical background

In terms of theory, Cascio and Montealegre carried out the retrospective analysis of articles by various authors and experts on the role of information and communication technologies and their impact on the development of effective personnel management in organizational and social contexts (Cascio & Montealegre, 2016). Togt and Rasmussen focused on the successful use of HR analytics in Shell and its representative offices around the world (Togt & Rasmussen, 2017). Diez, Bussin, Lee note that HR analytics solves the problems of strategic development of companies and determines the main forecast trends. Using the LAMP model (LAMP — logic, analytics, measures and process) (Diez, 2019), Soundararajan and Kuldeep (2016) identified the reasons for the lag of

¹ <https://www2.deloitte.com/us/en/insights/focus/human-capital-trends/2017/digital-transformation-in-hr.html>

the company's employees in the implementation and active use of digital competencies (Soundararajan & Kuldeep, 2016).

Further development of knowledge in the field of personnel management is justified in the works by Dessler (2011), Gökalp et al. (2020), Stritch and Pedersen (2019), which contributed to the formation of the theoretical basis of this scientific direction in the context of the human resource management system, in which personnel is considered not only as a resource and an element of the structure, but also as the main source of the formation of competitive advantages of the enterprise. A significant contribution to the development of the theory of personnel management was made by the works of Russian scientists, which set out the theoretical and methodological aspects of personnel policy, especially the formation and development of personnel in the conditions of radical transformations of economic systems in the context of digitalization.

The experience of digitalization of personnel policy in the leading countries of the world, studied by Gale and Aarons (2018), and Williams (2020), indicates the need to ensure an effective educational environment and constant investment in training specialists, as well as the importance of solving the key task of creating a favorable digital infrastructure at the enterprise, which will prevent loss of qualified personnel and will contribute to their further professional development. The demand for talented professionals who are well versed in the latest innovations in the digital world continues to outstrip the supply worldwide. Meijerink and Bondarouk (2018), Keegan et al. (2019), Marler and Parry (2016) found that today there is a need for trained professionals who will help improve business processes in digital companies and, accordingly, improve the quality of their products and services.

The generalized definition of digital competence was formulated by Ferrari on the basis of thorough analysis of several national and international projects and initiatives: It is a set of knowledge, skills and attitudes (including abilities, strategies, values and awareness) that are necessary for using information and communication technologies and digital media to accomplish tasks, solve problems, communicate, manage information, collaborate, create and disseminate knowledge that in the aggregate will allow organizing work, joint activities, and will also satisfy consumer needs and ensure high results of the enterprise as a whole.

The publications and developments available to date testify to the growing interest in the problems under consideration in foreign and domestic science. However, scientists mainly pay attention to the theoretical problems of globalization in connection with the prospects for introducing digital technologies into the personnel management and culture of the HR sphere. At the same time, the applied aspects of possibilities and prospects of using digital HR analytics in modern enterprises and, accordingly, the justification of the necessary resources for monitoring and identifying data in the projections for the selection, assessment and development of talents remain without attention.

In addition, research does not pay enough attention to ways of achieving the "maturity" of employees of enterprises and organizations in order to use digital technologies to increase their productivity.

Thus, the transformation of approaches to personnel management under the influence of the opportunities of the digital economy is increasingly accelerating, which requires

a deeper study, systematization and assessment, as well as determining the directions for dissemination and application of digital HR in the activities of enterprises, taking into account advanced information technologies.

3. Results

In general, the use of digital technologies in human resource management involves the use of social networks and digital platforms, big data analytics tools, cloud services, artificial intelligence capabilities, augmented reality and special mobile applications, which leads to an increase in the cross-functionality of a specialist and increases the level of competence and professional training (Bresciani et al., 2021).

Digital transformation in the modern economy and human resource management systems is certainly a challenge. Countries that have already reached a high level of digital maturity are now facing complex cultural, organizational and technical problems, and only taking into account all these factors and an integrated approach to solving them made digital transformations successful (Al-Tarawneh, 2021).

There is no doubt that in order for a country to become a real digital leader in specific areas of the economy, it is necessary to identify priority digital projects that are implemented by specific organizational teams with the most relevant and complex digital competencies, as well as to possess significant human potential, both at the level of an individual enterprise and the state as a whole.

International studies show that the human potential in the BRICS countries is at a fairly high level, but not every country uses it to the full and implements all available opportunities to stimulate economic growth (Table 1).

Table 1. Key indicators of human development in the BRICS countries during 2018–2019 (Barricelli, 2020)

Indicators	Brazil	Russia	India	China	South Africa
Global competitiveness index / position	4,33/56	4,25/64	4,28/60	4,84/29	4,37 / 53
Unemployment rate (%)	6,10	5,50	5,30	4,10	25,10
GDP per capita (at current prices / USD)	11 171	14 604	1,518	6 768	7 810 1
Share of people employed in the manufacturing industry of the total number of people employed (%)	14	20,2	24,3	30,3	21
Growth rate of average annual real wages (%)	5,8	5,30 2	-	9	-
Household spending on education, culture and entertainment (%)	4,10	8,2	-	12,70	6,60
Internet users per 1,000 inhabitants	492	553	172	458	101
Illiteracy rate (%)	8,7	0,55	14	3	18

The data in Table 1 shows that China outperforms such countries as Brazil and Russia in terms of real wage growth and ranks 29th in the global competitiveness index. The unemployment rate in the BRICS countries is about 4–6%, with the exception of South Africa, where this figure is about 25%.

Also, based on the data in the table, one can state a large spread of illiteracy rates among the BRICS countries. While Russia has the most favorable indicator (0.55), South Africa and India are characterized by a very high level of illiteracy (18% and 14%, respectively), which indicates the heterogeneity of the BRICS countries, the lack of elementary conditions for the introduction of digital technologies and also points to the challenges in finding skilled workers and ways to retain them faced by companies located in these countries.

4. Discussion

According to a 2020 study by McKinsey in the field of HR management at enterprises of the BRICS countries, only 39% of executives believe that their companies are successfully operating in a digital society, 37% are confident in their ability to reorganize their own human resources and adapt to new realities through the use of analytics and artificial intelligence, and 27% admit that there are difficulties in the transition to the digital environment, since they do not consider HR as a factor of value creation, ignore the possibilities of big data analytics and are generally afraid of using artificial intelligence, therefore, they do not even develop plans for digitalizing human resource management (Ogbeibu, 2021).

Among the total volume of investments in the digitalization of HR processes of the leading companies in the BRICS countries, including international ones, about half of investments (49%) is aimed at the implementation of software solutions for human capital management, a third of investments (32%) covers the use of cloud services, and in the near future, it is planned to increase investments in predictive analytics, improved solutions in the field of process automation and artificial intelligence (Figure 2).

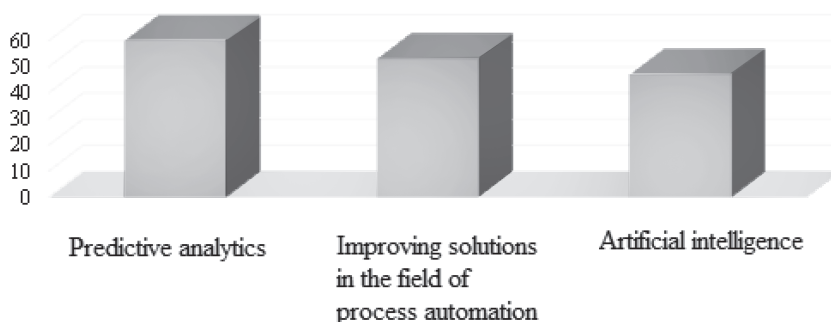


Figure 2. Digital products and HR solutions in which it is planned to increase investments of companies in the BRICS countries (Strohmeier, 2020)

Let us now consider in more detail the features of digital transformations in the human resource management system on the example of some BRICS countries.

Russia. The analysis of the situation at Russian enterprises shows that there is a significant gap between those companies that are actively introducing changes, confidently using new digital technologies and breakthrough innovations to improve the human resource management system, and those that have taken a wait-and-see attitude. This situation has led to the fact that only four out of ten HR departments at Russian enterprises operate mainly in digital format. Most HR departments have not yet fully or significantly switched to digital technologies. Less than half of HR professionals (40%) report that in their departments either “almost everything is digital” (7%) or “a lot of things are digital” (33%) (Figure 3).

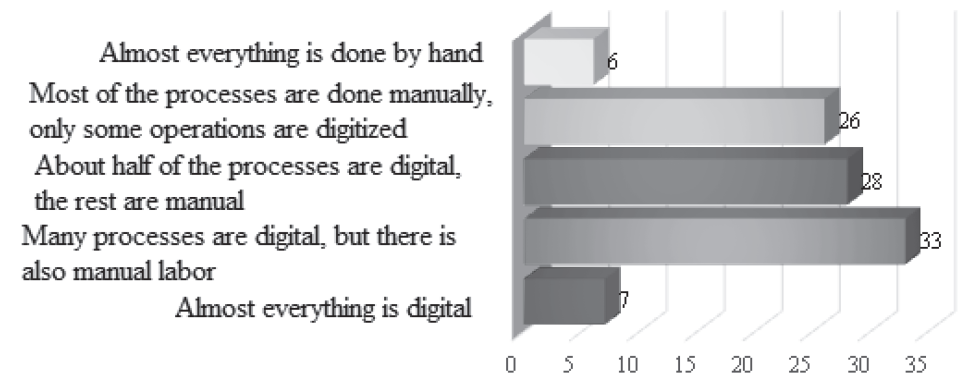


Figure 3. The degree of digitalization of human resource management processes at Russian enterprises (%) (Volkova, 2020)

However, it is necessary to note positive aspects in promoting the digital agenda in the personnel management of Russian enterprises. It is obvious that the labor market in the country is developing rapidly, and the set of tools for adapting a company to changes in the digital economy is quite wide. Today, HR managers have a very wide range of different technological solutions, thanks to which they can solve a wide variety of tasks: selection, adaptation, motivation, development, training, personnel communication, remuneration, analytics, and much more.

Representatives of small and medium-sized businesses in Russia turned out to be the most flexible and effective in terms of introducing digital technologies into the strategic circuit of human potential management. Thus, 91% of small and medium-sized business leaders believe that digital HR technologies are important or useful for their business.

According to a study conducted by the Graduate School of Management of St. Petersburg University, 57% of small and medium-sized enterprises currently use digital HR technologies, and another 13% plan to implement them by 2022. Only 17% of small and medium-sized businesses do not set themselves the goal of introducing these tools; more than half of which (51%) have ten or fewer employees (Figure 4).

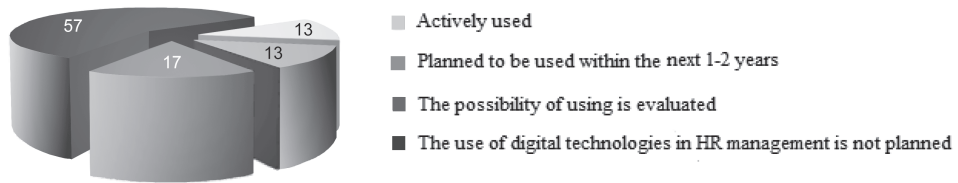


Figure 4. The level of use of digital HR technologies by small and medium-sized businesses in Russia (%²)

Table 1 provides a description of the main digital technologies that are used in the transformation of the personnel management process in Russia.

Table 1. Digital technologies for human capital management widely used in Russia (Yasaman & Mehdi, 2020)

Functions	Directions of digitalization	Advantages
Recruitment	Using social networks, job search sites to collect information, create and publish vacancies	Creation of a database of potential applicants, expanding the possibilities of attracting workers of “new” quality
Adaptation	Using gamification and a single platform	Accumulation of all information necessary for work, including about the company, work schedule, job responsibilities of employees, the compensation system used, on a single platform
Motivation	Collecting information about personal characteristics, values and preferences of employees and using it to develop motivational programs	Ensuring a high level of employee motivation through the use of new progressive forms and methods of motivation
Staff development	Undergoing educational courses through mobile applications, creating an electronic platform for learning	Ensuring the continuity of education; a variety of choice of forms and methods of training at a convenient time, freeing up the resources of the HR department
Staff evaluation	Conducting electronic testing, providing real-time online assessment	Ensuring transparency and objectivity of the process of assessing the knowledge, skills and abilities of employees
Control	Using digital tools to collect reports on all processes and tasks in the enterprise	The ability to assess the performance of each employee, providing feedback to the staff

China. China is the undisputed leader in the implementation of digital technologies in the personnel management field. According to the general model of digital transformation in HR, the country is currently successfully passing the second stage, which involves the development and maximization of employee experience in the digital sphere (Figure 5).

² https://gsom.spbu.ru/all_news/event2021-04-26/

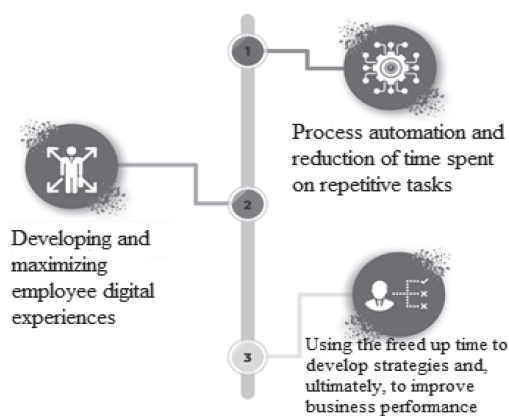


Figure 5. The model of digital transformation of the human resource management system

As part of the implementation of the designated model at the enterprises of the country, the concept of smart working has found its widespread use. New technologies and the improvement of existing technologies are a key factor in the development of smart working, which relies on a wide range of tools, such as the Internet, smartphones, social media or any program designed to facilitate work flexibility and mobility.

An analysis of advantages and disadvantages of using smart working for Chinese manufacturers is presented in Table 2.

Table 2. Characteristics of the smart working concept (Susanto, 2019)

Advantages of using smart working	Disadvantages of using smart working
State	
1) protection and economical use of limited natural resources;	1) decreases the level of employment among the population;
2) increases the level of investment attractiveness for obtaining additional international investments;	2) increases cybersecurity threats and risks
3) increases competitiveness;	
4) additional facilities for people with disabilities and limited mobility	
Enterprise	
1) increased efficiency of work;	1) decrease in productivity due to the fact that remote work is not planned or performed, as well as deterioration in the quality of labor results;
2) efficient use of limited resources, cost savings;	2) dependence of work efficiency on the quality of communication;
3) increased productivity due to the flexibility of personnel policy;	3) limitation of live communication and lack of contact of employees with colleagues and partners;
4) increased time for effective management;	4) reduced system security
5) increases the level of investment attractiveness to obtain additional capital	

Table 2. Continued

Advantages of using smart working	Disadvantages of using smart working
Staff:	
1) mobility in space and time;	1) lack of contacts and networking for effective business activities;
2) saves time;	2) decreased mobility, which negatively affects health
3) improves the quality of life;	
4) the ability to attract people with disabilities and limited mobility	

Smart working has become very common in recent years in the private and public sectors, which plays a key role in solving the problem of reducing the costs of enterprises. On SmartWork, this movement is supported by new technologies that increase the mobility of work, and the legislation encourages flexibility in employment and new trends in the organization of work in the workplace.

As a result of the use of this concept at Chinese enterprises, the range of areas of human resource management has expanded, in which various digital technologies have found their widest application (Figure 6).

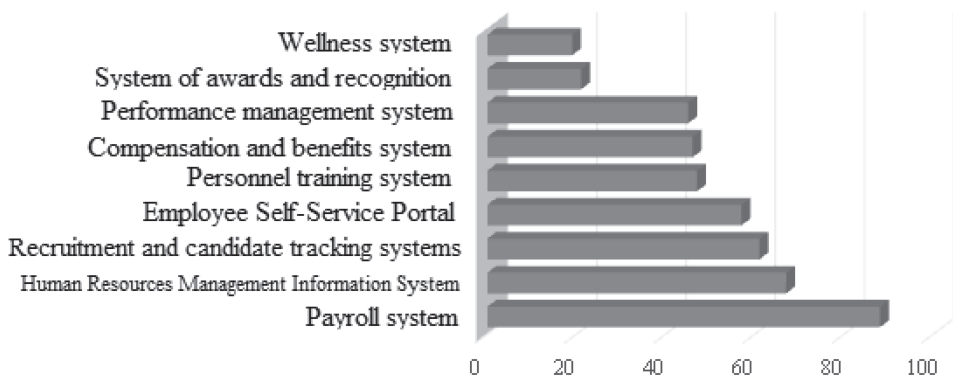


Figure 6. Human resource management areas using digital technologies in Chinese companies (%) (Thite, 2019)

If we consider the dynamics and intensity of the implementation of digital technologies at enterprises in China in the sectoral context, it should be noted that banking / financial services (91%), healthcare (90%) and construction (79%) are in the first place (Figure 7). This is due to the fact that for businesses in these sectors, HR technology is becoming increasingly vital for hiring highly specialized specialists and automating key error-prone tasks, such as time tracking and reporting. For example, medical organizations must check doctors for compliance with the requirements of the State Committee for Health and Planned Childbirth of the People's Republic of China, financial institutions must comply with the requirements regarding background checks, and construction sites must monitor contractor certificates and ensure the safety of the workplace in accordance with CECS standards.

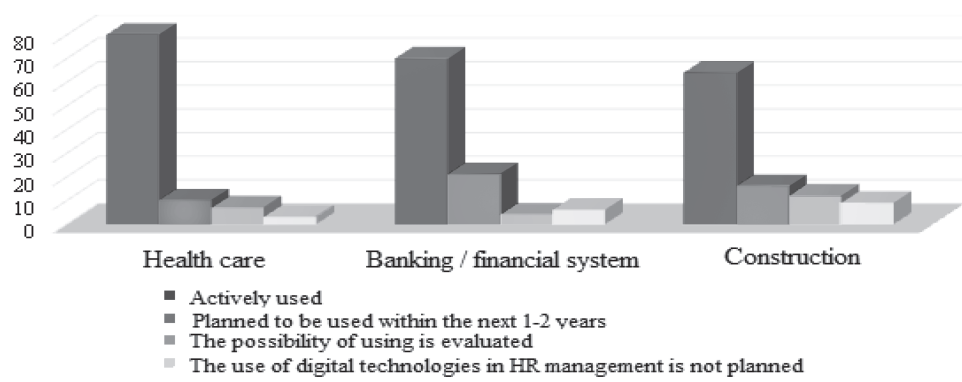


Figure 7. Leading industries in digital HR management in China (Cooke, 2021)

Brazil. Although significant efforts were made in recent years in some of the country’s industries to digitize and streamline human resource management processes, the digitalization of the human resource management system in Brazil lags far behind Russia and China. There are archaic processes and systems in HR that are often difficult to integrate, which leads to errors, loss of time / costs, and employees’ frustration.

For the most part, efforts are focused on optimizing administrative procedures through the introduction of digital technologies, which is conceptually incorrect in the information economy, since in order to develop new skills and train personnel that will meet global market demands, it is necessary to focus on talent management and the development of new systems of motivation and selection of personnel.

The participants of the study on the level of digitalization of HR management in Brazilian enterprises were asked to identify four main roles that HR plays. The most frequently mentioned role for HR is administrator, which was chosen by 70% of respondents. Half of the participants singled out the role of a compliance officer. However, it should be noted that both roles are transactional rather than strategic in nature. On the other hand, more

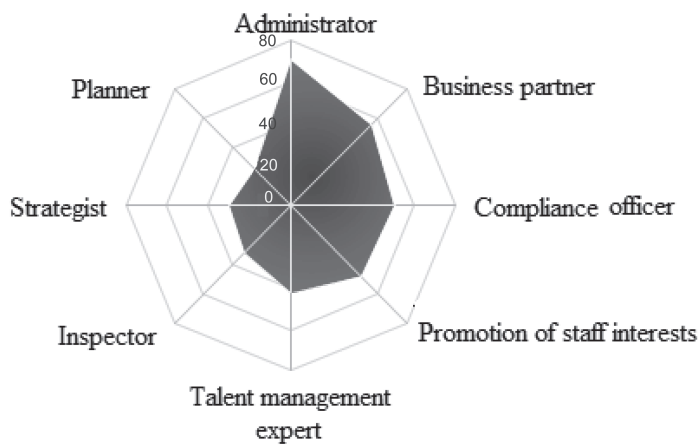


Figure 8. Roles played by HR managers in Brazilian enterprises (%) (De Amorim et al., 2021)

than half of the participants (55%) stated that HR personnel acts as a business partner in the enterprise. This assumes a more important role than that of an administrator. However, relatively few people say that HR should be a strategist (30%), a talent management expert (42%), or a planner (25%) (Figure 8).

The roles that HR departments performs in an organization also affect the digital transformation process. Human resources departments focused primarily on administrative functions may be ill-trained or unable to spearhead the change initiatives required to achieve true digital maturity.

Conclusion

Summing up the results of the study, the following conclusions can be drawn. The sphere of human resource management is currently under the influence of significant technological challenges and opportunities associated with the processes of globalization and digitalization of the economy and society. Accordingly, the use of advanced technologies and innovations in the practice of enterprises is one of the most important and sustainable trends in global development. The analysis of the features of the digitalization of HR management in the BRICS countries made it possible to establish the heterogeneity of the transition of human resource management systems to the digital format and, as a consequence, the wide variability and heterogeneity of the results obtained.

Enterprises in the BRICS countries have yet to establish close cross-sectoral cooperation to implement the best digital practices (using the Internet of Things, Big Data, cognitive functions (augmented intelligence)) that meet the requirements of the development of the business environment in the global space.

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