

Ragif Gasimov Khanbala
Azerbaijan State University of Economics (UNEC), Zagatala Branch
ORCID: 0000-0001-9493-5955
E-mail: raqif.gasimov@unec.edu.az

Elvettin Akman
Suleyman Demirel University, Türkiye
Orcid: <https://orcid.org/0000-0003-2303-840X>
E-mail: elvettinakman@sdu.edu.tr

Tukaz Aliyeva Ali
Azerbaijan State University of Economics (UNEC), Zagatala Branch
ORCID: 0000-0002-3219-4415
E-mail: tukaz.aliyeva@unec.edu.az

Digitalization in the field of human resources in Azerbaijan: The North-West Example

Abstract

The term digitalization has affected all areas of daily life. This rapid integration and its effects have not bypassed the field of human resources (HR). With the continuous updating of technologies and the new opportunities created by economic resources, digitalization also influences the management functions of HR. The main purpose of this study is to determine the directions defined for digitalization in Azerbaijan and to identify the steps taken in human resource management (HRM) in public and private institutions operating in the North-West region of the country. In this research, initial steps taken for the development of a digital society supporting modern technological fields and the efforts of the Azerbaijani government to improve its systems in the field of digitalization are particularly emphasized. In the study, qualitative, logical generalization, semi-structured survey, and comparative methods were used.

The practical significance of the article is to identify the current state of digitalization in HRM in public institutions operating in Azerbaijan, particularly in the North-West region. Based on the research, it was concluded that the limited number of academic studies conducted on the relationship between HRM and digitalization in public institutions in Azerbaijan is one of the study's main limitations. As an information base for the study, foreign literature, authors' articles, the statistical compendium "Digital Development of Azerbaijan", reports from the Center for Analysis and Coordination of the Fourth Industrial Revolution, the Global Digital Economy Report, and a number of online resources were used.

The research results show that certain steps have been taken in institutions operating in the country toward the digitalization of HRM functions. Particularly in the North-West region, digitalization in this field is expanding; however, not all organizations have yet achieved full integration.

Keywords: HRM, digitalization, management, HR, digital economy, Azerbaijan

Introduction

In the modern world, digitalization rapidly affects the field of management, the national economy, and society as a whole. In addition, digitalization is a process of changing the business model and transitioning to a digital business through the use of digital technologies. This process, considered one of the most important trends for the economies of world countries, is a significant issue that should be applied in all areas. In an era where digitalization is at its peak, every organization regardless of its size or field of activity understands that digital transformation is inevitable in order to progress in a competitive environment. The digitalization of management

in public institutions is designed to reduce existing barriers, ensure that feedback becomes easier, faster, and more transparent, and minimize costs (Bobrovskyi et al., 2023). These points indicate that opportunities for progress are decreasing day by day for companies that cannot keep up with the spirit of the times. One of the first correct steps taken toward digitalization in management processes is in the field of HRM. This field encompasses creativity, strategy, and most importantly, flexibility. Digitalization ensures that key HRM processes such as employee performance evaluation and recruitment are organized faster and more efficiently.

The concept of Digital HRM was first used in the late 1990s (Olivas-Lujan et al., 2007: 419). Through digitalized HRM departments, it becomes possible to obtain information about employees' knowledge and skills, determine organizational needs, and execute tasks rapidly in this direction (Öztirak and Mesut, 2023). Just as HRM functions play an important role in achieving economic efficiency, the digitalization of these functions also holds particular importance in the modern era. Indeed, the efficiency, speed, and effectiveness of management are significantly improved through new technologies. This indicates that digitalization in HRM plays a key role in HR strategies and in the overall formation of an organization. At present, companies use digital HRM functions to stand out in competition. Therefore, Digitalization Roadmaps are developed in alignment with HR strategies to guide digitalization processes. For this purpose, the HR departments must first identify the processes to be digitalized. In the following chart, we can see the main processes defined for digitalization in HRM, as well as the "Digital Maturity Level" of these processes.

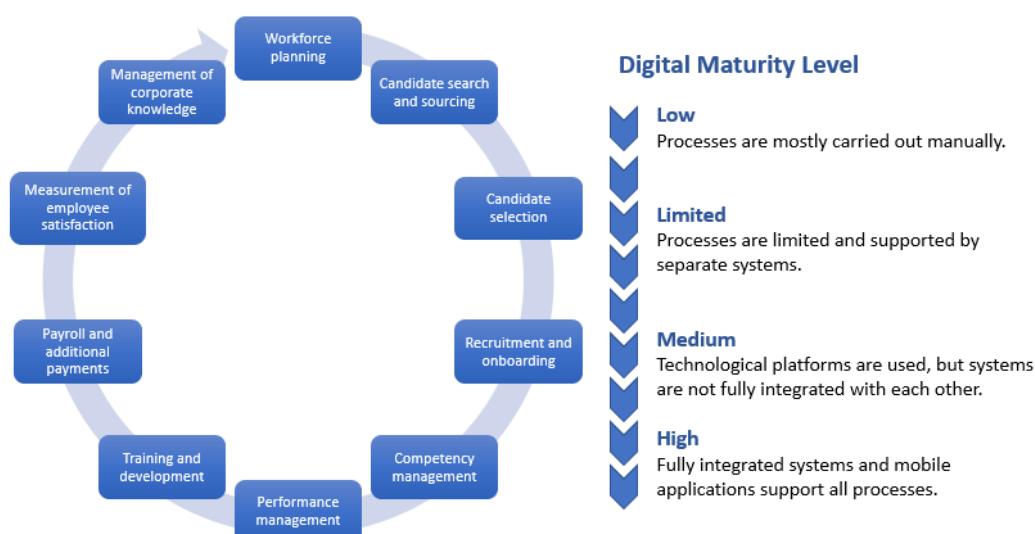


Figure 1. Identification of processes to be digitalized in HR functions

Source. It was prepared by the author based on the information from Digital HR: A Guide to Digitalisation in Human Resources (2024)

Without identifying the processes within projects and without a proper strategy and well-planned roadmap, many investments made in companies unfortunately turn directly into waste. The positive effects of digitalization in the HRM process can include the following:

- Recruitment and skills management – The manual review of applications submitted for an open vacancy often leads to a significant loss of time. For this reason, Applicant Tracking Systems (ATS) can considerably simplify this process. These systems serve to manage and monitor the recruitment process.
- Information accessibility – The collection of employee documents on a single platform by HR departments allows documents to be stored, sent, and signed digitally without the need for additional paper carriers.
- Increased employee satisfaction

- Efficient time management

Among the business functions most affected by the Fourth Industrial Revolution are HRM departments. Conducting training through digital platforms creates opportunities for a larger number of employees to receive training. As a result, employees working in enterprises can now develop their skills through online training without difficulty. Many organizations already use digital platforms starting from candidate selection to the stages of training and development. Particularly, the use of artificial intelligence can be mentioned here. For example, the DBS Bank, officially known as DBS Group Holding and located in Singapore, has implemented a recruitment bot called Jobs Intelligence Maestro (JIM) since the second half of 2018. As a result, the evaluation time for applicants' CVs has accelerated fourfold from 32 minutes down to 8 minutes. In addition, the bot performs important tasks such as conveying the bank's culture and values to the candidates (Kambur, 2022). Accelerating the digitalization process is currently one of the main obligations of countries around the world. Its primary goal is to improve the quality of services provided to society and to strengthen public trust in government institutions. The role of digital public services is essential in establishing an efficient management system in developing countries (Wargadinata and Tendean, 2024).

The experiences of countries that have already passed certain stages in this direction also show that accelerating the digitalization process contributes to an increase in the number of new jobs, an improvement in the population's welfare, growth in productivity, the development of entrepreneurship, and ensuring transparency in management. This, in turn, emphasizes the importance of the digital economy. If we examine it more closely, the digital economy is an economic activity based on digital technologies. The main feature distinguishing it from the traditional economy is that it relies on factors such as Artificial Intelligence, Big Data, Augmented Reality (AR), Virtual Reality (VR), etc.

It can also be particularly noted that the effects of digitalization have led to changes in consumer behavior and expectations. According to experts' assessments, the share of the digital economy in the Gross Domestic Product (GDP) of major global economies is reported to be around 50–60%. In the future, as a result of the steps taken toward the digitalization of HRM in the public sector, it will support lifelong learning for employees, lead to the creation of new jobs, and help identify positions that remain insufficiently filled (Dudová and Matúšová, 2022). According to the Global Digital Economy 2025 Report, the digital economies of world countries are grouped into four phases (Highly Developed, Fundamentally Developed, Early, and Initial) on a 0–100 scale. In this classification, we can see the indicators of certain countries included in each phase particularly Azerbaijan and its neighboring countries in the chart below.

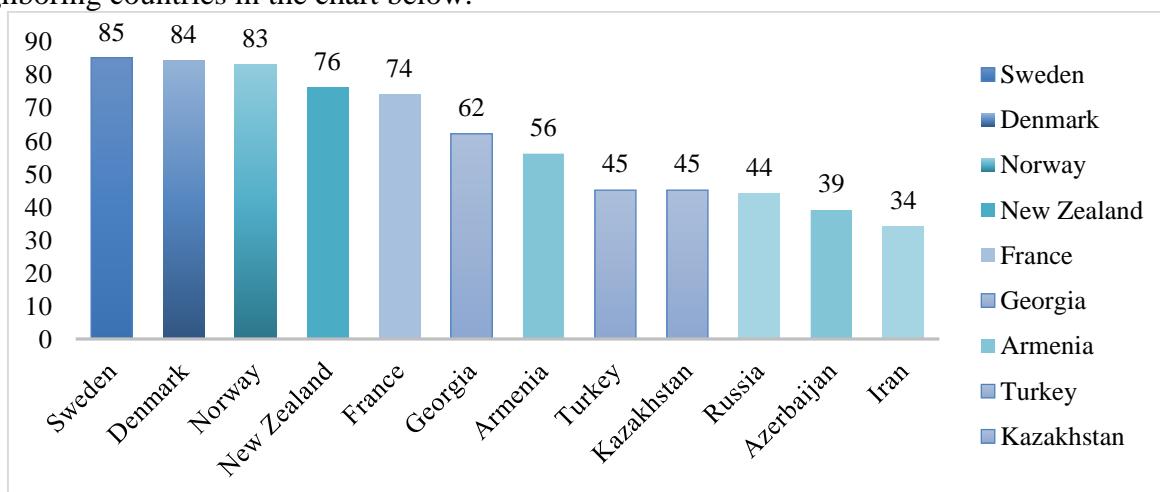


Figure 2. National Ranking of Digital Economies (2024)

Source. It was prepared by the author based on the information from Global Digital Economy Report –2025. According to the latest indicators presented by the World Bank, in 2024, the digital economy accounted for 15% of the world's nominal GDP approximately 16 trillion USD. In the coming years, fluctuations in these indicators are absolutely inevitable.

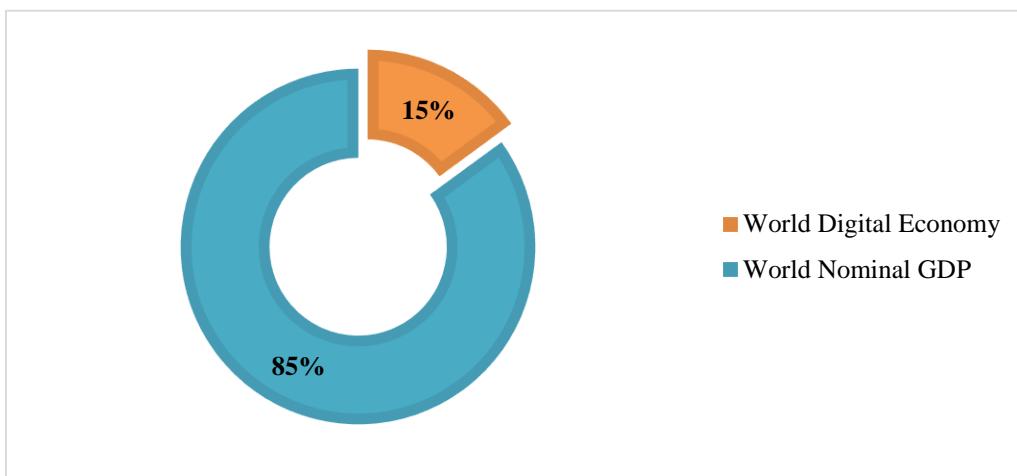


Figure 3. Percent of Digital Economy of Nominal World GDP (2024)

Source. It was prepared by the author based on the information from Global Digital Economy Report – 2025

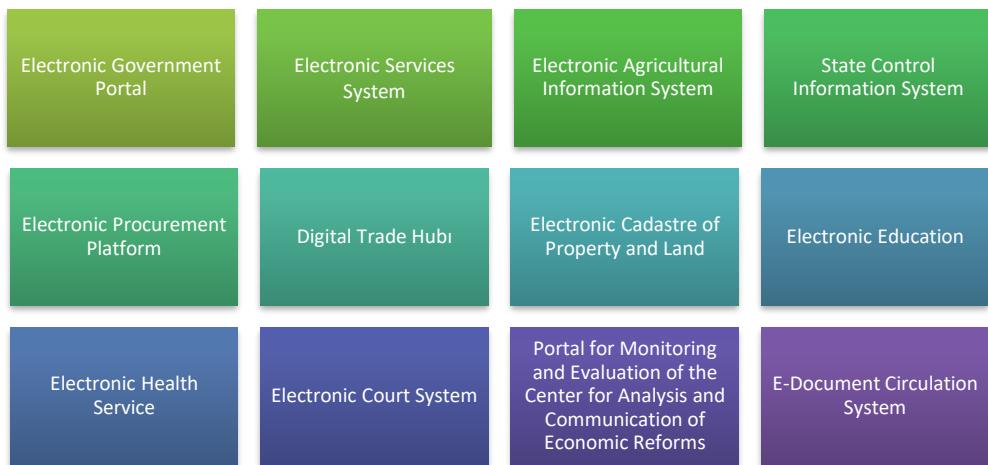
Steps Taken Toward Digitalization in Azerbaijan

When examining the digital economy, it can be observed that economic development in the country is accompanied by technological progress. It is an undeniable fact that the development of science and technology ensures increased labor productivity and economic growth. The technological advancements achieved by world countries are considered one of the main drivers of economic transformation. Over time, the rise in GDP per capita has become dependent on digital transformation (Konya, 2024). In recent years, the scope of the digital economy has rapidly expanded, affecting all areas of economic activity. The establishment of a digital economy is one of the main strategic priorities for Azerbaijan as well. To ensure the sustainable development of the digitalization process in our country, several tasks need to be implemented.

These tasks include:

- Development of digital infrastructure and services
- Financial resources
- Skilled HR
- Cybersecurity
- Legislation
- Application of Fourth Industrial Revolution technologies
- Digital networking

To successfully implement these tasks, a number of decrees, orders, and state programs have been signed by the head of state over the past five years. The “Socio-Economic Development Strategy of the Republic of Azerbaijan for 2022–2026,” approved on July 22, 2022, includes the measure titled “Preparation and implementation of the strategy for the development of the digital economy”. In January 2025, by the relevant decree of the President of the Republic, the “Digital Development Concept of the Republic of Azerbaijan” was adopted to accelerate digital transformation in the country, ensure the digitalization of the economy, and make public administration more efficient (Digital Development Concept of the Republic of Azerbaijan). It should be particularly noted that, according to the relevant digitalization strategy, work has been carried out in various directions throughout the country. As an example, the following systems can be mentioned:



After the COVID-19 pandemic, the importance of electronic systems increased significantly, the transition to digital services in both the public and private sectors accelerated, and opportunities for providing remote services to citizens and business entities expanded.

In the “Digital Development in Azerbaijan” 2025 Statistical Compendium published by the State Statistical Committee of the Republic of Azerbaijan, important information such as the main macro indicators of the Information and Communication Technologies (ICT) sector and the current state of ICT systems in enterprises operating in the country are provided. If we look at the table below, the distribution of institutions operating in the country by purpose of internet use for both years is presented.

Indicators	2022	2023
Sending and receiving emails	22,6	21,3
Obtaining information about goods and services	7,7	7,7
Obtaining information from public administration bodies	16,1	15,5
Internet banking	11,7	12,0
Use of other financial services	13,0	13,1
Interactive communication with government agencies (excluding access to information)	6,5	6,7
Customer service	5,9	6,3
Real-time sales of products	1,8	2,1
Conduct video conferencing or IP telephony	4,2	4,1
Conducting trainings for staff	2,5	2,7
Attracting staff	3,0	3,3
Online correspondence and placement of announcements	5,0	5,2

Table 1. Distribution of enterprises by purposes of internet use, in percentage

Source. It was prepared by the author based on the information from “Digital Development in Azerbaijan” Statistical Compendium (2025)

It can be seen that most of the indicators in the table increased compared to the previous year (2023). In particular, along with other indicators, HR functions have also shown a trend of growth.

Digitalization in the Field of HR in the North-West Region

For research purposes, a survey was conducted with the participation of public and private institutions operating in Azerbaijan’s North-West region (including the manufacturing sector, education, healthcare, tourism facilities, and the banking sector). The survey covered HR departments, managers, and employees involved in recruitment (staff development). In the conducted survey, 14 public and 18 private institutions actively participated, making a total of 32 organizations. The questionnaire consisted of 10 questions in total. It should be noted that one of the main reasons for the limited number of participating enterprises is that many organizations operating in the regions are branches and representative offices, where a

centralized management system is in place. If we look at the responses given by employees working in 32 different sectors, we can see that, regarding the question about the current state of digitalization in HR processes, only 47% of employees stated that all processes are carried out digitally. The remaining 31% reported that processes are partially digitalized, while 22% indicated that no processes have been digitalized.

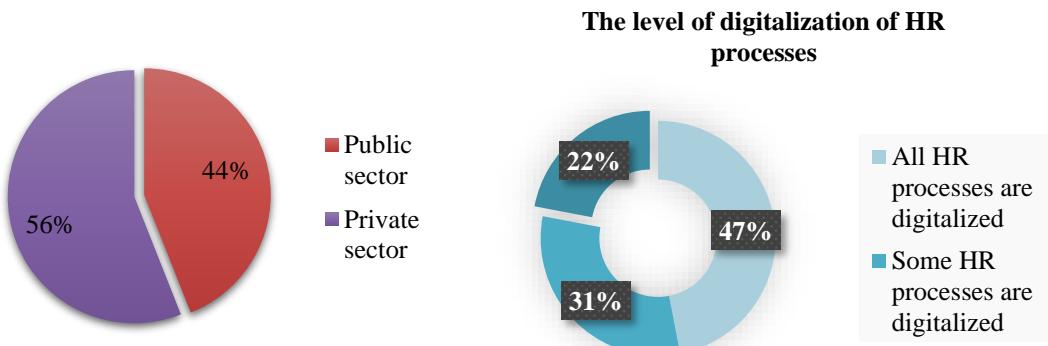


Figure 4. The level of digitalization of HR processes

Source. It was prepared by the author based on survey results.

The results show that digitalization in the field of HRM in the North-West region is already expanding, although full integration has not yet been achieved across all enterprises. One of the issues that should not be overlooked is determining the current state of digitalized HR functions in enterprises, which was also addressed as a question in the survey.

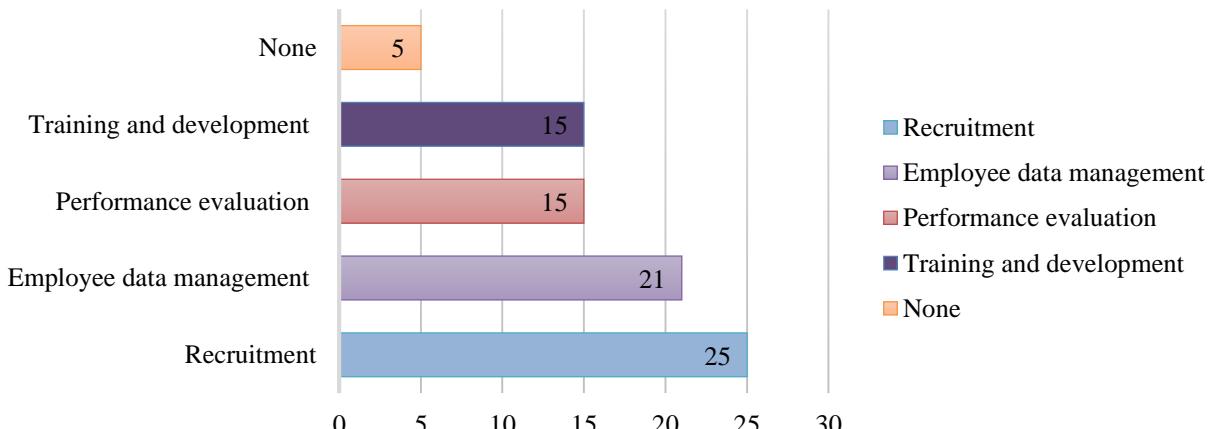


Figure 5. Digitalized HR functions

Source. It was prepared by the author based on survey results.

Among employees working in different organizations, the most frequently digitalized management functions were identified as “recruitment” and “employee data management.” Examining the responses, it can be seen that in some enterprises all these processes have been digitalized, while in others, only a few functions are affected. This fact shows that HR digitalization is mainly carried out at the operational level, while strategic HR activities (such as career planning, training, and development) have not yet been fully integrated.

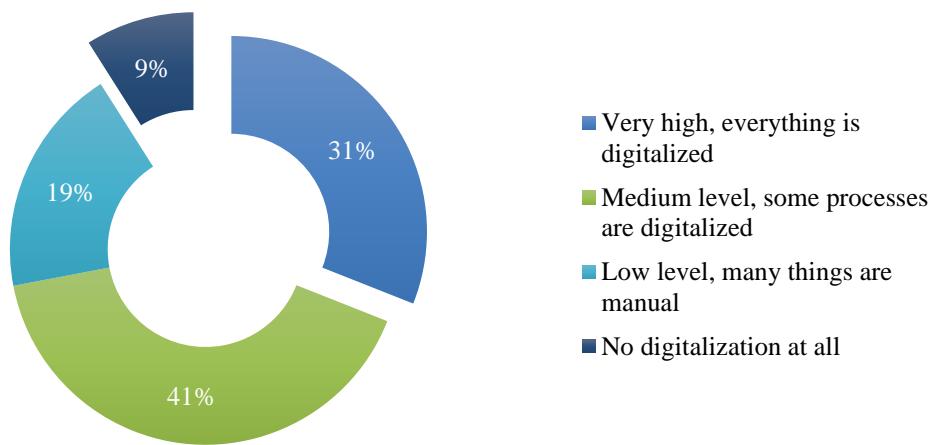


Figure 6. Overall assessment of the level of HR digitalization in institutions

Source. It was prepared by the author based on survey results.

When looking at the results of another question, it can be observed that 28% of respondents stated they do not use digital HR tools or that such tools do not exist at all. Another 31% indicated that digital tools are used, while 41% stated they are used occasionally. These results demonstrate that digitalization in the region is still in its initial stage. In addition, the low level of use of platforms such as HRM360, Systems, Applications, and Products in Data Processing (SAP), or DataHRM indicates that digital literacy remains limited. Regarding another question aimed at assessing the impact of current trends on the workflow in organizations operating in the region, six participants noted that they could not fully answer because they do not use any digital processes in their work at all. In another question, problems arising from the lack of digitalization in the organization were identified as follows:

- a. “Slow and inefficient recruitment process”
- b. “Delays and loss of time in work processes”
- c. “Loss or incorrect management of employee data.”

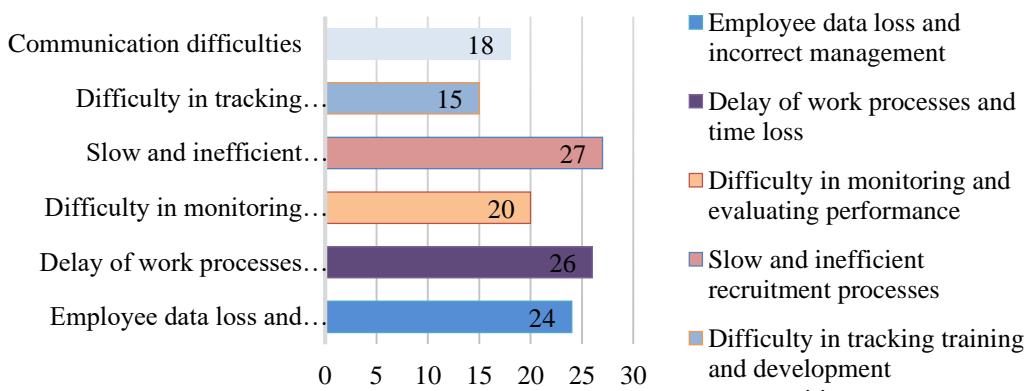


Figure 7. Problems arising due to the absence of digitalization

Source. It was prepared by the author based on survey results.

27% of survey participants noted that digitalisation “minimises time wastage” as a positive impact on HRM. Furthermore, 16% cited it as significant for productivity, 18% for time savings, 20% for ensuring transparency, and 19% for increasing data availability.

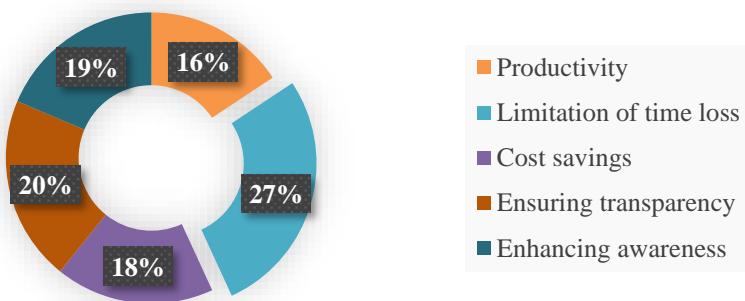


Figure 8. Positive effects of digitalization on HRM

Source. It was prepared by the author based on survey results.

One of the other questions included in the survey was “Possible outcomes of applying Artificial Intelligence (AI) in HRM.” Most of the respondents stated that AI contributes to saving time and resources, automates HR processes, and plays a supportive and analytical role in HR activities. However, they also emphasized that human experience remains essential in decision-making.

Conclusion

The results of the study show that in Azerbaijan particularly in the regions the process of digitalization in HRM is being implemented gradually and is creating significant changes in the management mechanisms of organizations. The use of digital technologies facilitates more efficient and transparent implementation of HR functions such as personnel data management, recruitment, payroll systems, and performance evaluation.

This finding indicates that the process of digitalization in Azerbaijan and the neighbouring countries is still at an early stage, and additional measures are needed to ensure the full integration of digital technologies into the activities of the public and private sectors. In particular, deepening digitalization in the areas of HRM, education, and healthcare is of great importance for enhancing economic efficiency and competitiveness. The study identified that 31% of organizations operating in the North-West region carry out their HR processes fully digitally, 41% partially digitally, while 28% have not yet taken significant steps in this direction. The most digitalized areas include recruitment and electronic management of employee data. However, at the strategic level such as career planning, employee motivation, and training systems digitalization has not yet been fully implemented.

Most respondents consider the integration of artificial intelligence and automated decision-support systems into HR processes as necessary. Nonetheless, uneven technological infrastructure development, low levels of digital literacy, and resistance to change in some organizations hinder the expansion of this process. At the state level, strategic documents such as the “Digital Development Concept”, the “Socio-Economic Development Strategy for 2022–2026”, and others create a foundation for the formation of a digital management environment in the country, particularly accelerating digital transformation in HRM. Overall, the results of the study show that digitalization has become a key tool for increasing efficiency, transparency, and accountability in Azerbaijan’s management system. The continuous development of this direction will, in the future, ensure the improvement of quality in HR management at both the public and private sector levels, enhance decision-making mechanisms, and strengthen the competitiveness of the labor market.

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