

Research on Digital Transformation of Human Resource Management in Public Sector

Mingxin Fan

{Fmx030808f@163.com}

Liaoning Normal University,116029,Dalian,China

Abstract. Digitalization brings numerous opportunities to human resource management in the public sector. However, this reform also encounters several challenges that must be addressed. Digital technology offers substantial support for the reform of human resource management in public departments. It facilitates the acceleration of the human resource management system's reform, provides a novel solution to overcome the predicaments faced in this area, and empowers the realization of sustainable development within the public departments' human resource management systems. Nevertheless, the digital transformation of human resources in the public sector confronts various problems. The integration of digital transformation and human resource management concepts in the public sector introduces fresh challenges to the employees' capabilities and necessitates enhanced safeguards for the public sector. Consequently, this paper proposes optimization strategies, including expediting the transformation and seamless incorporation of public sector functions, fostering a digitally-driven mindset among employees, enhancing digital skills, and fortifying the public sector's information protection mechanism. These strategies aim to offer research insights for the digital transformation of human resource management in the public sector.

Keyword:Digitalization, Public sector, Human resource management

1. Introduction

Digital technologies, such as artificial intelligence, big data, cloud computing and other rapid iterative development of scientific and technological intelligence represented by ChatGPT, have completely changed the current living, learning and working modes, and the whole society is undergoing major digital transformation including lifestyle, learning style and working style. At the same time, the development of digitalization has also had a great impact on the public sector, and the public sector is inevitably faced with complex digital transformation problems. Due to the continuous development and perfection of various legal systems in China and the persistence and efforts of governments at all levels, great changes have taken place in the human resource management of public departments in China in the past decades, which has greatly reduced the cost of human resource management in public departments, and continuously improved the work efficiency, service quality and management level. In small and medium organizations, due to the scarcity of resources, HR practices are not well established, in fact, they are minimal. But such organizations too can no longer afford to neglect their HR functions and must develop and maintain their human assets through

effective HR practices to succeed in today's highly uncertain world [1]. However, facing the "rolling wave" of digital reform, the digital transformation of human resource management in the public sector needs to face more opportunities and challenges in the future.

This paper first combs the development and current situation of human resources in public sector, then analyzes the opportunities and challenges brought by digital transformation to human resources management in public sector, and finally puts forward corresponding optimization strategies, in order to provide some research ideas for digital transformation of human resources management in public sector.

2. Connotation and development of human resource management and its digital transformation in public sector

2.1 Connotation of Digital Human Resource Management

There is no unified definition of digital transformation of human resource management in academic circles, but in essence, whether it is big data or digitalization, they are gradual interpretations of digital transformation of human resource management from different angles [2]. This paper holds that the digital transformation of human resource management refers to relying on digital technology and existing data to realize data-driven development, thus constructing a brand-new human resource management model and ultimately improving the operational efficiency within the organization.

2.2 Development of Human Resource Management in Public Sector

In the last few decades, the use of new technology in facilitating management functions in general and human resource management function in particular has increased significantly [3]. As an integral component of modern management systems, human resource management originated in enterprises and has since developed into a comprehensive system. Under the influence of the "New Public Management Movement," the concept of human resource management gradually entered the public sector in China. Nowadays, this concept has been adopted by China's non-profit organizations, public institutions, national enterprises, and other public departments. In 2004, Chinese scholar Xiao Mingzheng proposed a definition for the Chinese government's human resource management[4], which led to more scholars conducting valuable explorations in this field, drawing insights from enterprise human resource management [5]-[8]. It was not until 1993 that the Provisional Regulations on National Civil Servants were issued, clearly defining crucial components of human resource management for civil servants, such as selection, employment, performance appraisal, training, and salary. In 2006, China further enhanced the functions and classifications of government functionaries through the Civil Service Law. In 2019, the newly enacted Civil Service Law combined with the previous system, establishing strict selection criteria for civil servants and strengthening incentive measures. This has resulted in more transparent, scientific, and democratic management of civil servants by state government departments.

In summary, the civil service system within Chinese government departments has undergone continuous improvements, aligning with various aspects of human resource management. Therefore, this paper collectively refers to it as public sector human resource management.

3. Opportunities brought by digital transformation to human resource management in public sector

3.1 Provide strong support for accelerating the reform of human resources management system in the public sector

The rapid development of digitalization and the increasing popularity of digital technology offer a new practical direction for human resource management in the public sector and serve as a powerful guarantee for accelerating the system reform of the public sector and improving departmental performance.

Firstly, digital transformation can reduce the cost and burden of human resources management in the public sector. By utilizing the Internet and big data, public services, such as "running at most once," establish a foundation for the decentralization and transformation of public sector functions.

Secondly, digital technology can provide more transparent and reliable data, minimizing human errors, speeding up the management process, and facilitating intelligent decision-making. These advancements make internal management in the public sector smoother and more accurate. Furthermore, it can streamline and improve the often convoluted processes involved in human resources management, effectively reducing redundancy and bureaucracy. This greatly enhances the quality of human resource management in the public sector and boosts the performance of public sector staff, thus offering strong support for expediting the reform of the human resources management system.

3.2 Provide a new way to break through the dilemma of human resource management in public departments

The challenges faced by human resource management in the public sector primarily stem from its resistance to change, which hampers its ability to adapt internally and keep up with the rapidly evolving external environment. The advent of digital transformation, however, offers a solution to this predicament by transforming human resource management in the public sector from its traditional role as administrative experts to strategic partners [9].

On one hand, digitalization streamlines office procedures in the public sector through internet-based platforms, reducing the complexities of workflows and bureaucratic administrative practices. This subsequently improves the perception of human resources management departments and enhances the interactivity and flexibility of human resource management in the public sector. A more functional human resource management system also enables easier access to employee data and ensures greater transparency in performance evaluation. Consequently, the public sector can engage in more flexible and accurate decision-making and respond swiftly to the ever-changing external environment through strategic cooperation activities.

On the other hand, digitalization has expanded the scope of human resources reform in the public sector, encompassing both departments and employees. This broader approach deepens the understanding of employees as "the first resource, the first capital, and the first driving force." Through digital transformation, the public sector can swiftly detect changes in employees' circumstances through the analysis of big data. Consequently, measures such as

support, stress reduction, employee well-being, and conflict resolution can be implemented to enhance job satisfaction and work efficiency.

In the digital age, while the public sector focuses on the technological reform of human resource management, it is imperative to recognize that employees are the main force behind achieving organizational goals and driving sustainable development.

3.3 Provide power for the sustainable development of human resource management system in public sector

Facing an ever-changing and challenging external environment, it is imperative to address the issue of achieving sustainable development in human resource management within the public sector. To effectively respond to these changes, the utilization of digital technology is crucial. By doing so, it significantly enhances the capability of human resource management in the public sector to manage crises, aiding in the attainment of sustainable development goals for the system. Furthermore, it helps to mitigate the negative effects caused by external environmental changes.

The implementation of digital technology within the public sector creates several advantages. Firstly, it reduces the time required for employees to access information, providing efficient support for departments located in remote areas. Additionally, it enables the analysis of past cases and the calculation of the probability of various situations within the shortest possible time, leading to the derivation of intelligent solutions that hold valuable references. Moreover, it facilitates the formulation of pre-established crisis response protocols, thereby greatly enhancing the public sector's ability to handle crises.

Furthermore, digital human resource management allows for the customization of individual training programs by evaluating employees comprehensively. This ensures that the specific needs and strengths of each employee are addressed and incorporated into different training programs. Consequently, it contributes to the enhancement of employees' skills and work capabilities, offering support to the sustainable development of human resource management within public departments from both the organizational and individual perspectives.

4.Challenges faced by digital transformation of human resource management in public sector

In the digital age, digital technology presents numerous opportunities for public sector human resource management. However, these opportunities are accompanied by challenges. The intricacy of digitizing human resource management and the social impact on the public sector introduce a host of new challenges.

4.1 Integration of digital transformation and human resource management concept in public sector

Although digital transformation has brought numerous material benefits to human resource management, there could be significant issues if the digital content and system of enterprise human resource management are directly applied to the public sector. The urgent challenge

now is how to effectively integrate digital transformation with human resource management in the public sector.

In the public sector, the most crucial aspects of human resource management are fairness and transparency in management and evaluation. While transparent performance indicators can be clearly explained, there are several factors in public sector management that cannot be assessed solely based on data. These factors include employees' political beliefs, moral values, and more, which serve as crucial foundations for evaluating and promoting public sector employees. Public sector employees must possess the ability to serve the public and exhibit qualities of public service, such as adhering to the correct political direction, maintaining a strong ideological consciousness, and upholding high moral standards. These qualities cannot be accurately measured using specific tasks or data.

Relying on digital technology to develop algorithms for evaluating human resource management indicators in the public sector, or using data-driven algorithms from the past, will undoubtedly result in unfairness within the public sector and even society as a whole. It may also lead to more severe social consequences.

4.2 Digital transformation poses new challenges to the ability of public sector employees

With the deepening and implementation of the "Digital China" strategy, the digital government is continuously developing. This development encompasses the promotion of the digital governance system at three levels: technology, behavior, and organization [10]. It also aims to enhance the ability of the digital government in five dimensions: value, structure, ability, technology, and security. As a result, the ability and quality of public sector employees are facing newer and higher requirements. Government functions are gradually transitioning from a focus on management to a focus on service.

Specifically, the digital transformation of the public sector poses two requirements for employees' abilities. First, they need to possess digital ability and literacy. Although digital technology is predominantly utilized in the public sector, its practical application relies on the abilities and literacy of the employees. As public services are increasingly adopting the hybrid office mode of online and offline integration, the public has the option to engage in various government affairs handling modes such as online government affairs halls, government network portals, government apps, and automatic intelligent service terminals. This necessitates public sector employees to possess the ability to use the internet and process digital data.

Second, employees need to possess the ability to use digital equipment for communication and learning. Public service reform measures like "one network management" and "running at most once" have improved the efficiency, quality, and satisfaction of public departments' services. However, employees in these departments are now expected to demonstrate the ability to communicate, solve problems, and handle issues through the use of digital technology.

4.3 Digital transformation presents new demands for safeguarding the public sector.

The development of digital human resources entails uploading and analyzing the information of the public sector on the Internet through artificial intelligence. This allows for the

achievement of predictive capabilities through technical advancements. However, it also necessitates stricter personal information protection measures.

As digital technology gradually permeates every aspect of the public sector, various performance monitoring methods are being employed in human resource management. For instance, work equipment monitoring, such as telephone, email, and location tracking, has become commonplace. Cameras are used for the recognition and monitoring of biometric information, including facial recognition and body temperature detection. These methods involve the constant collection of employee information, which is then stored, utilized, and managed by the human resources department. Furthermore, as digital technology continues to advance, the aforementioned equipment is becoming increasingly independent and capable of functioning autonomously, eliminating the need for manual operation. Consequently, these devices can easily gather personal information without requiring individual authorization. Thus, the protection of employees' personal information and the enhancement of performance are crucial aspects in the digitalization of human resources management in the public sector.

5 Optimization strategy of digital transformation of human resource management in public sector

5.1. Accelerate the transformation and organic integration of public sector functions

Digital technology should be considered as a supportive tool in the reform of human resource management in the public sector, but it should not be solely relied upon. Digitalization can be used to improve the scientific nature of human resource management, but it cannot replace the functions performed by human resource management in the public sector.

On one hand, through the continuous iteration and upgrading of machines, data mining can be utilized to discover unseen data patterns and enhance the internal management system and service mechanism of the public sector. Public organizations need to advance further their current performance-related practices like reward and appraisal as well as personnel practices such as recruitment and training [11]. On the other hand, during the integration of digital technology and public sector management, it is essential to ensure proper interaction between employees and machines in order to enhance employee efficiency and accuracy.

Regardless of whether it is traditional human resource management or the human resource management of digital reform today, the most crucial demand and the central technology required will always be human thinking. Therefore, in the face of the inevitable trend of digital reform in human resource management in the public sector, we should neither exclude nor resist the application of digital technology. Additionally, we should not simply rely solely on digital technology without incorporating human thinking. It is equally important to avoid letting technology dominate and replace the role and core position of people in human resource management.

5.2 Cultivate digital thinking of public sector employees and improve digital ability

With the rapid development of digital technology, it is necessary for all employees in the public sector to continuously learn and enhance their digital skills in order to effectively achieve the planned goals. As mentioned earlier, the digital reform of the public sector

necessitates employees to possess digital literacy, communication and learning abilities related to digital office, and more. These include proficiency in office software and understanding big data algorithms, as well as the ability to solve complex problems and communicate online. Due to the diversity of employees' positions, there are varying requirements for their abilities as well.

Throughout the process of digitizing public sector operations, certain positions may be replaced by artificial intelligence, resulting in significant reduction or abolishment, while the number of digitally-focused positions will substantially increase. Consequently, employees with strong digital abilities and literacy will excel in the future of public sector service and work, and enhance their prospects of development and advancement. Simultaneously, a key aspect in the human resources management process of digital transformation within the public sector is to narrow the gap in employees' digital literacy levels. In future employee training, big data can be utilized to analyze and assess existing skill sets, allowing for personalized training plans utilizing artificial intelligence. This will facilitate the provision of scientific digital training programs and accurate learning paths for employees, ultimately expediting the development of digital abilities among public sector employees.

Public sector employees need to actively embrace digital changes and promptly adjust their mindset accordingly. Additionally, it is important for the public sector to continuously enhance employees' enthusiasm for utilizing digital tools and appropriately incentivize them to explore more suitable opportunities for development and job roles within digital learning. Only through collaborative efforts between employees and departments can the positive impact of digital change on human resource management within the public sector be fully realized.

5.3. Strengthen the information protection mechanism of the public sector

The protection of personal information significantly affects the practical abilities of public sector employees and the achievement of organizational goals. This is closely tied to the trust and loyalty between the public sector and its employees. Hence, it is an urgent necessity for digital reform to establish and enhance the governance system and mechanisms relating to algorithms and data. China has taken significant steps in developing and improving applicable laws and regulations, specifically addressing the protection of personal privacy and information in the digital era, as stated in the Constitution and Civil Code. Notably, the Personal Information Protection Law of the People's Republic of China, enacted in November 2021, provides more detailed and specific provisions on the collection and use of sensitive personal information.

6 Conclusions

The emergence of the digital age and the advancements in digital technology have brought significant changes to human resource management within the public sector. The integration of advanced technologies, such as big data, artificial intelligence, and cloud computing, in the realm of human resources management for public sector organizations is enabling and will continue to enable remarkable achievements in digital transformation. Nevertheless, it is crucial to remain cognizant of the prevailing issues in the digital reform of human resource

management in the public sector and make diligent efforts to optimize the aforementioned challenges during this transformation. We must embrace a proactive mindset, recognizing both the immense opportunities and the necessity of obtaining insights into the future while resolving problems. Despite the numerous obstacles and complexities that lie ahead, digital transformation has become an unavoidable trend and an inevitable outcome for human resource management within the public sector.

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