

# Virtual reality technologies in a dynamic change of human resources management

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## ABSTRACT

The purpose of this review is to see how technology crosses paths with human management needs. We can call it human resources (HR) technology solutions, software and hardware solutions that can automate HR processes, collect, process, and analyse data, use it to make strategic decisions, and perform HR professional work and operations with security and privacy in mind. This research method is a literature review that is carefully elaborated in the form of qualitative descriptions. The results of the study found that Digital Transformation and new technologies have started to be used in HR processes. Both HR professionals and other stakeholders have been in HR processes using these technologies. In this study, we evaluate how Artificial Intelligence, Virtual Reality and Metaverse, which are the current trending technologies, are used in HR management. We also emphasise on potential opportunities and new use cases.

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## 1. Introduction

The global phenomenon of digitalization and robotization has a significant impact on the world of work and job markets (Mazurchenko & Maršiková, 2019). The metaverse can provide face-to-face interaction that is missing in a dispersed work environment, which is critical to fostering employee connections. Metaverse training can create a memorable, immersive, and captivating learning environment that allows employees to learn and develop at a pace that is conducive to the always-on, hybrid world we live in. The metaverse can also be used for virtual meetings, recruiting and hiring interviews, onboarding, and learning and development, which can help employees feel more connected to their colleagues and the organization (Aydın et al., 2023). Less than twenty years ago, tools for the personnel manager included a personnel manual, a union contract, an array of record keeping forms, a ream of carbon paper, a telephone, and even a company picnic (Hannon et al., 1990).

Combining different digital technologies with production and business processes represent one of the pillars of industry 4.0. In order to support digital transformation initiatives, many industries adapt a technology-driven approach in their function and activities, by creating “smart” working environment within production system (Lalić et al., 2020).

VR is a computational technology generated by one or more multisensory devices. The user can control, manipulate and explore, interactively and in real-time, allowing an immersive experience in a different and alternative environment. Through the use of 3D graphics or 360° videos, users experience an authentic computer-generated environment, creating a sense of presence that allows experiences such as walking on the surface of Mars, flying an aircraft, or observing the frescoes in the Sistine Chapel, without actually being there (Ferreira et al., 2021).

In the millennial era, current generations are considered the digital workforce, they have internet-connected devices and web-based applications and services have always fascinated their everyday lives (Varadaraj & Al Wadi, 2021). At the same time, the field of personal/ household finance (loans, insurances, payments & investments) and the associated industry are in increasing demand. Modern societal challenges around healthcare, retirement planning & the environment indeed call, in a capitalistic society, for a higher level of financierization at an individual level. To support this change, the personal finance industry therefore needs to become more productive & leverage the currently available technologies to support households and individuals "at scale"(Augustin, 2023).

We discuss and summarize the main business domains and their challenges, the ecosystems of smart FinTech which substantially expand the above Fin- Tech family, and the DSAI techniques driving smart EcoFin businesses and FinTech. A brief introduction to this selected topic on data science and AI in FinTech is then given, followed by discussion on future directions(Cao et al., 2021). Furthermore, this paper will outline how the use of VR technology is utilised in the management of human resources in a corporation. Although only a brief description, it is hoped that this paper will help provide a point of view. Digital technologies obviously affect HR activities and change the role of HR managers from static to dynamic and strategic(Chytiri, 2019).

## 2. Research Method

Qualitative methods treat participants truly as subjects and not objects. This is where participants find themselves as valuable, because their information is very useful. This research method gives a very large space to participants, in this context the relevant Library sources. They avoid being objectified by the researcher who only answers prepared questions and selects the answers that are already available. (Raco, 2018). To study a single case intensively need not limit an investigator to qualitative techniques (Cresswell, 2012).

The type of research used in this study is descriptive research with a qualitative approach. The data taken, identified in the following order: (1) data collection (2) data sorting (3) data analysis (4) conclusion making. As for data analysis, there is a predetermined sequence in accordance with the empirical steps taken, namely as follows: (1) Examination of data (2) suspected data findings, (3) Data confirmation (4) Diagnosis, (5) Action (King, 1991). Qualitative research is a popular research method among students, and can even be said to be the dominant method in communication research (Rianto, 2016).

The description of the data, presentation, analysis and findings that will be obtained from this study will be written in the paragraphs below, in the research discussion segment. Virtual Reality fulfills its destiny to become a business instrument, which in the discourse of this study is the marketing of various products, both from the government and from the business world, from micro to multinational scale, specially this research will discuss the HRM.

## 3. Results And Discussions

The business model currently used by online retailers generally requires customers to place orders, after which the online retailer ships the products (the shopping-then-shipping model. That is, retailers will use AI to identify customers' preferences and ship items to customers without a formal order, with customers having the option to return what they do not need (Davenport et al., 2020). It also in the HRM in a modern company as now spread out widely. The concept of HRIS commences from an employee payroll system (Masum et al., 2018).

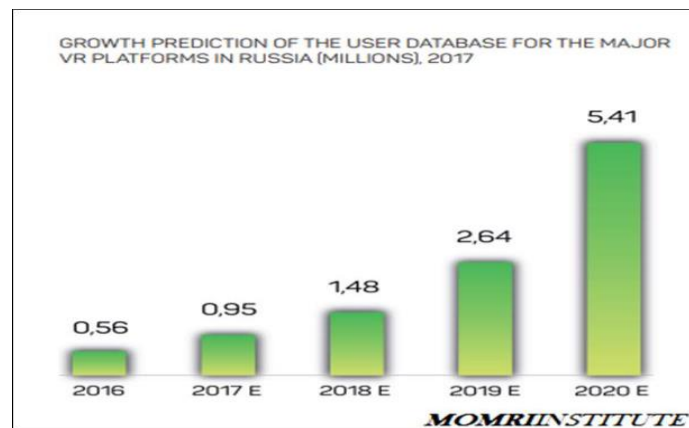
Currently, VR systems have three main characteristics: navigation, interaction, and immersion. These systems allow users to move through three-dimensional computer-generated images, such as walking through a virtual museum's corridors and enjoying the exhibitions. But they also allow navigating through the environment, interacting with it, touching, lifting, manipulating, or moving objects (Ferreira et al., 2021).

The most far sighted corporations have started to introduce services of VR into their business processes. While Russian entrepreneurs and businessmen are reluctant to invest in the development and application of virtual technologies for the recruitment, adaptation and training of staff, foreign colleagues demonstrate successful experience of its implementation. The biggest companies in Russia show significant interest in VR technology and solutions, but the number of actual projects isn't that high – in 2015, there

were 5-10 companies that began implementing VR technology into their daily business, and in 2016 that number was twice as high (Vasilenko, 2019).

Bennett (2009) argues that VR or AR makes HRMD processes more efficient, such as training, recruitment and selection, and employee integration, as it allows them to save time, material, and human resources management. The use of this technology can also have advantages over the traditional methods, made of questionnaires or interviews because the realism created by the software allows a realistic simulation of the work environment; the more immersive, interactive, and navigable the selection techniques, the greater the consistency and predictability of the candidate's performance in the job (Ferreira et al., 2021).

In Sarkady (2021) point of view, virtual reality (VR) applications became especially important for virtual vacations when the pandemic halted all travelling activities. Also at the perspective of Lee (2020), virtual reality apps have successfully captured employees' enthusiasm to the point that their behaviours and responses have favourably and steadily increased as a result of its content quality, system quality, as well as vividness. The individual evaluation of electronic human resource management (E-HRM) apps that affect HRM strategy and technological effectiveness is done through self-service apps according to Ruel (2007) and we see that is really. Content quality is one of the measures of VR applications that serve to engage and attract customers by displaying quality and functional content which may involve state-of-the-art writing and takes into account the expectations and demand of customers (Najam et al., 2022).



**Figure 1.** Growth prediction of the user database for the major VR platforms in Russia (millions), 2017.

Source: (Vasilenko, 2019)

The study showed that the digitalization of HRM practices also leads to an improvement in efficiency. In particular, many of the studies analyzed underlined that the digitalization of HRM has resulted in time savings. This results in an increase in the productivity of the HRM function. Dionne Démeijer (2017) highlights that thanks to digitalization, HRM processes are simplified, simpler and faster. This allows HR professionals to better focus on activities that are meaningful to their function. With particular reference to recruitment, Nooruddin (2018) showed that the adoption of digitalized HRM practices resulted in a reduction of the work intensity to select candidates, analyze their skills in relation to the requirements required to fill the vacant position and select the subjects to hire. This has translated into a reduction in time and an improvement in the organization's ability to deal with its main objectives. As far as effectiveness is concerned, the analysis carried out shows that the digitalization of HR practices leads to an increase in administrative quality and HR flexibility, and less bureaucracy within the function (Maria, 2020). Expert Systems (ES), one of the most successful applied areas of Artificial Intelligence, are systems that emulate human experts in a specific domain (Ghosh & Kumaraswamy, 2012).

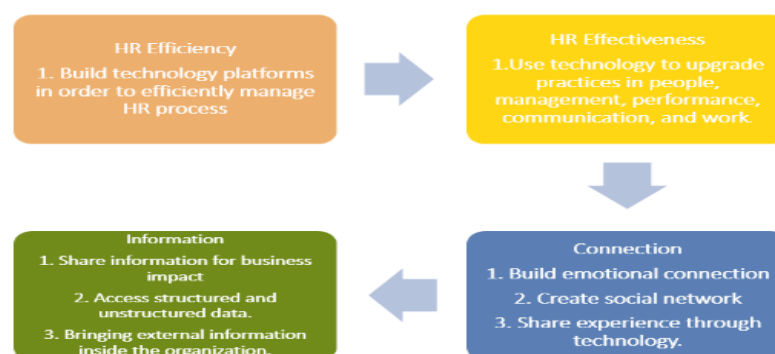
As far as effectiveness is concerned, the analysis carried out shows that the digitalization of HR practices leads to an increase in administrative quality and HR flexibility, and less bureaucracy within the function. The adoption of digital tools leads to a reduction in the time taken to carry out certain activities. According to Murphy (2018) when HR professionals can do their work from home, through digital tools, there is a reduction in administrative work that makes them feel less stressed and focus on being more efficient. In other words, when HR employees don't have to deal with low-level administrative tasks, they can focus on more strategic jobs with high added value. Beside these purely operational and organizational

consequences, some relationship consequences also emerge: employee motivation, employee engagement, communication quality, new communication channels (Maria, 2020).

**Digital Employee Management:** DEM refers to the planning and network, the HR functions such as pay roll processing, attendance management or record keeping, compensation, performance management or development are digitally supported and enabled and thereby often deeply changed. This ongoing digitalization of HRM practice is basically assumed to offer large opportunities for the discipline. It is present throughout any business and in the everyday lives and interactions of employees. The impact of the rapid growth digitally has meant that a lot organization have had to adapt to new market expectations. In case of HR, technology helps in all processes from recruit to retire functions and has drastically changed the way employees and managers get access to the HR data (Bhanu Prakash et al., 2019). In current business environment, the existence of a shift in measuring the performance of firms can be observed (Iqbal et al., 2020). Digital transformation can be said as the integration of digital technology in every area of a business, it brings out fundamental changes in how one operates and delivers value to the customers. It can also be considered as a cultural change that requires an organization to continually challenge the current status, experiment, and get ready to accept certain failure (Sharma et al., 2022).

In the present scenario, business is conducted with the needs and demands for the international business motive, also goods transfer takes place from one country to another, services, managerial knowledge, and technology transfer also takes place between countries. Globalization made the entire world small in the means of communicating with others. The financial and economical patterns of the world have been integrated with better advancement. In today's digital world where digital human resource management plays a prominent function when compared to conventional human resource management due to the demand of the organization. Many organization needs high- efficient Digital Human Resource Management for better organizational performance (Varadaraj & Al Wadi, 2021). The life of long-established organisations, such as those in the government, economy and society, requires a work unit that will specifically manage human resources (Priyono, 2010).

The HR department must welcome digital transformation in HR and must also upgrade the policy of HR according to the need for digital transformation. Digital Human resources management faces many challenges and difficulties in order to give the best quality of work for the organization across the world. In order to achieve in the competitive market structure organization must expand the trading globally. It is difficult for Human Resource Management to adapt themselves to a digital transformation and dealing with complexity while shifting the work process and its progress to a digital platform. Digital Human Resource in today's world plays an important role in the organization and other business operation by the means of creating momentum and internal (Varadaraj & Al Wadi, 2021).



**Figure 2.** VR for HRM agenda  
Source : (Varadaraj & Al Wadi, 2021)

Parry (2011) said that digital employee management is about planning and implementing digital technologies to support and network the HR profession. Operational functions of HR such as pay roll processing, but also managerial functions such as compensation, performance management or development are “digitally” supported. The positive operational effects of this digital employee management such as less cost, higher speed and quality of HR processes, increased corporation and trust among HR stakeholders, more strategic orientation, etc. are obvious (Chytiri, 2019). Private Sector employers of labour should have in

place where none in existence a codified training and development policy that would serve as a guide to staff training and development in their organizations (Bakare, 2020).

Some negative issues such as lack of user acceptance, threats to privacy, loss of personal contacts, downsizing the HR – department or burdening HR professionals with technical implementation, administration and application tasks, should not be out of consideration. Artificial Intelligence (AI) ethics is another one – very important – issue that must be addressed by HR managers, regarding growing unemployment (downsizing), hiring bias, inappropriate employee data usage, transparency (Chytiri, 2019). The trend is for VR and AR technologies to become popular and increasingly widespread across all industries around the world, making the user experience more complete (Helena & Hayashi, n.d.).

The intelligent machines/ systems built by Big Nine Companies [(G-MAFIA), Google, Microsoft, Amazon, Facebook, IBM, Apple, and (BAT), Baidu, Alibaba, Tencent], make artificial intelligence possible and scalable the recruiting and hiring tools used are only as objective as the humans who program them. As a possible result, human bias can spell big discrimination problems and ethical issues amplified by the scale at which AI tools operate (Charles, 2019). The challenge of the HR profession is to identify, develop and utilize the positive potentials of digitalization, while avoiding or at least reducing the accompanying downsides (Chytiri, 2019). Digital technologies have transformed every domain of production management: planning and production approaches, business development models, use of technologies, shifts in traditional operational tools and processes etc (Lalić et al., 2020). The concepts of „digital employees“, „digital natives“, „net generation“ „millennial“, is assumed that the early, intimate and enduring interaction with digital technologies has shaped a new generation of people with distinctively different attitudes, qualifications, behaviours and expectations (Bhanu Prakash et al., 2019). Digital (HRM) Human Resource Management is digital upgrading in the field of Human Resource management (Varadaraj & Al Wadi, 2021).

#### 4. Conclusion

The breadth of HRM digitalization measures the application of digital technologies in HRM, i.e., digital HRM as such, while effectiveness reflects the level of digital practices' integration into actual HRM, i.e., how easy such practices are to apply to accomplish operational objectives. Using these characteristics on the one hand allows one to take a fresh look at the uneven HRM digitalization process, by expanding its coverage or, conversely, by focusing on a particular aspect. On the other hand, this approach helps to more clearly operationalize HRM digitalization taking into account not its "overall level" but specific meaningful parameters.

AI is having a major impact on the field of HR. By automating tasks, improving decision-making, and providing insights, AI is helping HR professionals to be more efficient, effective, and strategic. VR and AR have the potential to revolutionize the way HR is done. These technologies can help HR professionals to make better hiring decisions, provide more effective training and development, improve employee engagement and satisfaction, and reduce costs.

AI is still a relatively new technology, and its full potential in HR is still being explored. However, the early results are promising, and it is clear that AI has the potential to revolutionize the way HR is done. As these technologies continue to develop, we can expect to see even more innovative and creative applications for them in the future.

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