

# **The Adoption and Effect of Artificial Intelligence on Human Resources Management**

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# The Adoption and Effect of Artificial Intelligence on Human Resources Management, Part A

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# Foreword

As a function, the journey of human resources (HR) has been fascinating, from being erstwhile seen as an administrative function in the earlier 1900s to a strategic advisory. In a career spanning over two decades of talent and leadership management across diverse industries, one of my key learnings has been to constantly recognise and leverage the power of technology to drive new vistas. With the advent of the digital economy and the metaverse, artificial intelligence (AI) and technology will be key differentiators towards successfully managing human capital and HR professionals will increasingly find themselves juggling their core responsibilities while learning to ride the tech wave.

It is also exciting to see the role of technology evolve in HR from driving efficiencies and automation to driving powerful insights and recommendations to business, customer and human perspectives at scale. This book is a refreshing and an informative read on the role of AI in augmenting the next evolution of HR and leveraging technology in areas of talent attraction, development, engagement, rewards and retention. In an era of uber personalisation, AI offers extensive opportunities to enrich the employee experience across the talent life cycle.

The benefits of AI are immense across industries, especially in services industries like health care, where we see a rapid transformation from illness to wellness and preventive care. Through early detection and recommendations encouraging healthy behaviour among consumers, AI will continue to play a pivotal role in reducing illness, which will be a significant respite for the community of medical professionals who find themselves managing an impossible turnout of patient overload due to the pandemic.

Through a research-based approach, this book offers an opportunity for the reader to explore the diverse applications of AI in HR and is recommended for all modern HR professionals looking forward to capitalising on AI to drive Business Strategies.

Best Wishes to the entire team of editors and authors!



*Regards,*  
*Dr. Amit Singh*  
*Head – Corporate Human Resources*  
*Aster D. M. Healthcare*

# Preface

Technology is best when it brings people together.  
(Matt Mullenweg, Social Media Entrepreneur)

The above stated quote helps the editors to simply put across the objective behind planning this book. Artificial intelligence (AI) is helping organisations to comprehensively align and manage human resources (HR). Artificial intelligence can have huge benefits for the HR domain. Whether it's saving time through data-driven HR decisions, boosting employee morale through automation and computing, or improving organisation outcome through digitalised HR practices in different sectors of global economy. This book *Adoption and Effect of Artificial Intelligence on Human Resources Management* illustrates a blended approach towards different functions of human resource management (HRM) and AI. This book helps the reader in understanding the basic functions of HRM with the ease of AI and automation.

This innovative book offers a decent introduction to the use of AI in HRM and broadly maps the AI technology with different HR functions. It not only covers the basic AI–HR blended theory but also follows a research-based approach towards this emerging area of study. Multiple authors have contributed to the project in the form of chapters. Expert authors analyse the more well-known areas of digitalisation, machine learning and automation of HR, but also contributed in the lesser talked about fields such as HR optimisation, robotic automation and recruitment analytics.

Contributors also explore a range of innovative topics such reinventing learning and development processes, employee engagement using the internet of things and people analytics. The double-volumed book discusses the scope, fairness, importance, responsibility and legitimacy of AI in HR. This book will prove to be a critical read for research scholars, HR practitioners and UG and PG students of HRM, organisation development, sustainable knowledge management, computer science, information systems, and design thinking and innovation. It may also be helpful for policy-makers to redesign and reinvent policies related to different HR functions.

The Editors

## Chapter 1

# Redefining HRM with Artificial Intelligence and Machine Learning

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### Abstract

**Introduction:** Artificial intelligence (AI) has now become an integral part of every aspect of the corporate sector. AI may be a massive branch of computing connected to building devices smart enough and capable of performing tasks that usually require human intelligence. Integrating AI with human resources (HR) practices will improve organisations, as these applications can analyse, predict, and diagnose to support HR teams for taking better decisions.

**Purpose:** This chapter throws light upon the current scenario of awareness of AI and machine learning (ML) and their impact on the industry of HR. This chapter tries to describe the usage of AI in our current world and the impact of AI in the field of HRM in organisations.

**Methodology:** The true possibility of AI and ML in HRM has been analysed with the help of pie charts, bar charts, and histograms with the segmenting of results and interpretations. Various frequently asked questions have been answered, and a sample population has also been surveyed on their viewpoints regarding specific areas.

**Findings:** This chapter concludes that HR experts see the best potential in analytics, attendance, recruitment, attendance management, and compensation/payroll. AI will significantly diversify the HR sector. HR professionals need to think outside of their function.

**Keywords:** Artificial intelligence; machine learning; human resource management; AI utilisation; customer service; Smart HRM.

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## Introduction

Human resource management (HRM) is known as hiring or recruiting or managing, or deploying an organisation's employees or even all at once. HRM is mentioned in simple terms as HR. A company's department of HR is tasked with the responsibility of creating and active and about the policy for administrative workers and the relationship of the organisation with their work personnel. The phrase HR were developed and used for the first time in the nineteenth century, and then it became more common in the year of the 1960s to define people working for the organisation. HRM is employee management as an asset of the company. In this context, employees are considered human capital. Like any other capital asset, the use of employees effectively is an objective, in turn, the risk and maximising the return of investment (ROI).

The newly created technical term for HR is known as human capital management (HCM), which is now much more used than the term HRM. The term HCM is widespread and has a recording through large- and medium-sized enterprises and other software organisations to manage many HR functions. So, the combination of HRM, AI, ML is considered HCM, as shown in Fig. 1.1.

### *Artificial Intelligence*

AI is a cognitive idea shown by the machines against the intelligence naturally inherited by humans or animals. Most AI knowledge banks explain the sector

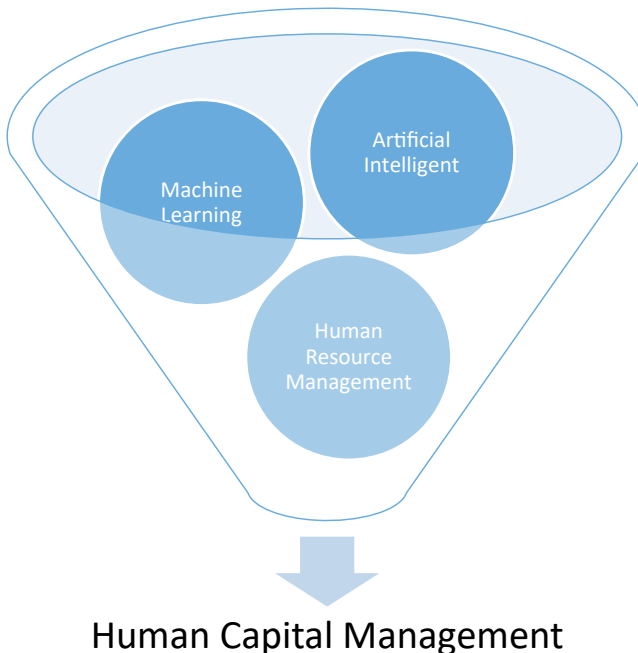


Fig. 1.1. HCM = HRM+AI+ML. *Source:* Author's compilation.

because of the research and study on these ‘Intelligent’: each system pays attention to its environment and takes action that reaches the opportunity to achieve its goals. Some well-known organisations use the terminology of ‘artificial intelligence’ to explain machines that mimic ‘intelligent/cognitive’ functions that accompany people in the human mind, for example, the act of learning and solving problem, but prominent AI researchers reject this explanation.

AI computer applications include extended web search engines, understanding the human speech, authentic cars, recommendation systems, and competition on the best level in strategic game systems, as machines increasingly enable their tasks that are considered intelligence of the exact definition of the term AI, a phenomenon called ‘AI effect’.

### ***Machine Learning***

ML is the understanding of algorithms prepared by the computers or machines that will help improve automatically through the experience and by the utilisation of study. It is noticed as a neighbourhood of AI. ML algorithms build model-supported sample data, referred to as the training data, to form decisions or predictions without being completely programmed to try to do the same task. ML algorithms are used as applications in email filtering, medicine, computer vision, and speech recognition, where it is tough or almost impossible to develop conventional algorithms to perform the needed tasks.

### ***HRM With AI and ML***

Integrating AI with HR practices will improve organisations, as these applications can analyse, predict, and diagnose to support HR teams in taking better decisions. HR is about connecting the business with current and future employees on a separate level. To achieve this at scale, HR departments must take advantage of scalable AI technology. AI offers HR departments the chances and opportunities to improve upon their candidates and the experience held by the employees by automating the process of freeing up time, and low-value tasks, which are repetitive for a more strategic, creative specialisation that the HR team needs and needs encourage implementation. Instead of spending time overseeing every step of the onboarding process, these steps are often intelligently automated. AI helps HR professionals get resources and saved information directly from employees. This enables HR professionals to demand action and deliver the work experience employees want and demand, thereby driving engagement and reducing revenue.

### **Literature Review**

Malik, Budhwar, and Srikanth (2020) state by divulging the key beliefs of strategic human resource management (SHRM) and arguing that SHRM research and implementation must neutralise the sharing economy and the alternative era of AI. Using hints from major platforms like India Airbnb, Uber, Ola, Zomato, and Swiggy, this chapter leverages technology platforms to manage non-regular employees within Fourth Industrial Revolution (4IR, Fourth Skills Revolution)

shows how to change the way you do it. An app that implements these various changes, including the correct use of AI. HR experts emphasise the need to brand new technologies and knowledge to correctly participate in the brave and new world of AI-based technology interruption that all of us face.

Shrivastava, Nagdev, and Rajesh (2018) aim to highlight the importance and benefits of analytics within the realm of HR, using the case of Google, which used analytics widely to enhance various aspects of managing people. This white paper describes how Google successfully implemented this and analysed its HR to enable better decision-making. The functions can be essentially 'quantitative' because the decisions related to those who implement the analysis within the planet of HR can be objective, transparent, and data-centric. Analysis has been widely implemented in features such as marketing and finance but does not yet understand a strong grasp within the realm of HR. This white paper describes how Google, a variety of technical organisations, was able to make decisions about influential people through analytics.

Harrison, Nichol, and Gold (2020) helps find answers, and to what extent do practitioners of learning and development (LD) reflect the education of both humans and machines within the scope of their responsibilities? First, we review several important ideas about the 4IR on Talent Development (human resource development (HRD))/LD. We report the findings of five themes shared and investigated in a series of interviews with advanced HRD practitioners: new perceptions, responses, the distinction between information technology (IT) and HRD, and the role and ethical implications of HRD. In this chapter, ML and AI are still like HRD/LD recorders, and through this investigation, new perceptions of the need to engage and develop more coordinated responses are born, with conjectures and possibilities. HRD/LD asserts that it is essential to number, continuity of work, relevance, and survival.

Hmoud and Laszlo (2019) in the last two decades show the emergence of trends in AI technologies in business environments. This white paper describes the situation of HR recruitment and selection, which is an aspect of HR management for the integration of AI solutions. This study can answer questions like: To what extent do humans use AI to borrow humans? How does AI affect recruiters' jobs? What is the role of organisational and HR managers in this transformation? To date, we will review the literature and propose model groups as samples of the most used temporary AI solutions for HR acquisition to investigate and understand previous contributions. AI is a promising solution that can improve the standards of the recruitment process and perform time-consuming and monotonous tasks such as applicant sourcing and selection to neutralise human prejudice and optimise recruitment. We have concluded that we will provide this to recruiters. Augmented intelligence is more widely used to provide better, simpler results. As a result, smart AI technology may swap routine administrative work, which may gradually disappear.

Barile et al. (2018) discuss advances in AI that pose significant challenges for businesses, employees, consumers, and policy-makers. The research team predicts that intelligent machines will out task humans in various activities within the next decade. Their aim is to re-establish the role of AI technology and its relationships

with people by rethinking the concept of AI which is intelligence augmentation, which is the interaction of AI technologies with others. This leads to cognitive changes that greatly amplify human abilities. This transformation provides new tools for optimising interpretive schemas that change human thinking structures and help study important worlds by altering people's cognitive processes. New rules for creating synergistic and collaborative processes between humans (people) and machines that style smarter service systems should be established in line with the need to define new directions for the science of the Commission for extended collaborative intelligence.

Gaur, (2020) describes the 4IR as representing new work methods for organisations that experience interruptions in technological developments such as HR analysis (HRA), ML, and AI. HR 4.0 has a framework for applying changes to the talent strategy of an organisation in which the work experience is completed. The normal economic and telecommuting scenarios made it much more difficult for HR managers to communicate with their employees to achieve corporate results. This study tries to investigate how organisations can use technological tools to drastically change the use of personal data from HR and business leaders. Primary and secondary data were collected to investigate the influence of HRA on employees, employees' assessment, and the confidence in employee experience. A sample of 100 people was gathered to verify the hypothesis. The analysis of the information led to a direct correlation between the impact on employees' confidence in their implementation in HR and employee experience. Supported literature overview and data analysis are proposed in the HR analytics framework to improve employee participation in the organisation. Organisations often use these surveys to improve the participation of employees in order to use the analysis effectively and to provide insight to potential employers. HRA has been successfully implemented in only two to three organisations due to poor data management and analysis options and a lack of organisational adaptability.

Harrison et al. (2020) discuss some ideas relating to the 4IR concerning HRD. It reports five themes (emerging awareness, responding, the division between IT and HRD, the role of HRD, and ethical implications). Moreover, it quotes that AI and HRD are still not clear. However, can be considered as a future for the organisation's survival.

Tambe, Cappelli, and Yakubovich (2019) show a huge gap between the reality of AI and its promise in HRM. The text recognises four challenges when using data science technologies in HR jobs. Questions of responsibility for the complexity of the HR phenomenon, constraint fairness imposed by small data sets, and other ethical and legal constraints. Consequently, adverse reactions of employees to managerial decisions made by databased algorithms. Practical support for these challenges is proposed to support the three overlapping principles of such causal inference randomisation and experimentation and employee contribution. They are economically efficient and socially suitable for the use of data science in employee management.

Verma and Bandi (2019) has introduced the use of AI in talent thanks to technological change in the IT landscape. Most companies are using AI to increase

the effectiveness of their IT talent. This business ranges from the automated process of recruitment to the performance of the starting employee. Organisational leaders and talent nurturing executives believe that AI can be integrated into HR functions, such as onboarding and merit management, to enhance the general employee experience. Since people view AI as both a benefit and a threat to work, this study discusses both perspectives. We analysed some of the best companies as references to AI for this research. It has focused on limiting the tasks of AI in the current industry scenario. The research also provides a brief understanding of the long-term needs of AI.

Ahmed, (2018), Sophia, an AI robot that was showing the reality that AI is rapidly changing many industries at a terrifying speed, joined a group at the UN Sustainable Development Convention and asked questions. AI Basic Recruitment Tools provides recruitment managers with a variety of solutions, including mid-level applications and advanced AI solutions. It creates an easier way to predict the future success of HR company candidates. AI is revolutionising the field of HR.

In the study by Maduravoyal, (2018), an AI systems will soon replace HR managers. While generally described for the widely recognised HR managers, AI simplifies things by computerising repetitive tasks and providing valuable insights without cognitive biases. This study addresses the possibilities of how AI is altering and supporting talent functions such as recruitment, training, talent management, and retention with real-time examples, giving insight into common parts of AI and HRM practices and, ultimately, their long-term impact.

Strohmeier and Piazza (2015) talks about AI technology and its subset, computational intelligence technology, is not a new HRM, but since its introduction, various proposals for how to use computational intelligence as AI in HRM have been accumulating. These contributions provide a detailed analysis of the feasibility of a particular application but leave out the overall possible risk. Therefore, it makes a preliminary investigation into the general feasibility of AI technologies in HRM. Since Quick Basics has explained the core functions of AI technology so far, the core of HRM needs the support of the matching method of work skills. To support this, six selected scenarios were investigated.

Lawler and Elliot (1996) show that we investigated the impact of expert systems used as selection aids from job evaluation systems. Perform in a promising user-led experiment of an expert system and analyse the psychological outcomes. This study relies heavily on theoretical support for behavioural determinism. This study examines expert systems in the context of HRM, but the results can be used as evidence of the efficiency of expert systems in the more general areas of management and decision-making.

Pandey, Chitranshi, Nagendra, and Lawande (2020) indicated that over 1.4 billion regular troops in India, and India talk about the second largest army in the world. Communication systems may be explained in some ways, thanks to the Indian Army facing serious HRM problems. The ever-changing socio-economic conditions of societies with favourable career options such as the simple closure of homes have moved away from the propensity to abandon the Indian Army. It is considered old-fashioned and does not require timely analysis of prejudices,

including the individual's desire for better systematic compensation, redemption, and promotion. Today's AI plays an important role in HRM in the corporate world to indifferently coordinate assessments and decisions, coordinate programs to find potential candidates, and facilitate the work of HR managers to do. The purpose of the study was to analyse the Indian Army's general HR practices and provide an implementation of AI for planning and managing HR. Finally, it was concluded that the proposals and methodologies for implementing the conclusions for improving the HRM of the Indian Army using AI.

Vrontis et al. (2021) states an academic production of intelligent automation (e.g. AI and robotics) have grown rapidly, but at the organisational (company) and individual (employee) level HRM, the impact of using these technologies comprehensive understanding of it is still inadequate. Therefore, this study aims to systematise the input of tutorials for intelligent automation and clarify the significant contributions and challenges for HRM. The results provide HRM with a variety of opportunities by configuring an alternative approach to managing intelligent automation technology staff and improving corporate performance but providing significant challenges at the technical and ethical level. This study details these changes along with future research directions with contributions to theory and practice.

Garg, Srivastav, and Gupta (2018) talks about the computers and IT, like the current scenario, is having a significant impact on HRM practices and processes, and everyone going to the construction of an intelligent and environmentally friendly organisation. Green HRM manages the business environment and HR. AI is an emerging field in which efficiency can be exchanged and improved Green HRM processes in the HR technology sector. AI is often used in organisations for candidate screening, participation in personnel processing, and professional development without many resources to reduce general environmental influences increase. This often applies to HR guidelines, procedures, and perspectives that can improve green personnel management efficiency. This study analyses the rise of AI in the Green HRM process and the corresponding potential benefits of AI with secondary data. This study provides insight into the use of technology to make effective HR on sustainable HR.

## **Objectives of this Study**

1. To understand the perception of AI and ML in the domain area of HRM.
2. To understand the importance of features of AI in HR.
3. To study the comparison of the usage of AI in HR now and after five years.

## **Research Methodology**

### ***Sampling***

In the study, a focused group of HR managers was interviewed to understand the perception and importance of AI in HRM. HR managers of different companies were asked about their perception of AI and its usage in the field of HRM with

the help of seven questions. The questions were framed by the author on the basis of literature survey. The reliability of the questionnaire is 0.75.

**Data Analysis**

In Fig. 1.2, Only 8% strongly agree that they are familiar with the use of AI in HR. Twenty-seven per cent moderately agreed about the awareness of AI in the HR function. Thirty per cent slightly agreed about the awareness of AI in the HR function.

In Fig. 1.3, respondents were asked about the degree they believe the organisation will enhance AI usage in HRM in the next five years. Respondents believe

**Survey Statement:** I consider myself knowledgeable about the topic of using artificial technology for the purposes of enhancing the human resources function:

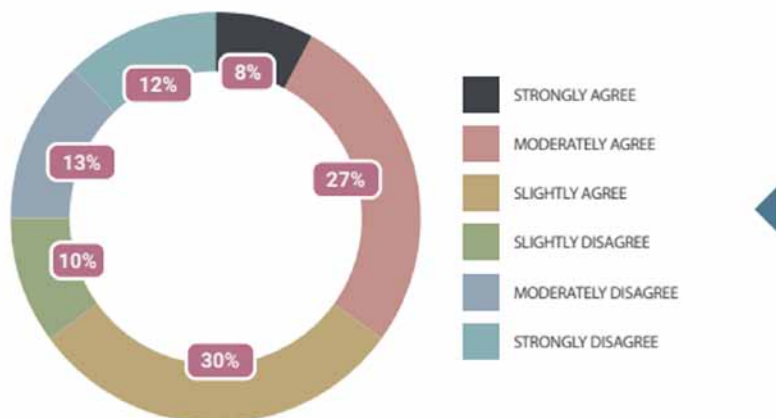


Fig. 1.2. Knowledge of Usage of AI in HRM. *Source:* Author’s compilation.

**Survey Question:** For HR purposes, to what degree is your organization making use of AI today, and to what degree do you think it will be in five years?

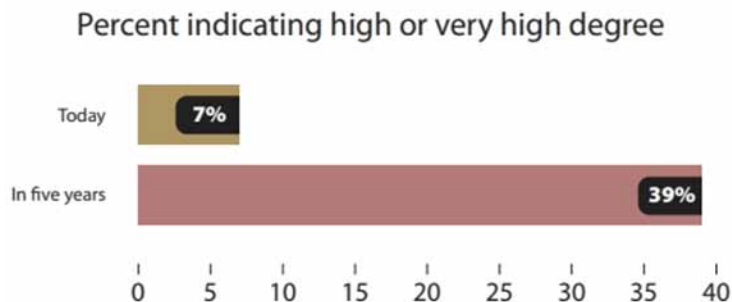


Fig. 1.3. Degree of Usage of AI in HRM. *Source:* Author’s compilation.