# ENCHANCING THE EFFICIENCY OF HUMAN RESOURCE MANAGEMENT THROUGH A.I

By

**Master Vu Thi Le Giang [1]Dai Nam University**
**Dr. Nguyen Thi Thuy [2]Dai Nam University**

## ABSTRACT:

With the rapid development of the Information Technology industry, Artificial Intelligence (AI) and Machine Learning (ML) are becoming the most popular keywords in the modern world. Companies around the world as well as in Vietnam have been finding powerful applications of Artificial Intelligence in their daily operation, especially in human resource management and development. AI application not only helps organizations to optimize their processes and increase performance, but also creates a flexible working environment and a better experience for employees. However, along with those benefits, the application of AI also creates new challenges, requiring organizations to consider and prepare carefully before applying new technology. This article will delve into the benefits and challenges of applying AI in human resource management, thereby helping businesses form and develop appropriate strategies in the future.

## KEYWORDS:

AI; Machine Learning; Human Resources Management.

## 1. Introduction

Artificial Intelligence (AI) is a field that is being deeply researched and increasingly applied. According to McKinsey (2023), Artificial Intelligence is the ability of computer systems to learn from data automatically and perform tasks that previously could only be performed by humans. The special feature of artificial intelligence is the ability to learn from data and from there analyze to make predictions, decisions to solve problems or even create new content.

Machine Learning is one of the main methods to train artificial intelligence. In this, algorithms are used to analyze and learn from data, then continuously optimize and improve performance. This process usually starts with AI being provided with a large amount of data and a specific goal. Then, machine learning algorithms will analyze this data to find common patterns or trends, from there make predictions or decisions to achieve the set goal. The ability to learn from experience makes AI systems increasingly intelligent and flexible over time.

Natural Language Processing (NLP) is a field of Artificial Intelligence, focusing on processing and understanding human natural language. This model includes syntax analysis, context evaluation, and natural text creation. The NLP model can read, analyze, understand, and create text passages in natural language, opening up many applications from virtual assistants to document analysis. The development of NLP not only provides us with the ability to communicate with computers more naturally but also opens the door to many new applications in fields such as healthcare, education, business, and management.

## 2. Application of AI in Human Resource Management

Understanding the capabilities of AI is extremely important when applying it to the field of human resource management. This technology can be applied in various ways throughout the recruitment lifecycle, from screening and hiring new employees, training and development, managing work processes, to the termination of employment contracts.

### 2.1. Screening and Recruitment

According to a survey by Phenom & TalentBoard (2023), the majority of recruiters (up to 57%) responded that they are having difficulty in screening a large volume of applications to quickly find suitable candidates. Based on natural language processing capabilities, AI-integrated recruitment systems can now help recruiters analyze candidate profiles and process data from interviews to propose the most suitable candidates for the job requirements. Practical research has shown that the application of AI technology has brought significant efficiency to the candidate screening process. For example, IBM has deployed WatsonX AI technology to compile profiles of the top 300 most suitable candidates for each job description (Payne 2024).

Not only does AI assist recruiters, but it also helps candidates find suitable jobs more quickly. On the Google platform, AI uses algorithms to analyze information about the company, job title, location, job description, salary, and recruitment period to filter job postings and suggest similar jobs to candidates when they search on this platform (Riley 2018). This saves time and effort for both recruiters and candidates.

It can be seen that in the process of screening and recruitment, AI plays an important role in assisting recruiters and candidates in reducing the time to perform tasks such as searching and filtering to have the most suitable profile or job description. This can reduce the necessary time for a company to find a suitable employee or a candidate to find an ideal job. According to a report from

LinkedIn (Abbot & Hilgers 2023), about two-thirds of recruiters believe that AI can help them search and interact with candidates more effectively.

**Figure 1: The potential of AI in enhancing the quality of resources**



*Source: JANZZ.technology (2019)*

### 2.2. Training and Development

In the field of human resource training and development, Artificial Intelligence (AI) has played an important role in creating personalized training programs based on data about skills, work performance, learning needs, and development goals of each employee. The AI system is capable of automatically generating and organizing lecture content, proposing courses, documents, or information sources suitable for each individual.

A typical example is LinkedIn, a professional social networking site, which has integrated AI technology into the LinkedIn Learning platform to analyze user profiles, search habits, and interactions on the platform. Based on this information, AI can predict and suggest the most suitable courses for each user's career goals, helping them achieve their career objectives more effectively (Chaudhari 2020).

Another example is Bosch, a European corporation with over 60,000 employees worldwide, which has applied AI to create training videos from text using Synthesia's text-to-video technology (Alster 2023). This technology allows AI to create videos from text and translate them into various languages. As a result, Bosch has been able to increase training efficiency by up to 70%, while reducing the cost of producing training videos by 30%.

With the support of AI, the environment for training and human resource development has become much more flexible and easier. AI not only helps recruiters create quick and effective training programs, but also assists workers in quickly finding courses that suit their needs.

### 2.3. Performance Management

Throughout the work process, employers can use AI to analyze data on the performance of each employee to make improvement suggestions or forecast potential issues. The system monitors and evaluates employee performance based on previously set goals and indicators.

AltaFlux Corporation (2023) conducted a survey and evaluation of the application of AI on the SAP SuccessFactors human resource management platform. They found that it could help businesses monitor and analyze data evaluating employee performance trends. This allows for early detection of problems and timely corrective action.

Another aspect of performance management is the application of AI as a virtual assistant (copilot) to enhance the work efficiency of employees. The virtual assistant, also known as a copilot, can be seen as a chatbot application integrated with artificial intelligence based on natural language processing models (Gorelov 2024). The copilot is an effective means to provide information and answer common questions from employees 24/7. This helps free up time for the human resources department and the support department to focus on higher specialized tasks. Leading companies around the world have invested and are investing in virtual assistant technology, exemplified by OpenAI (ChatGPT), Microsoft (Copilot), and Google (Gemini), demonstrating the potential benefits of this technology (Hiter 2024).

Thus, artificial intelligence not only helps businesses manage human performance better, but it can also serve as a personal assistant to best support staff during their work process.

### 2.4. After the termination of the employment contract

Similar to how AI supports businesses and users during the recruitment and employment process, artificial intelligence can also be applied to improve contract management and provide a better experience for employees when terminating an employment contract.

One of the notable applications of AI is the automation of management processes and updating employee information, handover data after the termination of employment contracts. Instead of having to be done manually, employee profiles can be updated automatically through AI systems, reducing errors and saving time for human resources.

Virtual assistant technology can also be used to provide detailed information and guidance to employees after the termination of a contract. The virtual assistant can provide information about benefits, insurance policies, necessary steps to renew the employment contract, and many other pieces of information automatically and efficiently.

In addition, AI also has the ability to analyze historical employee data and predict human resource trends after the contract ends (Mohanty 2023). Through analyzing data on work processes, skills, income levels, and previous employee experience, the human resources department can make more strategic plans and decisions about recruitment and future human resource development to align with the company's direction.

### 3. Opportunities for the future

Thanks to the ability to analyze large and complex data quickly and accurately, artificial intelligence opens up many opportunities for application and development in effective human resource management.

### 3.1. Strategic Planning

AI can identify trends and create connections from large amounts of data, something that is difficult for humans to do. AI can analyze data to predict human resource trends, from the likelihood of an employee quitting to career development trends. The human resources department or managers can gain a deeper understanding of their employees through trend analysis and work capacity along

with other influencing factors (Mohanty 2023). Intelligent data analysis will help managers assess future needs and make decisions about recruitment, training, and rewards effectively.

### 3.2. Building an Effective Work Environment

Optimizing the process: AI can be applied to automate tasks in human resource management. These tasks often have a large volume, are manual, time-consuming, or repetitive (Strauss 2023). AI can automate many processes from candidate reception, schedule management, task management for employees to report writing and proposal.

Enhancing Interaction: The natural language processing ability of AI can be applied to create intelligent interaction and communication tools. AI can help analyze lengthy emails into main ideas or specific tasks for employees to easily grasp, or assist in arranging, rewriting reports, emails more clearly, logically, and easier to understand (Agarwal 2023). AI-integrated chatbots are also a powerful tool to quickly respond to employee questions at any time.

Personalized Experience: Based on data about time and employee performance, AI can make personalized suggestions about work schedules, flexible and effective rest periods, programs or courses to enhance knowledge, and personal skill development. This creates employee satisfaction and commitment to their work.

### 3.3 Building a Positive Culture

AI can analyze the health and mental state of employees from various data sources. These data can be based on text such as emails, messages, notes, or based on images such as employee faces. This data will allow AI to measure emotions, stress levels, or the mental state of employees (Visionify 2022). Based on this information, human resources managers can detect early signs of exhaustion or stress and implement appropriate support measures such as improving the work environment or providing mental health care services for employees.

## 4. Challenges and Suggestions for Businesses

Although the use of artificial intelligence in human resource management brings many benefits and development opportunities, businesses also need to face many challenges when applying this new technology platform.

### 4.1. Data Challenges

One of the biggest challenges in applying artificial intelligence is preparing data and training AI models. If the input data is not diverse enough, AI can make inaccurate or biased decisions. This raises ethical and responsibility issues when using AI in human resource management, especially when it comes to performance evaluation and personnel-related decisions. According to Gartner (2019), up to 75% of AI projects may need to prepare compliance measures to avoid issues related to bias, privacy, or ethics.

**Proposal:** Businesses need to ensure the ability to prepare appropriate data for training AI models, with the aim of making decisions and actions that are fair, ethical, and appropriate. Businesses need to establish regulations and processes for collecting and using employees' personal data, including information about personnel profiles, work performance, health, and other personal information. This regulation needs to ensure that employee data will be strictly confidential to comply with data protection and privacy regulations. In addition, businesses also need to pay attention to investing in effective information security measures to prevent risks of data loss, unauthorized access, and privacy violations.

### 4.2. Cultural Transformation Challenges

The process of integrating AI into the workflows and daily operating tools of employees will cause changes in human resource management and organizational culture, while also raising the need for training and transformation for current employees. The changes due to the use of AI can cause concerns and psychological difficulties for employees. Sometimes, changing traditional ways of working and promoting digital transformation in the organization can meet opposition or difficulties from employees or management departments. Concerns about job loss, replacement by machines, or lack of trust in computer decisions can increase tension and dissatisfaction within the organization.

**Proposal:** Businesses need to implement measures to mitigate the social and psychological impacts on employees, while also supporting them in adapting to change. Businesses can organize training and development programs to enhance their technological capabilities and knowledge, provide clear information to employees so they understand how AI operates and their role in the transition process. In addition, strong leadership, commitment from managers, as well as support and guidance from AI and digital transformation experts are needed to ensure that the change is implemented effectively and aligns with the organization's goals and values (Scanlon et. al. 2018).

### 4.3. Cost Challenges

Although the application of AI will help businesses operate more efficiently and save costs, businesses also need to carefully consider the financial aspect before deciding to invest in a new technology. The costs that businesses need to consider include: hardware infrastructure, software licensing, deployment services, operational training, and security compliance. Accordingly, the hardware infrastructure needs to be compatible with the software that the business plans to deploy; software licensing will also come with costs for maintenance, system upgrades, and new feature development. Training, technology transfer, or hiring highly specialized personnel for AI applications also require a significant investment. Finally, businesses also need to invest in security solutions to comply with data protection regulations such as the General Data Protection Regulation (GDPR) of Europe (GDPR Info n.d.) or the Personal Data Protection Decree (PDPD) of Vietnam (Vietnam Briefing n.d.), which can also incur costs for the business.

**Proposal:** Businesses need to establish long-term investment plans, clear financial strategies, and must conduct deep cost-benefit analyses each time a new technology is applied. In this way, businesses can ensure long-term investment efficiency when deploying AI technology to achieve the highest effectiveness with the most optimal cost.

### 5. Conclusion

In the context of rapidly developing technology, the application of artificial intelligence not only brings many benefits and opens up many opportunities but also poses many challenges for organizations and human resource managers. However, with careful preparation, businesses can seize opportunities and overcome challenges to create a better, more flexible working environment for employees. This not only helps enhance work performance but also promotes creativity and innovation within the organization. Investing in training to enhance employees' knowledge and skills, along with building clear regulations and processes, and a pioneering commitment in applying artificial intelligence will be the key to success and development in the future. In this way, organizations can create a dynamic and creative working environment, promote a positive culture, and encourage contributions from all members. Most importantly, the application of artificial intelligence in human resource management is not just a trend, but also a necessity for organizations to continue to

compete and survive in today's business environment. Smart businesses will find value in transitioning and applying the latest technology to optimize human resource management efficiency and aim for sustainable development.

## REFERENCES

Abbot L. & Hilgers L. (2023), "How AI Will Change Hiring", https://www.linkedin.com/business/talent/blog/talent-acquisition/how-ai-will-change-hiring.

Agarwal S. (2023), "Overwhelmed by Email? How AI Tools Can Get You to Inbox Zero", *The Wall Street Journal, https://www.wsj.com/tech/ai/email-ai-tools-inbox-zero-72a8ac3f.*

Alster K. (2023), "Why and How To Use AI for Training and Development", https://www.synthesia.io/post/why-and-how-to-use-ai-for-training-and-development.

AltaFlux Corporation (2023), "Leveraging Artificial Intelligence in SAP SuccessFactors: Opportunities and Challenges", https://www.linkedin.com/pulse/leveraging-artificial-intelligence-sap-successfactors/.

Chaudhari S. (2020), "A closer look at the AI behind course recommendations on LinkedIn Learning, Part 1", https://www.linkedin.com/blog/engineering/learning/course-recommendations-ai-part-one.

Gartner (2019), "Gartner Predicts 75% of Large Organizations Will Hire AI Behavior Forensic Experts to Reduce Brand and Reputation Risk by 2023", https://www.gartner.com/en/newsroom/press-releases/2019-06-06-gartner-predicts-75--of-large-organizations-will-hire.

GDPR Info (n.d.), "General Data Protection Regulation (GDPR)", https://gdpr-info.eu/.

Gorelov Z. (2024), "The Latest Trend In AI: What Is A Copilot?", https://www.forbes.com/sites/forbestechcouncil/2024/01/12/the-latest-trend-in-ai-what-is-a-copilot/.

Hiter S. (2024), "20 Top Generative AI Companies Leading In 2024", https://www.eweek.com/artificial-intelligence/generative-ai-companies/.

JANZZ.technology *(2019),* "The potential of AI in human resource management", https://janzz.technology/the-potential-of-ai-in-human-resource-management/.

McKinsey (2023), "What is AI", https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-ai.

Mohanty S. (2023), "Algorithmic HR Planning (AHRP): Just a new name or an emerging trend in HRM?", https://www.linkedin.com/pulse/algorithmic-hr-planningahrp-just-new-name-emerging-trend-s-mohanty/.

Payne B. (2024), "Revolutionizing Recruitment: Pioneering Companies Harnessing AI for Talent Acquisition", https://www.gem.com/blog/companies-using-ai-for-recruitment.

Phenom & TalentBoard (2023), "The State of Automated Interview Management: 2023 Survey Report".

Riley T. (2018), "Google's newest push to radically improve the online job hunt for millions of Americans", https://www.cnbc.com/2018/08/01/google-job-search-is-using-ai-to-make-job-searching-a-whole-lot-easier.html.

Scanlon S. et. al. (2018), "How Artificial Intelligence is Changing the Culture of Work", https://huntscanlon.com/how-artificial-intelligence-is-changing-the-culture-of-work/.

Strauss L. (2023), "Intelligent automation: What it is and how to apply it",
https://zapier.com/blog/intelligent-automation/.

Vietnam Briefing (n.d.), "Vietnam's Personal Data Protection Decree: A Quick Guide",
https://www.vietnam-briefing.com/news/vietnams-personal-data-protection-decree-a-quick-guide.html.

Visionify (2022), "The Future of Emotion Recognition in Machine Learning and AI",
https://visionify.ai/the-future-of-emotion-recognition-in-machine-learning-and-ai/.