International Journal of Business and Management Technology in Society
Available at https://journal.its.ac.id/index.php/ijbmts/

Artificial Intelligence (AI) Technology Trends in Human Resource Productivity: A Bibliometric and Content Analysis

Zahril Maulana Jilham Al'ula[1], Astra Savero Qomara[2], Tyassatrio Kuncorowibowo[3], Syarifa Hanoum[4]

[1234]Department of Business Managament, Institut Teknologi Sepuluh Nopember

Article History
Received : 2023-12-24
Revised : 2024-05-31
Accepted : 2025-05-15
Published: 2025-05-16

Keywords:
Human Resource Management, Artificial Intelligence, Productivity, Bibliometric, Literature Review

Corresponding author:
zahril16lmj@gmail.com

Paper type:
Review paper

Cite this article:
Al'ula, Z. M. J., Qomara, A. S., Kuncorowibowo, T., & Hanoum, S. (2024). I*nternational Journal of Business and Management Technology in Society,* 2(2), 68-93.

Abstract

Purpose – This research aims to show research trends in the field of AI implementation in the human resources realm and its relationship with human resource productivity.

Methodology – This research combines bibliometric analysis with content analysis methods. Bibliometric analysis is carried out by quantitative and statistical analysis of a set of data that is linked using bibliometric indicators that represent a set of topics that are the research area in this study. Then the findings from the bibliometric method are supported by content analysis from various studies in this research area, so that it can produce output with a clearer perspective.

Findings – This research show that Artificial Intelligence (AI) can have significant effect on productivity in some case, but it must also be acknowledged that companies must also be wise in ensuring that the work to be adapted with the help of AI is appropriate, because the implementation of AI has not yet reached the point where all human work can be assisted or replaced by AI.

Research Limitation – This research was conducted only through the findings on several previous research, articles, and the data obtained from Scopus only.

Practical Implications – Based on the bibliometric analysis of recent trends in AI technology and its impact on human resource productivity, it is recommended that organizations invest in AI-based HR tools and systems to improve their productivity and efficiency. The study highlights the need for HR professionals to stay up to date with the latest AI trends and technologies to remain competitive in the job market.

Introduction

The rapid development of information technology has now covered various areas of life for a wide audience, from manufacturing operations to health work. AI technology is now known as one of the major revolutions and developments because of its ability to translate complex problems (Damioli et al., 2021).

AI is often considered a new technological innovation with benefits that cover very broad and general functions, supported by rapid and widespread use in various industrial sectors (Czarnitzki et al., 2023). AI-based machines can help carry out repetitive tasks for long periods of time without slowing down. For example, in manufacturing, AI-powered robots can operate 24/7 without fatigue, thereby increasing production rates and reducing errors. Machine learning

ISSN 3025-4256

algorithms and tools can quickly ingest data, identify patterns, optimize and predict trends. Systems can understand speech, analyze mood, personality or honesty using pattern matching, identify images that allow them to learn, and in a certain way, predict possible outcomes or consequences, and then make decisions based on diverse criteria (Zurnali & Wahjono, 2022).

Replacement of Human Intelligences by AI Automation and AI are changing business and will contribute to economic growth through contributions to productivity (Sungkono et al., 2023). The use of AI-based technology can improve a company's innovative capabilities and increase company productivity through its impact on research and development, innovation, and the creation of new ideas (Czarnitzki et al., 2023). Even though it has not yet reached the level of human intelligence, AI has experienced real development, through comparison errors between AI and humans (Brynjolfsson et al., 2019)

Specifically, processes in organizational work systems such as combining and allocating resources within a company can create a series of outputs and form a routine work system, where routines here become an important form of storage of specific organizational operational knowledge (Koch & McGrath, 1996). According to Del Giudice et al (2022), routines are considered to be two, namely explorative routines and exploitative routines. Exploratory routines encourage creativity and critical thinking carried out by humans, while exploitative routines encourage repetitive actions and imitation of activities carried out by humanoids. This increases the need for a better balance between both routines involving ambidextrous dynamic processes (Del Giudice et al., 2022).

Based on this background, it is important to carry out this research with the aim of finding out trends in AI technology on human resource productivity. The use of bibliometric methods is carried out to support deeper analysis of the research trends.

Research Question

RQ 1: What are the trends of AI technology in HR productivity?
RQ 2: How can AI boost human resource productivity?

Literature Review

The human resources functions have evolved over the time and are considered to be dynamic. The academic literature shows approaches using AI in the healthcare sector to achieve agility and the study showed the effectiveness of the HR function (Chakraborty et al., 2019). The key characteristic of AI is its ability to connect physical objects (or ‘‘things’’) to the Internet, such as vehicles, screens, pacemakers, electric motors, and more. The practical implications of the Internet of Things (IoT) refer to the technical aspects of sensing, processing, and communication. The estimation of different factors and the transmission of the deliberate information to AI are ac- knowledged as dependent on sensors set at the thing. Sensors can gauge tremendously wide range of items and climate-related factors, like area, speed, temperature, condition of utilization, glitch, stress, and so forth. The actual effect of detecting new data is profoundly itemized, continuous, naturally produced, dependable, and voluminous

In recent years, there has been a significant increase in the use of AI in various fields, including HRM. The advent of Industry 4.0 has led to an increased demand for automation, digitization, and agility in HR practices. AI has the potential to revolutionize HR practices, as it can enhance efficiency, accuracy, and decision-making in HR functions. One of the key areas where AI can make a significant impact in HR is recruitment and talent acquisition (Nazri et al., 2019). AI-powered algorithms can scan resumes and job applications to identify suitable candidates based on predefined criteria, reducing the time and effort required for manual screening. AI can also analyze candidate data to predict which candidates are most likely to succeed in a role, thereby improving the quality of the recruitment process.

AI can also have a significant impact on performance management. AI algorithms can analyze employee performance data to identify areas where improvements can be made. This

information can be used to develop personalized performance improvement plans for individual employees, which can improve overall performance and productivity. It plays a critical role in ensuring workplace safety and compliance. By analyzing data from sensors and other devices, AI algorithms can identify potential safety hazards and recommend preventive measures to mitigate risks. This can help to reduce workplace accidents and injuries, as well as ensure compliance with safety regulations.

Thus, to conclude it can be inferred that the use of AI in HR practices has the potential to revolutionize the way HR functions are carried out. AI can enhance efficiency, accuracy, and decision-making in recruitment, talent management, learning and development, performance management, and workplace safety (Gupta et al., 2018). However, it is essential to address concerns around bias and job displacement to ensure that the benefits of AI are realized without compromising ethical and social considerations. Ultimately, the success of AI in HR practices will depend on how effectively organizations can balance the benefits of automation with the need for human empathy and judgment in HR practices.

Research Methods

In this research, we combined content analysis and bibliometric analysis. Content analysis is a qualitative method of examining dynamics and trends in the literature, whereas bibliometrics tries to comprehend scientific networks among publications (De Solla Price, 1965). The analysis was carried out utilizing the "Bibliometrix" package in RStudio in conjunction with "Biblioshiny" (Aria & Cuccurullo, 2017). This software will also provide visuals that may be further understood in the future.

To find out how artificial intelligence is affecting productivity, the study method starts with developing research questions and objectives. The article-collecting stage comes next once the parameters and goals of the research have been established. We use Scopus as a database source. To get specific articles, we use 3 strings, which relate to AI, HRM, and Productivity. Details of the string can be seen in Table 1.

Table 1. AI, HRM, Productivity Keyword Search

Topic	String
Artificial Intelligence	("AI" OR "Artificial Intelligence" OR "Machine Learning" OR "Deep Learning" OR "Neural Network")
Human Resource Management	("Human Resource Management" OR "HRM" OR "Human Resource Information Systems" OR "HRIS" OR "Human Resource" OR "HR" OR "Human Resource Management Systems" OR "HRMS")
Productivity	("Productivity" OR "Productiveness" OR "Creativity" OR "Innovativeness" OR "Resourcefulness" OR "Fruitfulnes")
Full String	("AI" OR "Artificial Intelligence" OR "Machine Learning" OR "Deep Learning" OR "Neural Network") AND ("Human Resource Management" OR "HRM" OR "Human Resource Information Systems" OR "HRIS" OR "Human Resource" OR "HR" OR "Human Resource Management Systems" OR "HRMS") AND ("Productivity" OR "Productiveness" OR "Creativity" OR "Innovativeness" OR "Resourcefulness" OR "Fruitfulnes")

When conducting a bibliometric analysis, to find the right article, it is necessary to assess the quality of the selected article where there must be a procedure that must be done. The following is a table of the procedure for selecting quality criteria.

The article's publication year is based on the fairly rapid advancement of AI starting in 2020. A Statista report explains that 2020 is a transition year from phase 3 deep learning to phase 4 advanced deep learning, which is characterized by the introduction of new generation

machine learning technologies such as GPT-2, RoBERTa, and Megatron-LM (Trenker et al., 2023).

Table 2. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Study Focus	Article topic about artificial intelligence impacts on human resource productivity	Articles that do not focus on the topic of artificial intelligence impacts on human resource productivity
	Topics concerning business, management, and economic areas	The topics non-business, management, and economic areas
Publication Characteristic	Research Article	Non-Research Article
Year Published	2020 - 2023	Before 2020
Language	English	Non-English

Results and Discussion

Using the Systematic Literature Review and the PRISMA Flowchart as a guide, this section will describe the phases of the study. The systematic literature review method is a literature review method that identifies, assesses, and interprets answers to predetermined research questions (Aliyah & Mulawarman, 2020). The review procedure needs to be completed in four steps: 1) identification; 2) screening; 3) eligibility; and 4) analysis.

Identification Process

Determining research questions and objectives to understand the effect of AI on the productivity of human resources is the first step in the identification process. The stage of article collecting comes after the definition of the limits and study objectives. Scopus serves as our database. Three strings—AI, HRM, and productivity—are used to obtain particular articles. Table 1 displays the string's details. A total of 322 articles were extracted from Table 1 using the keyword search.

Screening Process

In accordance with Votto et al. (2021), we carry out this evaluation in two stages. The Journal Demographic Filtration screening method is the first stage. We determined our inclusion and exclusion criteria for Phase 1 after evaluating our databases. Five things make up the criterion for membership. The papers must be written in English, published between 2020 and 2023, and discuss how artificial intelligence affects the productivity of human resources. They must also be research publications. Literature that is not written in English, does not address how artificial intelligence affects the productivity of human resources, is published before 2020, does not address business, management, or economic issues, or is not research in nature is excluded. Only 28 articles make it past our screening procedure out of over 300 articles.

Eligibility Process

We proceed to step 2: the content filtration phase when the journal verification state is finished. There are two phases in the inclusion and exclusion criteria for this phase. Firstly, we check if the publications' titles, abstracts, and related keywords align with our predefined criteria of artificial intelligence, human resource management, and productivity. Step 2 involves a comprehensive evaluation of the entire document to make sure all of the papers are pertinent to the subject. All 28 of the articles that are being reviewed have been chosen to be a part of our investigation.

Analysis

In this research study, two types of analysis are conducted: bibliometric analysis and content analysis of previously reviewed articles.

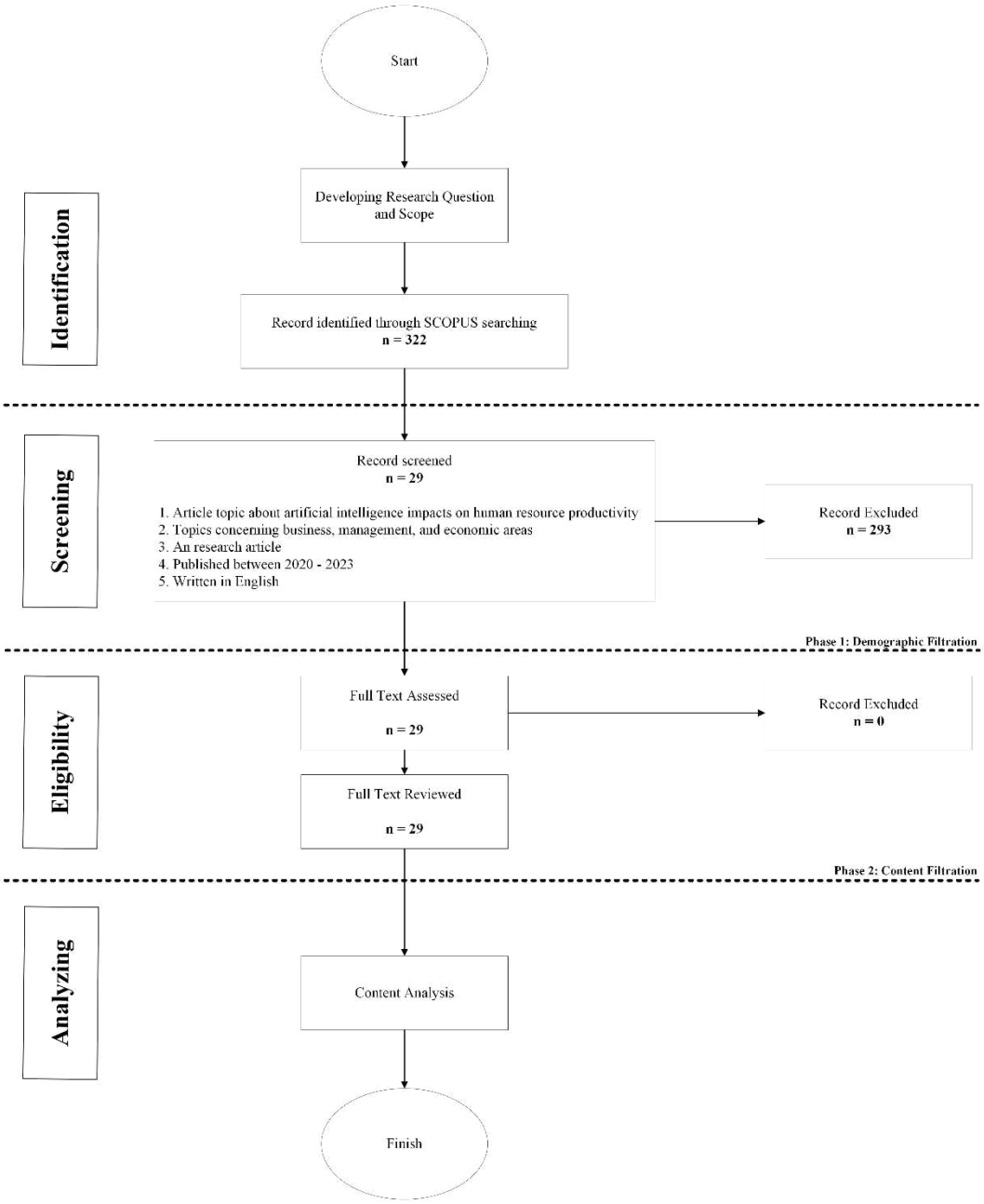

Figure 1. PRISMA Flow Diagram

Bibliometric Analysis of Artificial intelligence in Human Resource Productivity

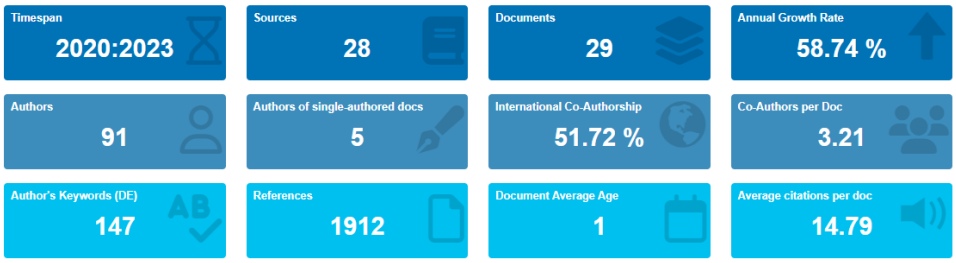

Figure 2. Main Information Data

Figure 2 is a diagram that displays the key data points for the bibliometric analysis in this research study. Data for this study was gathered from 28 sources between 2020 and 2023. 29 papers in all are the subject of the investigation. The data over that time period indicates an annual growth rate of 58,74%, indicating a yearly rise in the number of papers consumed of 58,74%. The average age of the documents in this research was one year, and each document had an average of 14,79 citations. In this investigation, 1912 references were consulted. Furthermore, the data contains details regarding the keywords that the author of document 147 has designated. In this study, there were 91 writers, and each author wrote 5 documents on their own. An average of 3,21 writers work together on each document in this research, demonstrating author cooperation as well. 51,72 percent of authors collaborate internationally.

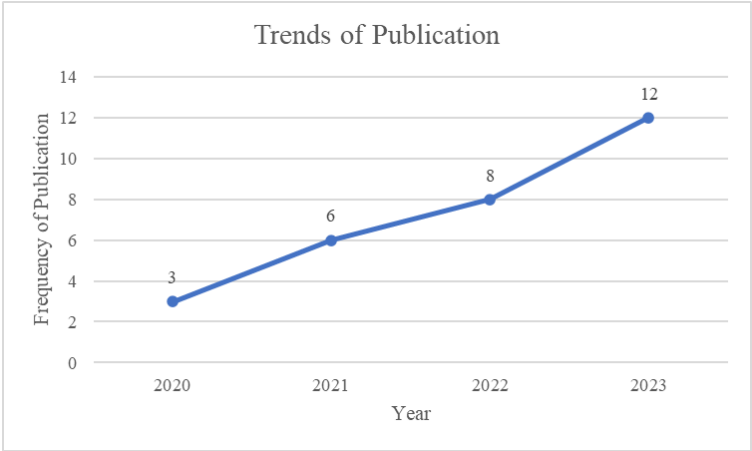

Figure 3. Trends of Publication

The distribution of results for publications about the implementation of organizational culture in startups is depicted in Figure 3 above. From 2020 to 2023, the figure displays the number of articles published about the use of artificial intelligence in human resource productivity on data gathered from 29 articles. According to Figure 3, there has been a rise in the quantity of papers published on every year since 2020. The Figure 3. Indicates that this topic has positive trends and unique to discuss in the future research.

There is one analysis in bibliometric analysis that is referred to as co-word analysis. Co-word analysis is a technique used to analyze the co-occurrences of keywords in a body of text, such as articles or research papers, to identify relationships and interactions between the topics researched and emerging research trends. In the context of an article discussing the implementation of artificial intelligence in human resource productivity, co-word analysis could be used to identify the high-frequency keywords related to artificial intelligence and human resource productivity. This research also aims to identify the most prevalent or dominant critical terms in order to offer insight into the main focus, themes, or issues that are significantly present in the text.

Table 3. Most Frequent Words

Words	Occurences
human resource management	7
artificial intelligence	4
productivity	4
artificial intelligence technologies	2
employee performance	2
human resources management	2
knowledge-sharing	2
knowledge management	2
managers	2
natural resources management	2

Table 3. presents an analysis of the most frequently occurring keywords in the utilized documents. “human resource management” is the most frequently occurring word with a frequency of 7. “artificial intelligence” and “productivity” appears 4 times. And also other words like “artificial intelligence technologies”, “employee performance”, “human resources management”, “knowledge-sharing”, “knowledge management” “managers” and “natural resources management” appears 2 times.

Figure 4. The Co-Occurrence Network Mapping

Furthermore, Figure 5. above show the co-occurrence network mapping of keywords. Figure 5. visually represents the relationship between frequently occurring keywords in the documents used for the research. The visualization highlights trending topics with large nodes, such as "human resource management," "artificial intelligence," and "productivity," indicating their significance as current research hotspots related to other topics. This visual representation underscores the close relationship between trending topics, frequently occurring words, and their co-occurrence, providing valuable insights into the main focus, themes, and issues present in the text. In addition, the mapping results show that the nodes in the co-occurrence network mapping are located close together, indicating that the entities represented by those nodes are closely related and have a higher probability of co-occurring in the text. Based on Figure 5., it can be observed that there are quite a few gaps in this topic that might potentially lead to more in-depth research later on.

The top five most productive and influential authors in this bibliometric analysis include CHOUDHURY P (2021) with total of 126 citations, MALIK N (2022) with total of 52 citations, as well as TONG S (2021) with total of 48 citations, RUEL H (2020) with total of 28 citations, and DING L (2021) with total of 23 citations. This analysis provides a holistic overview of the contributions and relative impact of each author in this bibliometric study.

Table 4. Total Global Citations

Author	Year	Total Global Citations
CHOUDHURY P	2021	126
MALIK N	2022	52
TONG S	2021	48
RUEL H	2020	28
DING L	2021	23
CARVALHO I	2023	22
NANKERVIS A	2021	20
MALIK A	2023	16
DEL GIUDICE M	2022	16
ABDULLAH HO	2022	14

Subsequently, analysis is conducted to see how the research output from various nations related to this topic is distributed. A detailed summary of the papers written by United Kingdom and Australia over the designated years is included in Table 5. United Kingdom contribution to research output was noteworthy, as it increased gradually from 1 article in 2020, 2 articles in 2022, 4 articles in 2023, and 9 articles in 2024. In the same way, Australia showed that it was a constant force in the field of research, turning out zero article in 2020, 5 in 2021, 7 in 2022, and 10 publications consistently in 2023. Australia has demonstrated a consistent dedication to researching the topic as seen by the degree of research effort that has been conducted there.

Table 5. Countries Production

Country	Year	Articles
UNITED KINGDOM	2020	1
UNITED KINGDOM	2021	2
UNITED KINGDOM	2022	4
UNITED KINGDOM	2023	9
AUSTRALIA	2020	0
AUSTRALIA	2021	5
AUSTRALIA	2022	7
AUSTRALIA	2023	10

The comparative study of United Kingdom and Australia highlights the contributions made by these two countries to the advancement of the discussion on artificial intelligence and human resource productivity on the distribution of research contributions worldwide.

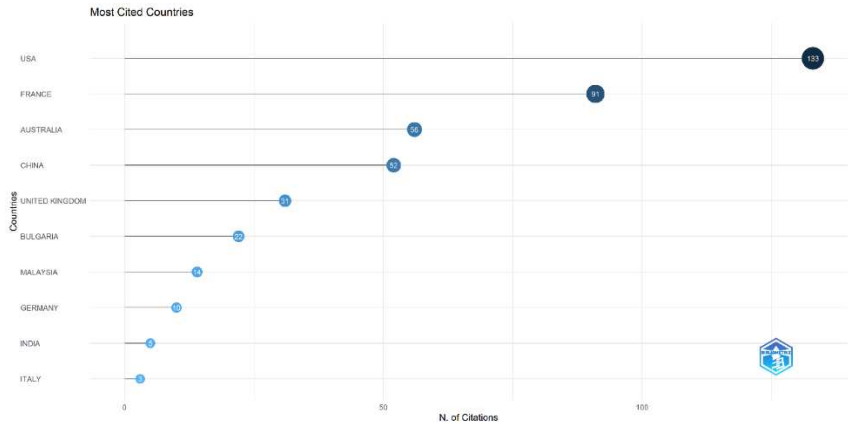

Figure 5. Most Cited Countries

On the other hand, Figure 4 provides information on the most affected nation (most cited countries). As seen in Figure 4, the United States ranks first with around 133 points, followed by France with roughly 91 points, Australia with roughly 56 points, China with roughly 52 points, and the United Kingdom with roughly 31 points. On the other hand, other nations are only recognized according to the terms 3–22.

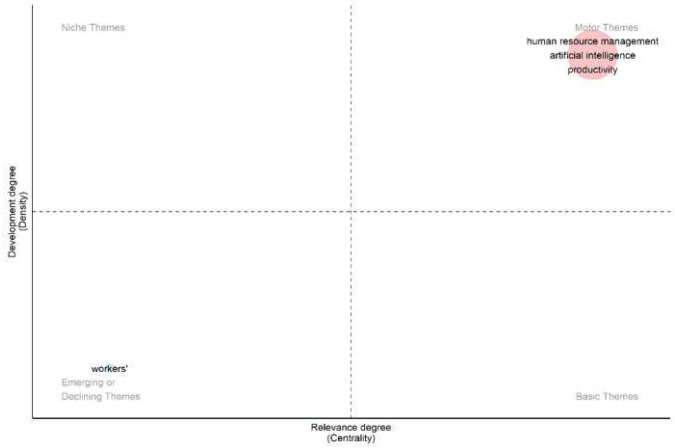

Figure 6. Thematic Map

The most important information in the bibliometric analysis is displayed in Figure 6., which is a theme map. Based on the thematic map, there are eight topic clusters based on sentiment and sentralization. Based on Figure 6, it can be observed that "productivity," "artificial intelligence," and "human resource management" are present in the upper right corner. This suggests that the four topics should be studied and learned more thoroughly in the next research. As a result, the centrality and density values that are evaluated are rather high. Figure 6. also provides information indicating that the "worker" is able to run a train that is halted due to a break in the lower left corner. In other words, Figure 6 illustrates that research on "human resource management," "artificial intelligence," and "productivity" is still in need of development in the future.

Findings

Table 6. Findings

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
1	Bhardwaj As; Veeramani d; Zhou S	Confidently extracting hierarchical taxonomy information from unstructured maintenance records of industrial equipment	2023	International Journal of Production Research	This research discusses the automation of industrial equipment maintenance which contains large amounts of data to increase productivity, because if done manually it can take time	The findings of this study are in the form of contributions in the form of confidence scores on automation methods proposed in this study. Only maintenance records that receive low confidence scores require manual review to confirm the results of automated methods, thus ensuring minimal use of human resources.
2	Malik A; Budhwar P; Mohan H; Srikanth Nr	Employee experience –the missing link for engaging employees: insights from an mne's ai-based hr ecosystem	2023	Human Resource Management	This research discusses the configuration of the digital HR ecosystem of AI-assisted human resource management (HRM) applications and HR platforms in multinational companies in India	The findings of this study show that AI-based applications in Human Resource Management can improve employee *experience* (EX) and *employee engagement* (EE). In addition, these findings also show an increase in employee productivity and the effectiveness of the HR function. It is also important to expand the role of HR managers and leaders who are designers of AI-based digital HR ecosystems on HR platforms, so they must also develop digital skills and data science
3	Agarwal S; Saxena Kk; Agrawal V; Dixit Jk; Prakashc; Buddhi D; Mohamme d Ka	Prioritizing the barriers of green smart manufacturing using ahp in implementing industry 4.0: a case from indian automotive industry	2022	TQM Journal	The main focus of this research is to identify barriers that arise in the implementation of GSM (Green Smart Manufacturing), such as the use of high costs of various technologies such as IoT (Internet of Things), Cyber Physical System (CPS), and semi-autonomous industrial systems as a tactic to increase productivity because it has a number of advantages over conventional manufacturing methods	The findings of this study show that financial constraints are the most important barriers followed by scarcity of dedicated suppliers, concerns over data security, lack of understanding of the surrounding environment, inadequate top management commitment, proper handling of data interfaces, lack of support from government, lack of employee training, concern for data security, lack of environmental knowledge, fear of change/resistance and technological constraints.

ISSN 3025-4256

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
4	Abdullah Ho; Atshan N; Al-Abrrow H; Alnoor A; Valeri M; Erkol Bayram G	Leadership styles and sustainable organizational energy in family business: modeling non-compensatory and nonlinear relationships	2022	Journal of Family Business Management	This study aims to understand the impact of leadership style on the energy sustainability of organizations, using the role of organizational ambidexterity mediators in family companies in Malaysia. To achieve this goal, two-stage Structural Equation Modeling (SEM) and Artificial Neural Networks (ANN) were adopted to define the leadership style of family companies in Malaysia.	The results showed that transformational, transactional and bureaucratic leadership styles affect the energy of sustainable organizations. In addition, organizational ambidexterity fully mediates the relationship between leadership style and sustainable organizational energy. On the other hand, the results of the non-compensation relationship showed that organizational ambidexterity was the factor that most determined the sustainability of the organization's energy, followed by bureaucratic leadership. As a result, the leadership style encourages human resources to carry out tasks with energy and vitality. In family businesses, bureaucratic leadership increases work engagement and positive motivation towards job challenges.
5	Olan F; Nyuur Rb; Arakpogun Eo; Elsahn Z	Ai: a knowledge sharing tool for improving employees' performance	2023	Journal of Decision Systems	This study aims to answer the problem of the lack of comprehensive exploration of potential opportunities arising from the development of AI (Artificial Intelligence) to improve workplace performance among employees, with two RQ (*Research Questions*) namely *Is there employee behavior that supports technology adoption?* and *How can effective knowledge sharing advance the application of AI technology?*	The results showed that the application of AI (Artificial Intelligence) substantially in any organization can improve employee performance if there is a supportive KS (*Knowledge Sharing*) environment. fsQCA helps data analytics techniques to develop associations of HRM's positive influence on the application of new practices for AI-enabled KS tools. The use of fsQCA in this paper addresses new aspects of AI's contribution to employee performance.
6	Nankervis A; Connell J; Cameron R; Montague A; Prikshat V	'Are we there yet?' australian hr professionals and the fourth industrial revolution	2021	Asia Pacific Journal of Human Resources	This research aims to explore the level of readiness of Australian Human Resources professionals for the impact of the 4th industrial revolution on organisations, workplaces, jobs and skills, as well as their own professional roles and competencies	The results showed that although most believe that the technologies of the 4th industrial revolution may be useful for their organizations and help improve performance, increase productivity and make work easier for employees. However, many do not intend to use it in the foreseeable future. Marginal support is also seen in relation to the potential contribution of industrial revolution 4 technologies to HR process improvement and overall HR effectiveness. Most respondents were also unimpressed with the Australian government's current lack of industrial revolution 4th industrial revolution strategies and policies

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
7	Lütje A; Wohlgemuth V	Requirements engineering for an industrial symbiosis tool for industrial parks covering system analysis, transformation simulation and goal setting	2020	Administrative Sciences	This study discusses the establishment of sophisticated circular/tiered systems, in which energy and material flows are extended for various uses in industrial systems to increase productivity and resource efficiency, while reducing environmental burdens	The results of this study successfully go beyond systems analysis and include the use of expert systems, system dynamics, and AI techniques
8	Vat S; Jia N; Luo X; Fang Z	The janus face of artificial intelligence feedback: deployment versus disclosure effects on employee performance	2021	Strategic Management Journal	This study aims to examine the two sides of the effects of applying AI (Artificial Intelligence), where on the one hand, strong AI data analysis improves the quality of feedback, which can increase employee productivity (application effect), but on the other hand, employees may have a negative perception of AI feedback after the information is disclosed to them (disclosure effect), thus harming their productivity.	The results of this study show strong evidence that both effects occur simultaneously, and that adverse disclosure effects can be mitigated by employee tenure at the company. This research also reminds companies of the negative impact of disclosing AI use to employees caused by employees' negative perceptions about implementing AI, so companies need to be more proactive in communicating with their employees about the goals, benefits, and scope of AI implementation to ease their concerns
9	Popescu R-I; Sabie Om; Trușcă Mi	The contribution of artificial intelligence to stimulating the innovation of educational services and university programs in public administration	2023	Transylvanian Review of Administrative Sciences	This research aims to provide a glimpse into the perceived potential impact of conversational artificial intelligence on public administration programs at universities and to reflect on the implications for university leadership and staff performance and student engagement, focusing on how AI tools will help university programs become more effective, and how technology will support human resource limitations in the sector	The findings of this study capture the technological and digital advances that will continue to shape the landscape of higher education and its curriculum, particularly in public administration programs. Therefore, leaders need to monitor how artificial intelligence, particularly conversational agents, affect the image of universities; student interest and retention in PA programs and other important partners; staff productivity, and how to be more proactive in starting pilot projects. In this case, the implementation of *chatbots* can be a competitive advantage in a market where modern technology is very "heavy" and makes a difference.

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
10	Ruel H; Njoku E	Ai redefining the hospitality industry	2020	Journal of Tourism Futures	This research aims to explore how AI technology has redefined the hospitality industry. It develops a theoretical framework for evaluating its impact on employee engagement, retention and productivity levels, stemming from its potential implications for service quality and customer satisfaction.	This research shows that the role service profit chain is an analytical tool that has strong implications for investment analysis and the application of new technologies in the hospitality and tourism business. It proposes how managers can evaluate how the expected role of technological innovation relates to service quality and customer satisfaction through its impact on employee-related outcomes (such as employee engagement, retention and productivity), and assess the appropriate impact on profitability and growth, in the context of their unique internal environment and position in the market.
11	Samarghandi H; Askarany D; Dehkordi Bb	A hybrid method to predict human action actors in accounting information system	2023	Journal of Risk and Financial Management	This research focuses on the Accounting Information System (AIS) and predicts how the actions of humans who operate it. Are humans still needed on AIS or not? Does AIS still have dependence on humans?	This research shows that the Accounting Information System (AIS) still has a very high dependence on humans in order to create a coherent network to improve AIS management strategies. A balance between humans and other parties is needed so that AIS can work as well as possible .> Relation to AI: This research shows that AI in the form of an Accounting Information System (AIS) is needed in the accounting world.> Relation to Productivity: Accounting Information System (AIS) can help human productivity in carrying out accounting activities in daily activities
12	Ardichvili A	The impact of artificial intelligence on expertise development: implications for hrd	2022	Advances In Developing Human Resources		
13	Al-Ababneh Ha; Borisova V; Zakharzhevska A; Tkachenko P;	Performance of artificial intelligence technologies in banking institutions	2023	Wseas Transactions on Business and Economics	This research focuses on the ability and effectiveness of a technology solution based / in the form of AI in bank institutions. This study analyzes how the technology is implemented	This research shows that the use of artificial intelligence by market intermediaries and asset management companies can generate significant benefits and improve performance, as evidenced by savings in the cost of legal entity and individual services. In addition, the benefits also include increased investment and speed of implementation. At the same time, the use of artificial intelligence technology can create or increase certain risks that have the potential to affect the efficiency of financial markets and cause

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
	Andrusiak N					unpredictable losses for consumers of financial services. Special emphasis is placed on cybersecurity to prevent the use of artificial intelligence to commit illegal acts, fraud, and money laundering.> Relation to AI: This research shows that AI technology is already able to be implemented in matters related to finance> Relation to Productivity: This research shows that AI can generate significant benefits and improve performance
14	Goodarziz ad P; Mohamma di Golafshani E; Arashpour M	Predicting the construction labour productivity using artificial neural network and grasshopper optimisation algorithm	2023	International Journal of Construction Management	The study aimed to measure the CLP of concrete pouring operations associated with the construction of commercial office complex projects in Iran. 19 important factors that have a significant impact on CLP are identified and listed in five groups, including individual, managerial, economic, technical, and environmental aspects. A hybrid model based on artificial neural networks (ANN) and Grasshopper optimization algorithms (GOA) was developed to determine the most influential factors and improve the precision of the CLP model. CLP-related data from 24 commercial office complex projects under construction in Iran were collected.	This study shows that the most influential factors on CLP are work experience and work skills and motivation of the individual group, salary size of the economic group, workplace accidents of the technical group, good supervision of the management group, and weather conditions of the group of workers. environmental groups. These findings could facilitate the development of more efficient project schedules, improve CLP, and reduce project costs.> Related to AI: This research shows that AI in the form of Neural Networks can predict events that may occur in construction activities> Relation to Productivity: This research shows that AI in the form of CLP can provide more efficient project schedules and reduce project costs.

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
15	Carvalho I; Ivanov S	Chatgpt for tourism: applications, benefits and risks	2023	Tourism Review	The rapid growth of artificial intelligence is disrupting various industries, including the tourism sector. This study aims to outline the application, benefits, and risks of ChatGPT and the big language model in general to tourism. It also aims to set a research agenda to investigate the implications of these models in tourism. ChatGPT and other similar models are likely to have a major impact on some tourism processes. Although it is expected that there will be negative consequences on human resources, this technology largely improves the performance of tourism employees.	This research provides insight to tourism industry stakeholders on how ChatGPT can affect the sector. This encourages informed decision-making and highlights not only the benefits, but also the limitations of the technology and the risks it poses. The use of ChatGPT in the tourism industry has the potential to increase efficiency in several business processes and contribute to the evolution of technology-based tourism services. However, there are also risks associated with the use of this technology, such as over-reliance on technological outcomes, potential replacement of human workers, cybersecurity, and loss of connection between people. While ChatGPT cannot currently replace human expertise, its potential impact could lead to fewer employees being required to do the same work.> Related to AI: This research shows that AI in the form of Chatbots with the name "ChatGPT" can be implemented in the tourism sector.> Its Relation to Productivity: This study shows two sides related to productivity. On the one hand, ChatGPT can provide convenience for consumers, but on the other hand, ChatGPT can result in human dependence on AI in doing their choices and potentially replace the tasks of humans themselves.
16	Gethe Rk	Extrapolation of talent acquisition in ai aided professional environment	2022	International Journal of Business Innovation And Research	AI works like the human brain and helps automate the hiring system. AI is man-made software to make work easy and continuous without any interruption. AI replaces the repetitive, time-consuming work of sourcing and screening candidates, and improves candidate experience and company productivity by lowering hiring costs. The main objective of this research is to study the impact of AI on the recruitment and talent acquisition process. The study highlights some of the AI techniques companies use for hiring. This research is based on the use of secondary sources of information.	This research shows that AI can be used in talent search calculations in HR search in companies. In HR departments, AI is used in recruitment that intelligently activates recruiters and helps screen candidates' resumes; analyze the candidate's speech patterns using natural language processing tools; conduct several skill tests in addition to video interviews; Conduct several advanced competency tests and neuroscience games to demonstrate the candidate's emotional and cognitive abilities.> Its relation to AI: This research shows that AI is implemented in the world of recruitment (HR) within companies (or in the professional sphere)> Its Relation to Productivity: This research shows that AI can help in finding and screening candidates in

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
						experience as well as what a company needs. AI can help shorten time and avoid repeated searches many times
17	Sadler-Smith E; Akstinaite V; Akinci C	Identifying the linguistic markers of intuition in human resource (hr) practice	2022	Human Resource Management Journal	The study used computerized text analysis (CTAs) to identify linguistic markers of intuition based on HR practitioners' descriptions of what happens when they 'intuite'. This research outlines the implications of these findings on improving HR decision-making processes and practices and their potential applications in data analytics, AI, and machine learning in the HR field.	Intuition is a judgment that arises automatically and unconsciously. Recognizing when intuitive assessments are used and whether they are appropriate is an important skill for HR practitioners and managers involved in human resource (HR) processes. Because 'intuition' is involuntary and unconscious it is difficult to access, monitor and control, yet people can access and articulate their intuitive judgments through spoken words. Identifying 'linguistic markers' of intuition in oral/written communication can help identify when/how intuition is used in HR and improve HR practices in areas such as selection (e.g., eliminating implicit/unconscious biases) and creativity (e.g., as a source of insight).> Its Relation to AI: > Its Relation to Productivity:
18	Pérez-Campdesuner R; De Miguel-Guzmán M; García-Vidal G; Sánchez-Rodríguez A; Martínez-Vivar R	Incidences of variables in labor absenteeism: an analysis of neural networks	2020	Management and Production Engineering Review	This study allows to characterize the influence of the different variables studied, in addition to favoring the performance of ANOVA analysis that allows to corroborate and clarify the results of neural network analysis. The absence of labor is a factor that affects the good performance of organizations in any part of the world, from the instability caused in the functioning of the system. This can be seen from its influence on quality, productivity, reaction time, and other aspects. The direct causes of the occurrence of the disease are generally known and with more clearly the location of the disease, without distinguishing the possibility of classification. However, behind these or other causes can be found other possible factors of occurrence,	The study showed that although disease is a major cause of absenteeism, their behavior is not completely random but is determined by age. While another variable that is as important as sex, namely the controlled variable also indicates the incidence of absenteeism. It seems impossible from the government's point of view to devise actions that counter the influence of these variables: health conditions, sex and age without implementing discriminatory policies or efforts against gender equality, but this is not possible. Not everything is real. Although it is difficult to mitigate the impact of this absence, if you can design actions consisting of the establishment of redundancy of functions, the polyvalence of staff to fulfill functions, among other things, it is possible to reduce the impact of absenteeism, avoid having an impact on the continuity and quality of production or service and gain stability in the operation of the system.

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
					such as age or gender. This study seeks to explore, through the application of neural networks, possible relationships between different variables and their occurrence in absenteeism rates. To this end, a neural network model is built from the use of a population of more than 12, 000 employees, representing various classification categories.	
19	Malik N; Tripathi Sn; Kar Ak; Gupta S	Impact of artificial intelligence on employees working in industry 4.0 led organizations	2022	International Journal of Manpower	This research attempts to develop a practical understanding of employees' positive and negative experiences resulting from the adoption of AI and the creation of technostress. This reveals challenges related to human resource development with the start of Industry 4.0.	This research shows the prominent adverse effects of implementing AI, namely information security, data privacy, drastic changes due to digital transformation, and job risks and insecurities that arise in the psyche of employees. This is followed by a hierarchy of factors that includes positive impacts, namely flexibility and autonomy related to work, creativity and innovation, and improvement in overall work performance. Other factors contributing to technostress (among employees): excessive workload, insecurity and job complexity have been identified. The emergence of the knowledge economy and technological interventions are changing the profile of existing jobs, so different technological skills and competencies are required. Therefore, organizations need to implement strategic workforce development measures that involve upskilling and knowledge management. Instilling the necessary skills requires a well-designed training program using specialized tools and virtual reality (VR). In addition, employees need to be supported in developing their socio-technical relationships, to manage both positive and negative outcomes.

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
20	Walkowiak E	Neurodiversity of the workforce and digital transformation: the case of inclusion of autistic workers at the workplace	2021	Technological Forecasting and Social Change	This study analyzed the productive complementarity between digital transformation, autistic worker skills, and neural diversity management. Based on qualitative approaches and interviews with leaders or experts of neurodiversity initiatives, we provide a theoretical framework for analyzing the relationship between neurodiversity in the world of work and digital transformation at the individual, organizational, and industry levels.	This research identifies several ways that digital transformation can provide a favorable context for autistic workers. This includes creating new opportunities, assessing their performative abilities, cognitive differences and creativity, eliminating stereotypes and biases during recruitment and improving the management of psycho-social risk. Neural diversity management also contributes to digital transformation by closing digital skills shortages, shaping artificial intelligence algorithms, and providing competitive advantages for innovation. Most importantly, neural diversity management provides an effective inclusion model that can mitigate the development of disparities associated with digital transformation.
21	Ključnikov A; Popkova Eg; Sergi Bs	Global labour markets and workplaces in the age of intelligent machines	2023	Journal Of Innovation and Knowledge	This research expands the concept of intelligent machines as robot-based labor automation systems and artificial intelligence. In addition, the study aims to develop recommendations for improving productivity by managing competition and marketing in today's global labor market.	This research shows that labor productivity is defined by the availability of human resources and not through automation. In other words, AI does not affect productivity to workers (human resources in the organization).
22	Choi Y; Choi Jw	The prediction of workplace turnover using machine learning technique	2021	International Journal of Business Analytics	Research develops reliable predictive models to predict employee turnover in the workplace using machine learning techniques and natural language processing	The implication of this research is that predictive models can assist companies in managing employee turnover and increasing productivity. In relation to AI, this research uses machine learning techniques to develop predictive models of employee turnover in the workplace. In the context of productivity, this study shows that predictive models can help companies manage employee turnover and increase productivity.

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
23	Malik A; Nguyen T; Budhwar P	Towards a conceptual model of ai-mediated knowledge sharing exchange of hrm practices: antecedents and consequences	2022	Ieee Transactions on Engineering Management	This research explores the factors influencing AI-based knowledge exchange and their impact on productivity	The results showed that factors such as trust level, engagement, and information quality influence AI-based knowledge exchange and productivity. The implication of this research is that conceptual models can assist companies in managing human resources and increasing productivity through AI-based knowledge exchange.
24	Ding L	Employees' challenge-hindrance appraisals toward stara awareness and competitive productivity: a micro-level case	2021	International Journal of Contemporary Hospitality Management	This study discusses the effect of employee challenge assessment on awareness of intelligent technology, artificial intelligence, robotics, and algorithms (STARA) on individual competitive productivity (ICP)	The results showed that the assessment of employee challenges to STARA awareness had a positive effect on ICP. This relationship is positively mediated by employee work involvement. In other words, the productivity of individual employees is also influenced by awareness of the presence of smart technology (including AI). When individuals experience challenges in accepting AI, job insecurity rises to higher levels of productivity.
25	Paesano A	Artificial intelligence and creative activities inside organizational behavior	2023	International Journal of Organizational Analysis	The study aimed to analyze whether AI is currently being used to replace humans in "creative" activities and how AI can help in improving productivity	The results showed that the use of AI in creative activities is still in its infancy and has not completely replaced the role of humans in creative activities. The implication of this research is that AI can help in increasing productivity through creative activities, but it still requires further development. In relation to AI and productivity, this research shows that AI can help in increasing productivity through creative activities, but still requires further development.
26	Del Giudice M; Scuotto V; Ballestra Lv; Pironti M	Humanoid robot adoption and labour productivity: a perspective on ambidextrous product innovation routines	2022	International Journal of Human Resource Management	This research explores the role of product innovation in increasing workforce productivity and seeks a better balance between exploratory and exploitative routines in organizations	The results showed that the adoption of humanoid robots does not affect labor productivity directly but affects labor productivity indirectly through the generation of new and slightly modified or unchanged innovative routines. Positive and significant labor productivity is associated with the production of radically new and slightly modified or unchanged innovative routines

NO	AUTHOR	TITLE	YEAR	JOURNAL	MAIN DISCUSSION	RESULT
27	Choudhury P; Foroughi C; Larson B	Work-from-anywhere: the productivity effects of geographic flexibility	2021	Strategic Management Journal	This research aims to understand how geographic flexibility affects employee productivity and how companies can leverage geographic flexibility to increase productivity	The researchers also reported results related to a possible mechanism: the observed increase in effort as workers switched from the WFH program to the WFA program. The implication of this study is that geographic flexibility can assist companies in increasing employee productivity and utilizing geographic flexibility can be an advantage for companies in competition in the global labor market. In relation to AI, this research is not directly related to AI. However, this research shows how companies can take advantage of geographic flexibility to increase employee productivity
28	Huang X; Yang F; Zheng J; Feng C; Zhang L	Personalized human resource management via hr analytics and artificial intelligence: theory and implications	2023	Asia Pacific Management Review	Research explores the use of AI in human resource management (HRM)	The results showed that the use of AI in HRM can help companies in increasing employee productivity through HRM personalization. The implication of this research is that the use of AI in HRM can help companies in increasing employee productivity through HRM personalization. In relation to AI and productivity, this study shows that the use of AI in HRM can help companies in increasing employee productivity through HRM personalization.
29	Duan P; Zhou J; Tao S	Risk events recognition using smartphone and machine learning in construction workers' material handling tasks	2023	Engineering, Construction and Architectural Management	The research aims to develop automated and non-invasive risk recognition methods for construction workers in material handling tasks using smartphones and machine learning.	The results showed that risk recognition using this method can assist managers in improving the health and productivity of construction workers. In relation to AI and productivity, the study shows that the use of machine learning and smartphones can assist managers in improving the health and productivity of construction workers through automated and non-invasive risk recognition.

Using the content analysis method based on table, a qualitative analysis will be carried out to see how the implementation of AI can encourage Human Resource productivity, which is seen in terms of pros and cons.

Implementation of AI in Organizations

The implementation of AI in organizations can be adapted in various sectors. On research conducted by Popescu et.al (2023), AI in the form of chatbots can be implemented at the university scope and can be a competitive advantage where the implementation of modern technology in the entire organizational system is not something that can be done instantly in today's digital era. In different sectors, research by Ruel & Njoku (2021), showing that AI has redefined the hospitality industry. Managers can play a role in evaluating how the expected role of technological innovation relates to service quality and customer satisfaction through its impact on employee-related outcomes (such as employee engagement, retention and productivity), and assess the appropriate impact on profitability and growth, in the context of their unique internal environment and position in the market. In more detail, the implementation of AI in organizations is carried out to map complex work patterns and perform routine work that needs to be developed in the form of automation to increase the effectiveness of human resource allocation. As in research conducted by Al Ababneh et.al (2022), AI also plays a role in the scope of work of banking institutions which shows that AI can be implemented in work related to finance, in the form of AIS (Accounting Information System). In addition, in relation to work related to human resource management, AI can also be implemented by organizations on candidate selection (recruitment). In this case, AI implementations are used in recruitment that intelligently aid recruiters' work and help screen candidates' resumes; analyze the candidate's speech patterns using natural language processing tools; conduct several skill tests in addition to video interviews; Conduct several advanced competency tests and neuroscience games to demonstrate the candidate's emotional and cognitive abilities.

Although AI can support general work in various sectors of organizations, there are risks of using artificial intelligence technology which can create or increase certain risks, such as potential risks to the efficiency of financial markets and cause unpredictable losses for consumers of financial services. Special emphasis needs to be placed on cybersecurity to prevent the use of artificial intelligence to commit illegal acts, fraud, and money laundering. This is in line with research conducted by N. Malik et.al (2022), which shows that the implementation of AI in organizations can not always be an advantage in the form of efficiency in the company, but can also have a prominent adverse impact, namely information security, data privacy, drastic changes due to digital transformation, and risks and job insecurity that arise in the psyche of employees. Nankervis et.al (2019) in their research related to exploring the level of readiness of Australian Human Resources professionals to the impact of the 4th industrial revolution on organizations, workplaces, jobs and skills, also mentioned that in the implementation of AI in organizations, many employees are not interested in adapting their work with the help of AI. In addition, financial constraints are also obstacles for organizations to implement AI into their work systems, as in research conducted by Agarwal et.al (2022), who mentioned that financial barriers are a top priority in implementing AI in organizations followed by scarcity of dedicated suppliers, concerns over data security, lack of understanding of the surrounding environment, inadequate top management commitment, proper handling of data interfaces, lack of support from government, lack of employee training, concern for data security, lack of environmental knowledge, fear of change/resistance and technological constraints. In this regard, companies need to be more proactive in communicating with their

ISSN 3025-4256

employees regarding the goals, benefits, and scope of implementing AI to assuage their concerns.

The Role of AI in Driving Human Resource Productivity

As explained in the previous section that the implementation of AI can be carried out in various sectors of the organization, to various kinds of work in it. With the automation of some parts of the work adapted to AI, it can help organizations map their human resources to other jobs. This in addition to improving the work efficiency of human resources can also increase their work productivity because the burden of work carried out routinely and repeatedly can be replaced through AI adaptation. Del Giudice et.al (2022), in his research related to the adaptation of humanoid robots mentioned that in the adoption of humanoid robots does not affect labor productivity directly but affects labor productivity indirectly through the generation of new innovative routines and slightly modified or unchanged. On the other hand, research conducted by Bhardwaj et.al (2023) shows its contribution in displaying a confidence score on automation methods, where in the context of industrial equipment work scope, only maintenance records that receive low confidence scores require manual review to confirm the results of automated methods, thus ensuring minimal use of human resources.

Findings of studies conducted by Olan et.al (2023) shows that the application of AI (Artificial Intelligence) substantially in any organization can improve employee performance if there is a supportive KS (Knowledge Sharing) environment. AI-based applications (Artificial Intelligence) in Human Resource Management can provide benefits in the form of increasing employee experience (EX) and employee engagement (EE) which leads to increased employee productivity and the effectiveness of HR functions N Malik et. Al (2022). In addition, the implementation of AI to increase productivity can also be done through adapting worker flexibility by switching the WFH (Work From Home) work model to WFA (Work From Anywhere). This is evidenced in research conducted by Choudhury & Cirrus Foroughi (2021) who points out that geographic flexibility can help companies in increasing employee productivity and utilizing geographic flexibility can be an advantage for companies in competition in the global labor market. This work flexibility can be achieved optimally if the knowledge of human resources in the organization about AI technology is sufficient, so that communication and cooperation can be achieved through virtual technology without reducing their productivity. This is in line with research conducted by Ding (2021) which states that individual employee productivity is also influenced by awareness of the presence of smart technology (including AI).

Managerial Implications

Based on the findings in this study, some suggestions that can be implemented for managerial parties are that organizations need to implement strategic workforce development measures that involve improving skills and knowledge management. Instilling the necessary skills requires a well-designed training program using specialized tools and virtual reality (VR). In addition, employees need to be supported in developing their socio-technical relationships, to manage both positive and negative outcomes. In addition, companies must also be wise in ensuring that the work to be adapted with the help of AI is appropriate, because the implementation of AI has not yet reached the point where all human work can be assisted or replaced by AI. For example, the use of AI in creative activities is still in its infancy and has not completely replaced the role of humans in creative activities. Thus, it is important to consider expanding the role of HR managers and leaders who are designers of AI-based digital HR ecosystems on HR platforms, so they must also develop digital skills and data science.

Conclusion

This research mainly talks about how the implication of AI have been widely implemented for managerial parties that organizations need to implement strategic workforce development measures that involve improving skills and knowledge management. Instilling the necessary skills requires a well-designed training program using specialized tools and virtual reality (VR). It has also been implied that Artificial Intelligence can have significant effect on productivity in some case, but it must also be acknowledged that companies must also be wise in ensuring that the work to be adapted with the help of AI is appropriate, because the implementation of AI has not yet reached the point where all human work can be assisted or replaced by AI. For example, the use of AI in creative activities is still in its infancy and has not completely replaced the role of humans in creative activities.

Although AI can support general work in various sectors of organizations, there are risks of using artificial intelligence technology which can create or increase certain risks, such as potential risks to the efficiency of financial markets and cause unpredictable losses for consumers of financial services. Special emphasis needs to be placed on cybersecurity to prevent the use of artificial intelligence to commit illegal acts, fraud, and money laundering.

Acknowledgements

The author would like to express gratitude to all parties who have assisted in this research. Thanks to classmates in the Human Resource Management and Organization course for their suggestions and input.

References

Abdullah, H. O., Atshan, N., Al-Abrrow, H., Alnoor, A., Valeri, M., & Erkol Bayram, G. (2023). Leadership styles and sustainable organizational energy in family business: modeling non-compensatory and nonlinear relationships. *Journal of Family Business Management*, *13*(4), 1104–1131. https://doi.org/10.1108/JFBM-09-2022-0113

Al-Ababneh, H., Borisova, V., Zakharzhevska, A., Tkachenko, P., & Andrusiak, N. (2022). Performance of Artificial Intelligence Technologies in Banking Institutions. *WSEAS TRANSACTIONS ON BUSINESS AND ECONOMICS*, *20*, 307–317. https://doi.org/10.37394/23207.2023.20.29

Aliyah, U., & Mulawarman, M. (2020). Kajian Systematic Literature Review (SLR) Untuk Mengidentifikasi Dampak Terorisme, Layanan Konseling dan Terapi Trauma Pada Anak-Anak. *ISLAMIC COUNSELING Jurnal Bimbingan Konseling Islam*, *4*(2), 209. https://doi.org/10.29240/jbk.v4i2.1759

Agarwal, S., Saxena, K. K., Agrawal, V., Dixit, J. K., Prakash, C., Buddhi, D., & Mohammed, K. A. (2022). Prioritizing the barriers of green smart manufacturing using AHP in implementing Industry 4.0: a case from Indian automotive industry. *The TQM Journal*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/TQM-07-2022-0229

Ardichvili, A. (2022). The Impact of Artificial Intelligence on Expertise Development: Implications for HRD. *Advances in Developing Human Resources*, *24*(2), 78–98. https://doi.org/10.1177/15234223221077304

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975. https://doi.org/10.1016/J.JOI.2017.08.007

Bhardwaj, A. S., Veeramani, D., & Zhou, S. (2023). Confidently extracting hierarchical taxonomy information from unstructured maintenance records of industrial equipment. *International Journal of Production Research*, *61*(23), 8159–8178. https://doi.org/10.1080/00207543.2023.2167013

Brynjolfsson, E., Rock, D., & Syverso, C. (2019). Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics. In The Economics of Artificial Intelligence: An Agenda (Issue May). https://www.nber.org/books-and-chapters/economics-artificial-intelligence-agenda/artificial-intelligence-and-modern-productivity-paradox-clash-expectations-and-statistics

Carvalho, I., & Ivanov, S. (2023). ChatGPT for tourism: applications, benefits and risks. *Tourism Review*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/TR-02-2023-0088

Chakraborty, S.C., Bhatt, V., Chakravorty, T. (2019). Impact of IoT adoption on agility and flexibility of healthcare organization, Int. J. Innov. Technol. Explor. Eng. 8 (11). 2673–2681.

Choi, Y., & Choi, J. W. (2021). The Prediction of Workplace Turnover Using Machine Learning Technique. *International Journal of Business Analytics*, *8*(4), 10.

Choudhury, P. (Raj), & Cirrus Foroughi, B. L. (2021). Work-from-anywhere: The productivity effects of geographic flexibility. *Strategic Management Journal Management*, *42*(4), 655–683. https://doi.org/10.14421/pjk.v11i2.1328

Czarnitzki, D., Fernández, G. P., & Rammer, C. (2023). Artificial intelligence and firm-level productivity. Journal of Economic Behavior & Organization, 211, 188–205. https://doi.org/https://doi.org/10.1016/j.jebo.2023.05.008

Damioli, G., Van Roy, V., & Vertesy, D. (2021). The impact of artificial intelligence on labor productivity. Eurasian Business Review, 11(1), 1–25. https://doi.org/10.1007/s40821-020-00172-8

Del Giudice, M., Scuotto, V., Ballestra, L. V., & Pironti, M. (2022). Humanoid robot adoption and labour productivity: a perspective on ambidextrous product innovation routines. The International Journal of Human Resource Management, 33(6), 1098–1124. https://doi.org/10.1080/09585192.2021.1897643

De Solla Price, D. J. (1965). Networks of scientific papers. *Science*, *149*(3683), 510. https://doi.org/10.1126/SCIENCE.149.3683.510/ASSET/9FDF0602-F38E-4531-A077-709136377FFA/ASSETS/SCIENCE.149.3683.510.FP.PNG

Ding, L. (2021). Employees' challenge-hindrance appraisals toward STARA awareness and competitive productivity: a micro-level case. *International Journal of Contemporary Hospitality Management*, *33*(9), 2950–2969. https://doi.org/10.1108/IJCHM-09-2020-1038

Duan, P., Zhou, J., & Tao, S. (2023). Risk events recognition using smartphone and machine learning in construction workers' material handling tasks. *Engineering, Construction and Architectural Management*, *30*(8), 3562–3582. https://doi.org/10.1108/ECAM-10-2021-0937

Goodarzizad, P., Mohammadi Golafshani, E., & Arashpour, M. (2023). Predicting the construction labour productivity using artificial neural network and grasshopper optimisation algorithm. *International Journal of Construction Management*, *23*(5), 763–779. https://doi.org/10.1080/15623599.2021.1927363

Gupta, P., Fernandes, S.F., Jain, M. (2018). Automation in recruitment: a new frontier, J. Inf. Technol. Teach. Cases 8 (2) 118–125.

Huang, X., Yang, F., Zheng, J., Feng, C., & Zhang, L. (2023). Personalized human resource management via HR analytics and artificial intelligence: Theory and implications. *Asia Pacific Management Review*, *28*(4), 598–610. https://doi.org/https://doi.org/10.1016/j.apmrv.2023.04.004

Ključnikov, A., Popkova, E. G., & Sergi, B. S. (2023). Global labour markets and workplaces in the age of intelligent machines. *Journal of Innovation & Knowledge*, *8*(4), 100407. https://doi.org/https://doi.org/10.1016/j.jik.2023.100407

Koch, M. J., & Mcgrath, R. G. (1996). IMPROVING LABOR PRODUCTIVITY: HUMAN RESOURCE MANAGEMENT POLICIES DO MAlTER. Strategic Management Journal

Management, 17(September 1995), 335–354.
Lütje, A., & Wohlgemuth, V. (2020). Requirements engineering for an industrial symbiosis tool for industrial parks covering system analysis, transformation simulation and goal setting. *Administrative Sciences*, *10*(1). https://doi.org/10.3390/admsci10010010
Malik, A, Nguyen, T.-M., & Budhwar, P. (2022). Towards a Conceptual Model of AI-Mediated Knowledge Sharing Exchange of HRM Practices: Antecedents and Consequences. *IEEE Transactions on Engineering Management*, 1–30. https://doi.org/10.1109/TEM.2022.3163117
Malik, Ashish, Budhwar, P., Mohan, H., & N. R., S. (2023). Employee experience –the missing link for engaging employees: Insights from an MNE's AI-based HR ecosystem. *Human Resource Management*, *62*(1), 97–115. https://doi.org/https://doi.org/10.1002/hrm.22133
Malik, N., Tripathi, S. N., Kar, A. K., & Gupta, S. (2022). Impact of artificial intelligence on employees working in industry 4.0 led organizations. *International Journal of Manpower*, *43*(2), 334–354. https://doi.org/10.1108/IJM-03-2021-0173
Nankervis, A., Connell, J., Cameron, R., Montague, A., & Prikshat, V. (2019). 'Are we there yet?' Australian HR professionals and the Fourth Industrial Revolution. *Asia Pacific Journal of Human Resources*, *59*. https://doi.org/10.1111/1744-7941.12245
NazrI et al. (2019). Predicting academician publication performance using decision tree, Int. J. Recent Technol. Eng. 8 (2) 180–185.
Olan, F., Nyuur, R. B., Arakpogun, E. O., & Elsahn, Z. (n.d.). AI: A knowledge sharing tool for improving employees' performance. *Journal of Decision Systems*, 1–21. https://doi.org/10.1080/12460125.2023.2263687
Paesano, A. (2023). Artificial intelligence and creative activities inside organizational behavior. *International Journal of Organizational Analysis*, *31*(5), 1694–1723. https://doi.org/10.1108/IJOA-09-2020-2421
Pérez-Campdesuner, R., De Miguel-Guzmán, M., García-Vidal, G., Sánchez-Rodríguez, A., & Martínez-Vivar, R. (2020). Incidences of variables in labor absenteeism: An analysis of neural networks. *Management and Production Engineering Review*, *11*(1), 3–12. https://doi.org/10.24425/mper.2020.132938
Popescu, R.-I., Oana, S., & TRUȘCĂ, M. (2023). The Contribution of Artificial Intelligence to Stimulating the Innovation of Educational Services and University Programs in Public Administration. *Transylvanian Review of Administrative Sciences*, 85–108. https://doi.org/10.24193/tras.70E.5
Rajashree Karbhari Gethe. (2022). Extrapolation of talent acquisition in AI aided professional environment. *International Journal of Business Innovation and Research*.
Ruel, H., & Njoku, E. (2021). AI redefining the hospitality industry. *Journal of Tourism Futures*, *7*(1), 53–66. https://doi.org/10.1108/JTF-03-2020-0032
Sadler-Smith, E., Akstinaite, V., & Akinci, C. (2022). Identifying the linguistic markers of intuition in human resource (HR) practice. *Human Resource Management Journal*, *32*(3).
Samarghandi, H., Askarany, D., & Dehkordi, B. B. (2023). A Hybrid Method to Predict Human Action Actors in Accounting Information System. *Journal of Risk and Financial Management*, *16*(1). https://doi.org/10.3390/jrfm16010037
Sungkono, S. W., Rahmawati, F. N., & Mardhiyyah, I. (2023). Analisis pengaruh persepsi pemanfaatan teknologi artficial intellegent dalam ketenagakerjaan. 243–247.
Trenker, J., Satkriti, S., Tavva, N., Owens, T., Tas, O., & Blumtritt, C. (2023). *Unleashing Artificial Intelligence's true potential: How generative AI could empower innovation, redefine productivity, and transform the workforce.* (Issue July). www.statista.com
Umasankar et al. (2023). A study of Artificial Intelligence impacts on Human Resource Digitalization in Industry 4.0, Decision Analytics Journal, Volume 7, https://doi.org/10.1016/j.dajour.2023.100249.
Tong, S., Jia, N., Luo, X., & Fang, Z. (2021). The Janus face of artificial intelligence feedback:

Deployment versus disclosure effects on employee performance. *Strategic Management Journal*, *42*(9), 1600–1631. https://doi.org/https://doi.org/10.1002/smj.3322

Votto, A. M., Valecha, R., Najafirad, P., & Rao, H. R. (2021). Artificial Intelligence in Tactical Human Resource Management: A Systematic Literature Review. *International Journal of Information Management Data Insights*, *1*(2), 100047. https://doi.org/10.1016/J.JJIMEI.2021.100047

Walkowiak, E. (2021). Neurodiversity of the workforce and digital transformation: The case of inclusion of autistic workers at the workplace. *Technological Forecasting and Social Change*, *168*, 120739. https://doi.org/https://doi.org/10.1016/j.techfore.2021.120739

Zurnali, C., & Wahjono. (2022). Artificial Intelligence Dalam Rekrutmen. JURNAL INFOKAM, XVIII(2).