Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

HR Management Transformation in Indonesia MSMEs: The Role of AI in SOP Making and Recruitment

Astri Wulandari[1], M. Attila Ibest Moeslem J. Diko[2]

Abstract

This study explores the influence of Artificial Intelligence (AI) on Human Resource management practices in Micro, Small, and Medium Enterprises (MSMEs) in Indonesia, with a special focus on the efficiency of creating Standard Operating Procedures (SOPs) and recruitment processes. Using a quantitative approach and Structural Equation Modeling (SEM) through SMART PLS, data was collected from 307 MSMEs that have adopted AI. The results of the study show that AI significantly improves SOP creation and recruitment efficiency, which has a positive impact on the overall performance of MSMEs. However, challenges such as resource limitations and potential bias in AI systems also need to be considered. These findings suggest that the adoption of AI in MSMEs can drive substantial operational improvements. This research provides valuable insights for MSMEs looking to leverage AI to gain a competitive advantage and emphasizes the need for AI solutions tailored to the needs of this sector.

Keywords: *Artificial Intelligence, SOP Making, Recruitment, Structural Equation Modeling (SEM), Quantitative, MSME Performance.*

Introduction

The quick advancement of innovation has altogether changed various business processes, especially in micro, small and medium enterprises (MSMEs) in Indonesia. Among these technological advancements, artificial intelligence (AI) has become an important tool for improving management functions, such as the creation of standard operating procedures (SOPs) and recruitment processes. The application of AI in this field is not just a trend but a fundamental change towards efficiency and effectiveness in business operations. AI's ability to simplify operations, automate routine tasks, and improve decision-making is increasingly recognized as a key factor in improving organizational performance. The strategic application of AI in human resource management practices is seen as a potential driver for achieving competitive advantage as it meets the need for a more adaptive and responsive management approach in a rapidly changing business environment (Timming & Macneil, 2023).

Despite these advances, the application of AI in the field of human resources, especially in MSMEs, is still quite a challenging field. The complexity of AI systems and the need for significant technology investments often hinder small businesses from fully adopting these innovations. In addition, the literature points to a gap between the theoretical understanding of the benefits of AI and its practical application in HRM.(Budhwar et al., 2023). This gap highlights the need for more academic research involving industry to bridge the gap between theory and practice, thus ensuring that the potential of AI can be fully realized in the context of MSMEs.

One of the key challenges faced by MSMEs in Indonesia is the effective integration of AI into their human resource management operations. While large organizations have the resources and expertise to implement advanced AI systems, MSMEs often struggle to meet the technical and financial requirements of the technology. This difference can cause the HR process to be suboptimal, where traditional methods are still widely used, causing inefficiencies and lost opportunities to improve organizational performance. Additionally, the lack of tailored solutions for MSMEs exacerbates the problem as many AI tools are designed for large enterprises but ignore the unique needs of small businesses (Walkowiak, 2023).

[1] Marketing Management, Jl. Telekomunikasi 1, Terusan Buahbatu – Bojongsoang Telkom University, Sukapura, Kec. Dayeuhkolot, Kabupaten Bandung, Jawa Barat 40257. E-mail: astriwulandari@telkomuniversity.ac.id.
[2] Business Administration Jl. Telekomunikasi 1, Terusan Buahbatu – Bojongsoang Telkom University, Sukapura, Kec. Dayeuhkolot, Kabupaten Bandung, Jawa Barat 40257. E-mail: ibestdiko16@gmail.com.

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

To overcome these challenges, this study aims to explore the impact of AI on SOP creation and recruitment in Indonesia MSMEs. Focusing on these specific areas, this study seeks to identify how AI can be used to improve the efficiency and effectiveness of HR management practices in companies as studied (Davarpanah & Mohamed, 2020; Shahreki et al., 2019) but specific to large companies. The proposed solution includes a comprehensive analysis of AI applications that are appropriate to the size and scope of MSMEs, with the aim of developing practical strategies that can be adopted by such businesses to improve their performance. This approach not as it were addressing the quick challenges confronted by MSMEs, but moreover contributes to a broader understanding of the part of AI in trade prepare optimization.

The application of AI in HRM, especially in the field of SOP creation and recruitment, has been widely discussed in the literature. AI innovations, such as machine learning calculations and characteristic dialect handling, have appeared critical potential in mechanizing administration forms, lessening the time and exertion required for these assignments (Manivannan & Valliammal, 2019). Research has appeared that AI can move forward the the consistency and accuracy of operational rulemaking and ensure that rules are not only aligned with industry standards but also tailored to the specific needs of organizations (Mauro & Borges-Andrade, 2020; Sousa & Dias, 2020). Additionally, AI-powered SOPs can be continuously updated to reflect changes in regulations or business processes, ensuring they remain relevant and effective.

In the context of recruitment, AI has played a significant part in moving forward the proficiency and quality of the enrollment prepare. AI apparatuses can analyze expansive sums of candidate information, recognize the foremost appropriate candidates, and indeed anticipate their future execution based on verifiable information (Srivastava & Bajaj, 2022). This capability not only speeds up the hiring process but also improves accuracy, reduces the risk of hiring errors, and improves the overall quality of the workforce. Additionally, AI can offer assistance diminish inclination in hiring by focusing on objective data rather than subjective judgments, thereby encouraging diversity and inclusion within organizations (Walkowiak, 2023).

Despite these benefits, the application of AI in HRM is not without challenges. A significant concern is the possibility that AI systems will reinforce existing biases if not designed and implemented correctly. Additionally, the use of AI for HRM decision-making raises ethical questions about transparency and accountability (Angrave et al., 2016; Marler & Parry, 2016). These issues highlight the importance of developing AI systems that are not only effective but also ethical and transparent, ensuring that they contribute positively to the organization's goals while still respecting the human rights and dignity of all stakeholders (Budhwar et al., 2023).

The literature on AI in Human Resource Management, especially MSMEs, shows increasing interest in the potential of AI to revolutionize business processes. However, most of the current research focuses on large companies, which already have the necessary resources and infrastructure to implement AI (Timming & Macneil, 2023). This focus has led to a significant research gap in understanding how AI can be effectively integrated into MSME operations, which often face unique challenges such as budget constraints, lack of technical expertise, and resistance to change.

In addition, although there is substantial evidence supporting the benefits of AI in SOP creation and recruitment, in-depth research examining these benefits especially in the context of MSMEs in Indonesia is lacking. Existing research tends to generalize results in different organizational contexts without considering the specific needs and constraints of small businesses. This generalization limits the application of current AI solutions to MSMEs, thus highlighting the need for research that addresses the unique challenges and opportunities of AI application in the sector (Mauro & Borges-Andrade, 2020; Srivastava & Bajaj, 2022).

Thus, this research will contribute to the form of novelty to the gap. And the results of this study will also have implications for MSME managers in carrying out management and operational activities to be more efficient and effective.

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

Literature Review

Artificial Intelligence

Artificial Intelligence (AI) is a technology that allows machines to perform tasks that would normally require human intelligence, such as understanding natural language, recognizing patterns, solving problems, and making decisions. AI uses algorithms and learning models to analyze data, learn from experience, and perform tasks with a high level of automation and efficiency (Fenwick et al., 2024; Jia & Hou, 2024; Moharrak et al., 2024; Padmaja et al., 2024). In a business context, AI is used to optimize various operational processes, increase productivity, and support better decision-making (Deepa et al., 2024; Menzies et al., 2024; Nawaz et al., 2024) and has also been mentioned in this article. The hypothesis of AI is as follows:

Hypothesis 1 (H1): AI has a positive effect on the performance of MSMEs.

Hypothesis 2 (H2): AI positively influences SOP making.

Hypothesis 3 (H3): AI positively influences hiring.

Making Standard Operating Procedures (SOPs)

The creation of Standard Operating Procedures (SOPs) is the process of preparing documents that include detailed steps and standards that must be followed to perform certain tasks or processes in an organization. SOPs act as guidelines to ensure consistency, efficiency, and compliance with applicable regulations or standards (Fitch & Bays, 2022; Petrigna et al., 2021). Through SOPs, organizations can reduce variations in task execution, improve the quality of results, and ensure that everyone in the organization works in a structured and standardized manner. The hypothesis of the SOP making is as follows:

Hypothesis 4 (H4): The effectiveness of SOP making has a positive effect on the performance of MSMEs.

Hypothesis 5 (H5): The effectiveness of SOP preparation has a positive effect on the quality of recruitment.

Recruitment

Recruitment is the process of finding, evaluating, and selecting candidates to fill certain positions in an organization. This process includes identifying labor needs, posting job vacancies, evaluating candidates, and finally selecting candidates who best meet the predetermined criteria. Effective recruitment aims to attract top talent, decrease the time it takes to fill positions and guarantee that chosen workers have the essential aptitudes and capacities to form a positive commitment to the organization (Melliani et al., 2024). The hypothesis of the Recruitment is as follows:

Hypothesis 6 (H6): The quality of recruitment has a positive effect on the performance of MSMEs.

MSME Performance

The performance of Micro, Small, and Medium Enterprises (MSMEs) refers to the success rate of MSMEs in achieving their business goals, such as increased revenue, operational efficiency, customer satisfaction and company growth. The performance of MSMEs is affected by different variables, counting performance management, product innovation, human resource management, and the ability to adapt to market changes. The good performance of MSMEs is reflected in their ability to compete in the market, maintain profits and continue to grow in the face of economic challenges (Prentice et al., 2023).

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

Material & Method

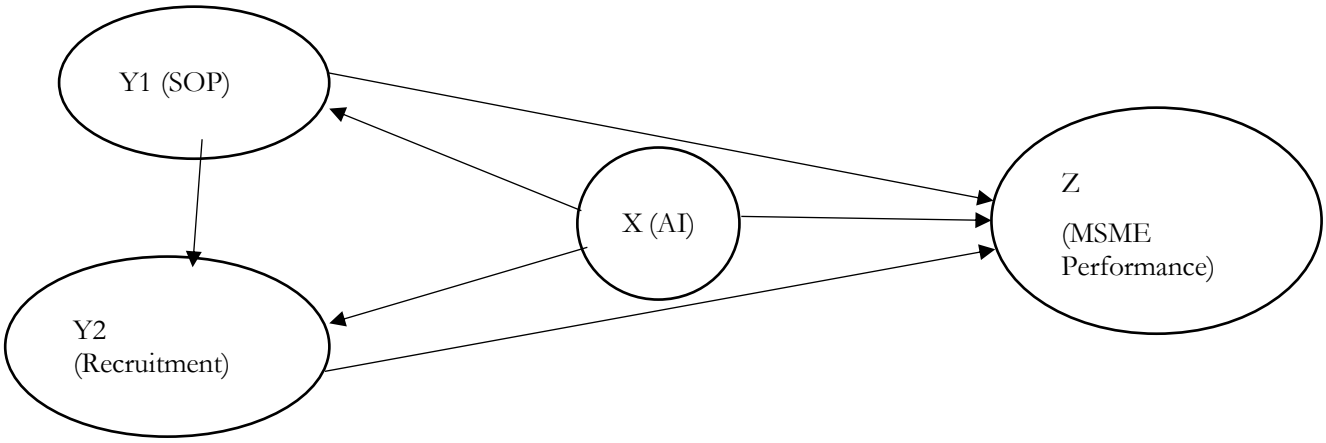

Figure 1: Research Model

Source: Data Processing Author adapted from (Wuisan et al., 2023)

This study utilizes data from 307 Micro, Small, and Medium Enterprises (MSMEs) in Indonesia that have integrated Artificial Intelligence (AI) into their management processes. The main material involved included AI-based software tools used in the creation of Standard Operating Procedures (SOPs) and recruitment processes. This research focuses on four latent variables: AI implementation, SOP making, recruitment quality, and MSME performance. Each variable was measured using specific indicators validated through Partial Least Squares Structural Equation Modeling (PLS-SEM), as described in the previous literature (Garson, 2016; Hair et al., 2021).

Sampling was guided by a rule of thumb proposed by Hair et al., which recommends using a sample size of 10 times the number of indicators in the model. Since this study uses 19 indicators, the minimum number of samples required is calculated as 190 (19 x 10 = 190). However, to minimize the potential for errors and biases in the data, a larger sample of 307 MSMEs was finally used. This approach ensures more robust and generalizable results, consistent with best practices in SEM research (Hair et al., 2019).

Statistical analysis was carried out using the PLS-SEM technique, with SMART PLS as the main tool for data analysis. This method was chosen since of its capacity to handle complex models and provide robust results even with small sample sizes. The analysis includes the evaluation of the outer model (measurement model) and the inner model (structural model). The significance of the path was determined using the bootstrapping technique, with 5000 resamples used to ensure the robustness of the findings (Garson, 2016; Hair et al., 2021).

The experimental setting included the application of the PLS-SEM model to evaluate the relationship between the variables. The model is processed using SMART PLS, which is a software specifically designed to handle complex models and prediction techniques in SEM research, particularly in business research (Vaithilingam et al., 2024). The arrangement aims to test six hypotheses related to the impact of AI on MSME performance, SOP making, and recruitment quality. The structural model is evaluated using path coefficients, t-statistics, and p-values to determine the significance of the hypothesized relationship (Garson, 2016; Hair et al., 2019).

PLS-SEM (Partial Least Squares Structural Equation Modeling) was chosen as the most suitable method for this study because it has a strong ability to handle complex research models, for example as a model that involves many latent variables and indicators. PLS-SEM is most effective if the research is exploratory and aimed at theoretical development, such as in the context of the influence of AI on human resource

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

management in MSMEs. In addition, PLS-SEM can provide accurate results by examining the cause-and-effect relationship between variables, even when the data does not meet the normal distribution assumptions. This is important in the context of this research, where variables such as MSME performance, SOP making, and recruitment involve various data. By using PLS-SEM, this study can effectively evaluate the influence of AI on various aspects of MSME management, while ensuring the validity and reliability of the research model.

The main parameters measured in this study include Outer Loading, Average Variance Extracted (AVE), Composite Reliability (Rho C), Cronbach's Alpha, and HTMT for each latent variable. This parameter is crucial to ensure the reliability and validity of the model. In addition, the quality of the model is evaluated through R^2 and F^2 values, which provides insight into the explanatory power of AI implementation on the performance of MSMEs and other dependent variables (Hair et al., 2021).

Result & Discussion

Questionnaire Questions

Table 1: Questionnaire and Indicators

Latent Variables	Indicators	Statement from the Indicator	Adaptation
AI	Operational Efficiency	"AI has improved operational efficiency in my MSMEs."	(Votto et al., 2021)
	Prediction Accuracy	"AI provides accurate predictions for my MSME management needs."	(Pomperada, 2022)
	Technology Adaptability	"AI can adapt well to the dynamic business needs of my MSMEs."	(Bhardwaj et al., 2019)
	User Satisfaction	"I am satisfied with the use of AI in helping with routine tasks in my MSMEs."	(Potgieter & Mokomane, 2020)
	Cost Reduction	"The implementation of AI has reduced operational costs in my MSMEs."	(Rasheed et al., 2024)
SOP Preparation	Process Consistency	"SOPs made with the help of AI are consistent in their implementation in my MSMEs."	(Dery et al., 2013)
	Time Efficiency	"AI speeds up the process of making and updating SOPs in my MSMEs."	(Keshtidar et al., 2017)
	Quality of Documentation	"The SOP documentation generated with the help of AI is of good quality."	(Quaosar et al., 2018)
	Information Accessibility	"The AI-assisted SOPs are easy to access and use in my MSME daily operations."	(Guggemos, 2024)
	Improved Compliance	"The SOPs generated by AI ensure compliance with the regulations that apply in my MSMEs."	(Ben Moussa & El Arbi, 2020)
Recruitment	Process Speed	"AI speeds up the recruitment process in my MSMEs."	(Rigotti & Fosch-Villaronga, 2024)

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

	Accuracy in Selection	"AI selects candidates who fit the position needed in my MSMEs."	(Cai et al., 2024)
	Candidate Experience	"The AI-assisted recruitment process provides a positive experience for candidates."	(Suen & Hung, 2024)
	Cost Efficiency	"The use of AI in the recruitment process reduces recruitment costs in my MSMEs."	(Tanantong & Wongras, 2024)
	Regulatory Compliance	"AI ensures that the recruitment process at my MSMEs complies with all applicable regulations and labor laws."	(Nain & Shyam, 2024)
MSME Performance	Increased Productivity	"The implementation of AI has increased productivity in my MSMEs."	(Abasaheb & Subashini, 2024)
	Reduced Operational Costs	"The use of AI has reduced operational costs in my MSMEs."	(Rasheed et al., 2024)
	Product and Service Innovation	"AI drives product and service innovation in my MSMEs."	(Pomperada, 2022)
	Human Resource Capacity Development	"AI helps in developing the capacity of human resources in my MSMEs."	(Guggemos, 2024)

Based on the questionnaire table presented in this study, there are several indicators used to measure the influence of AI on human resource management in MSMEs. Each indicator is measured through specific statements related to operational efficiency, prediction accuracy, technology adaptability, user satisfaction, and cost reduction in the use of AI. In addition, in making SOPs, indicators include process consistency, time efficiency, documentation quality, information accessibility, and improved compliance. As for recruitment, the indicators used include process speed, accuracy in selection, candidate experience, cost efficiency, and regulatory compliance. Each statement is designed to describe how AI is applied effectively and efficiently in various aspects of MSME management, with the goal of improving the overall performance of MSMEs.

This questionnaire was distributed to 307 research samples consisting of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia that have integrated Artificial Intelligence (AI) into their management processes. The selection of the sample was carried out by considering certain criteria that are relevant to the purpose of the research, namely, to evaluate the impact of AI on the creation of Standard Operating Procedures (SOPs), recruitment processes, and MSME performance. Each sample was asked to answer questions in a questionnaire designed to measure the various indicators that had been described earlier. The comes about of this survey are anticipated to supply in-depth experiences into how AI contributes to improving management efficiency and effectiveness in the MSME sector.

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

Outer Model

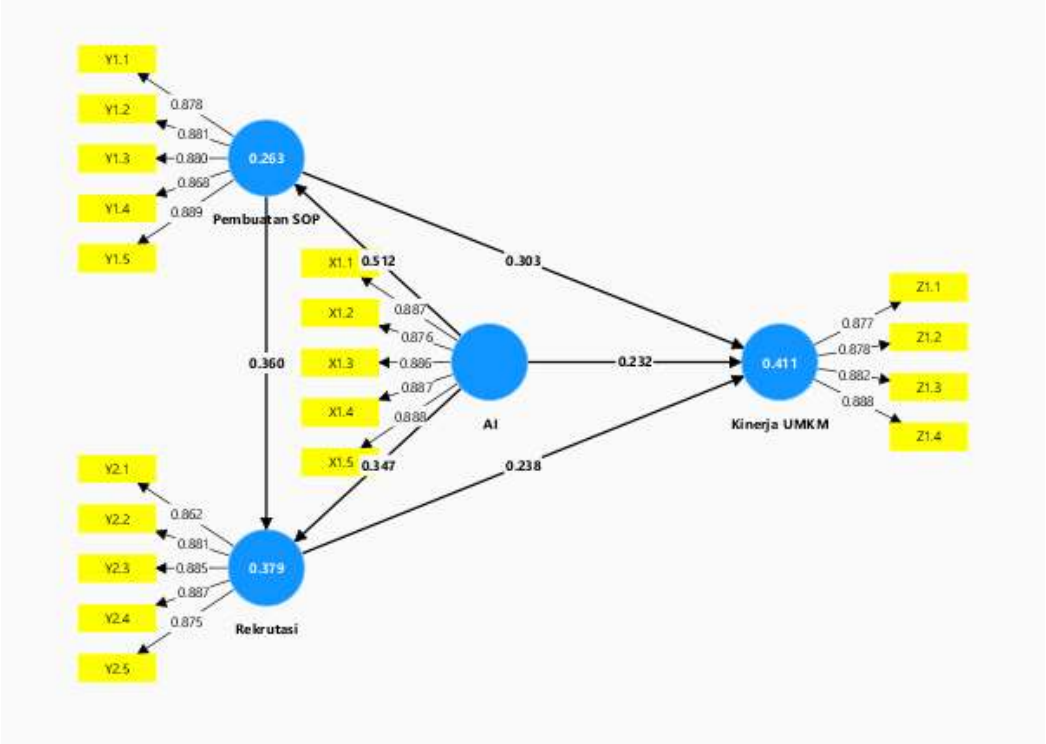

Figure 2: Outer Model

Source: Prepared by the author

Outer Model Validity and Reliability

Table 2: Validity and Reliability Test

Latent Variables	Indicators	Outer Loading	AVE	Rho (Composite Reliability)	c Cronbach's Alpha
AI	X1.1	0.887	0.783	0.947	0.931
	X1.2	0.876			
	X1.3	0.886			
	X1.4	0.887			
	X1.5	0.888			
SOP Preparation	Y1.1	0.878	0.773	0.944	0.926
	Y1.2	0.881			
	Y1.3	0.880			
	Y1.4	0.868			
	Y1.5	0.889			
Recruitment	Y2.1	0.862	0.771	0.944	0.926
	Y2.2	0.881			
	Y2.3	0.885			
	Y2.4	0.887			
	Y2.5	0.875			
MSME Performance	Z1.1	0.877	0.777	0.933	0.904

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

	Z1.2	0.878
	Z1.3	0.882
	Z1.4	0.888

Discriminant HTMT

Table 3: HTMT Discrimination

	AI	MSME Performance	SOP Preparation	Recruitment
AI				
MSME Performance	0.558			
SOP Preparation	0.551	0.597		
Recruitment	0.571	0.571	0.578	

In this study, the validity and reliability of the model used to measure the influence of AI on SOP making, recruitment, and MSME performance have been evaluated using the PLS-SEM (Partial Least Squares Structural Equation Modeling) method as described by Hair et al. (2019). The results of the validity and reliability tests presented in the table show that this model is valid and reliable.

Outer Loadings: Each indicator measured in this study had a high outer loading value, with all values above 0.70, indicating that these indicators significantly reflected the latent construct being measured.

Average Variance Extracted (AVE): The AVE value for each construct exceeds the threshold of 0.50, indicating that more than 50% of the variance of the indicator can be explained by that construct, which indicates good convergence validity.

Construct Reliability: Composite Reliability (Rho C) and Cronbach's Alpha: The composite reliability (Rho C) and Cronbach's Alpha values for all constructs are above 0.70, with most approaching or exceeding 0.90, indicating excellent internal reliability. This shows that these constructs can be relied upon in measuring the variables in question consistently.

Validity of Discrimination: HTMT (Heterotrait Monotrait Ratio): The HTMT analysis shows that the values between latent variables are below the threshold of 0.85. This indicates that the constructs in the model have good discriminatory validity, ensuring that they differ from each other.

From the results of the validity and reliability analysis that have been presented in the table, it can be concluded that the model used in this study meets strict validity and reliability requirements in accordance with the guidelines outlined by Hair et al. (2019). This model is not only valid in terms of measuring relevant constructs, but also reliable in providing consistent and reliable results.

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

Inner Model

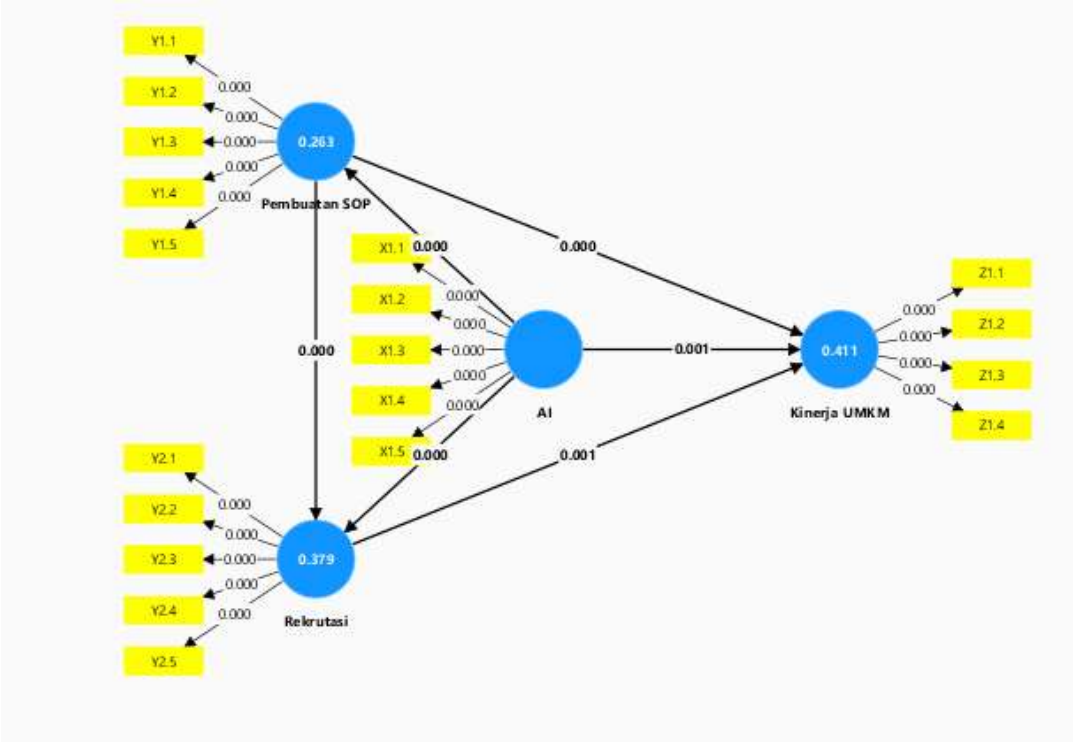

Figure 3: Inner Model

Source: Prepared by the author

Hypothesis Testing

Table 4: Hypothesis Testing

Hypothesis	t-Statistics	p-Value	Information
AI → MSME Performance	3.410	0.001	Support
AI → SOP Creation	6.813	0.000	Support
AI → Recruitment	4.519	0.000	Support
SOP Making → MSME Performance	3.911	0.000	Support
SOP Preparation → Recruitment	4.640	0.000	Support
Recruitment → MSME Performance	3.219	0.001	Support

Based on the results of the hypothesis testing presented in this study, it can be concluded that all the proposed hypotheses show a significant relationship between the variables tested. In particular, the influence of AI on MSME performance, SOP making, and recruitment showed significant t-statistical and p-value values, with p-values below 0.05. This indicates that AI has an important role in improving the effectiveness of SOP making, speeding up the recruitment process, and overall, improving the performance of MSMEs.

Furthermore, the creation of SOPs and recruitment assisted by AI has also been proven to make a significant contribution to improving the performance of MSMEs. These results are consistent with the

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

literature reviewed by Hair et al. (2019), where in the context of PLS-SEM, the structural model tested using this approach is not only able to identify the cause-and-effect relationship between variables, but also provides accurate predictions about the influence of independent variables on dependent variables. Hair et al. (2019) emphasized that PLS-SEM is very effective in the context of exploratory research involving complex models and many variables, such as in this study.

The t-statistical values in the hypothesis testing table show how strong the relationship between the variables in the tested model is. In the context of PLS-SEM, t-statistical values are used to determine whether the path coefficients in the structural model are statistically significant or not. According to Hair et al. (2019), a relationship is considered significant if its t-statistical value exceeds a certain threshold, which is generally 1.96 for a significance level of 5% ($p < 0.05$).

In this study, all the hypotheses tested showed quite high t-statistical values, all of which were above the threshold of 1.96. For example, the influence of AI on SOP creation has a t-statistical value of 6,813, which shows a very strong and significant relationship between AI and SOP making. This means that the adoption of AI significantly contributes to increased effectiveness and efficiency in SOP creation in MSMEs.

Similarly, other hypotheses, such as the influence of AI on recruitment (t-statistic = 4,519) and the influence of AI on MSME performance (t-statistic = 3,410), also show a significant relationship. This signifies that AI not only speeds up and improves the recruitment process, but also directly improves the overall performance of MSMEs. Hair et al. (2019) confirmed that the high and significant t-statistical value in PLS-SEM is a strong indicator that the relationship tested in the model has strong empirical support, so the results of this study can be considered valid and relevant.

The t-statistical values in the hypothesis testing table show how strong the relationship between the variables in the tested model is. In the context of PLS-SEM, t-statistical values are used to determine whether the path coefficients in the structural model are statistically significant or not. According to Hair et al. (2019), a relationship is considered significant if its t-statistical value exceeds a certain threshold, which is generally 1.96 for a significance level of 5% ($p < 0.05$).

In this study, all the hypotheses tested showed quite high t-statistical values, all of which were above the threshold of 1.96.

Influence

Table 5: Results R2 and F2

Variables Affected	Influencing Variables	R^2	F^2
MSME Performance	AI	0.411	0.059
	SOP Preparation		0.099
	Recruitment		0.060
SOP Preparation	AI	0.263	0.356
Recruitment	AI	0.379	0.143
	SOP Preparation		0.154

The R^2 value indicates how much variability of the dependent variable can be explained by the independent variable.

- MSME performance ($R^2 = 0.411$): 41.1% variability in MSME performance explained by AI, SOP Making, and Recruitment. This appears that model has pretty good explanatory power.

- SOP generation ($R^2 = 0.263$): 26.3% of the variation in SOP generation was explained by AI, demonstrating the important role of AI in this process.

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

- Recruitment ($R^2 = 0.379$): 37.9% of recruitment variability was explained by AI and SOP Generation, indicating a significant influence of these two variables.

The F^2 value indicates how much of a specific effect of one independent variable has on the dependent variable.

- AI → SOP Creation ($F^2 = 0.356$): AI has a large and significant effect on SOP making.
- AI → MSME Performance ($F^2 = 0.059$): AI has a small but significant effect on MSME performance.
- AI → Recruitment ($F^2 = 0.143$), SOP Creation → Recruitment ($F^2 = 0.154$): Both showed moderate effects on recruitment, emphasizing the importance of AI and SOPs in the recruitment process.

These values show that AI plays an important role in various aspects of MSME management, especially in SOP creation and recruitment, which ultimately improves the overall performance of MSMEs**.**

Discussion

The results of the study show that the application of Artificial Intelligence (AI) has a significant influence on the creation of Standard Operating Procedures (SOPs) and the recruitment process in MSMEs. These results are consistent with the literature stating that AI can improve efficiency and effectiveness in both processes (Al-Ayed, 2024; Allgood & Musgrave, 2024; Marín Díaz et al., 2023; Pang, 2024). AI helps speed up the SOP creation process and improve its consistency, resulting in more accurate and standardized documentation. Additionally, AI has been shown to speed up the recruitment process by automating the candidate screening process and reducing bias in the selection process (Aguinis et al., 2024; Horodyski, 2023). This study also found that AI contributes positively to improving the performance of MSMEs, which is in line with research from (Abbas et al., 2023; Li & Huang, 2020; Murugesan et al., 2023) which states that AI has an impact on performance and influence on individuals. The use of AI in MSME management not only helps operational efficiency but also supports innovation in products and services. This can be reliable with past investigate that appears that AI can offer assistance MSMEs to adjust rapidly to showcase changes and increment their competitiveness (Menzies et al., 2024).

This research provides important insights into how AI can be used strategically to improve various aspects of management in MSMEs. The results of this study show that by adopting AI, MSMEs can improve operational efficiency, improve SOP and recruitment processes, and ultimately improve overall performance. The adoption of AI allows MSMEs to become more competitive in an increasingly competitive market, especially in product innovation, services, and human resource management.

The research also contributes to the academic literature by highlighting the role of AI in the context of MSMEs in Indonesia, where many previous studies have focused on large companies. Therefore, this research not only fills in the literature gap but also provides practical guidance for MSMEs to use AI technology in their business operations.

In the context of MSMEs in Indonesia, the results of this study are very relevant during increasing pressure to adapt to advanced technology to improve business performance. These findings provide valuable insights for MSME leaders to optimize the use of AI to improve operational efficiency and human resource management. Therefore, this research not only contributes to improving academic understanding but also provides practical guidance for MSMEs interested in using AI technology.

Conclusion

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

This study conclusively shows that the application of artificial intelligence (AI) has significantly improved the management process of Micro, Small and Medium Enterprises (MSMEs) in Indonesia, especially in the field of making standard operating procedures (SOPs) and recruitment. The empirical evidence presented shows that AI not only simplifies these processes but also helps to improve operational efficiency and overall MSME performance. Additionally, the study highlights the potential of AI to drive development in MSMEs, allowing them to respond more effectively to market changes and maintain a competitive advantage. However, the study moreover recognizes the challenges related with AI appropriation, such as constrained assets and potential bias in AI systems and emphasizes the need for careful and ethical implementation. The study fills an important gap in the literature by focusing on the unique context of MSMEs in Indonesia, providing academic insights and practical guidance for leveraging AI in small business management. Future research can investigate the long-term effect of AI integration on MSME performance and develop AI solutions that are more suitable for the sector.

References

Abasaheb, S. A., & Subashini, R. (2024). Enhancing HR Efficiency Through the Integration of Artificial Intelligence and Internet of Things: A Study on AI Implementation in Human Resource Management. EAI Endorsed Transactions on Scalable Information Systems, 11(2), 1–11. https://doi.org/10.4108/eetsis.4208

Abbas, S. W., Hamid, M., Alkanhel, R., & Abdallah, H. A. (2023). Official Statistics and Big Data Processing with Artificial Intelligence: Capacity Indicators for Public Sector Organizations. Systems, 11(8). https://doi.org/10.3390/systems11080424

Aguinis, H., Beltran, J. R., & Cope, A. (2024). How to use generative AI as a human resource management assistant. Organizational Dynamics, 53(1). https://doi.org/10.1016/j.orgdyn.2024.101029

Al-Ayed, S. (2024). ROLE OF ARTIFICIAL INTELLIGENCE FOR STRENGTHENING HUMAN RESOURCE SYSTEM VIA MEDIATION OF TECHNOLOGY COMPETENCE. Problems and Perspectives in Management, 22(2), 518–526. https://doi.org/10.21511/ppm.22(2).2024.40

Allgood, M., & Musgrave, P. (2024). Leveraging ChatGPT in public sector human resource management education. Journal of Public Affairs Education. https://doi.org/10.1080/15236803.2024.2370455

Angrave, D., Charlwood, A., Kirkpatrick, I., Lawrence, M., & Stuart, M. (2016). HR and analytics: why HR is set to fail the big data challenge. Human Resource Management Journal, 26(1), 1–11. https://doi.org/10.1111/1748-8583.12090

Ben Moussa, N., & El Arbi, R. (2020). The impact of Human Resources Information Systems on individual innovation capability in Tunisian companies: The moderating role of affective commitment. European Research on Management and Business Economics, 26(1), 18–25. https://doi.org/10.1016/j.iedeen.2019.12.001

Bhardwaj, S., Jain, A., & Kumar, V. (2019). Diffusion of strategic practices in HRM and their impact over productivity of small firms. International Journal of Recent Technology and Engineering, 8(2 Special), 244–251. https://doi.org/10.35940/ijrte.B1042.0982S1019

Budhwar, P., Chowdhury, S., Wood, G., Aguinis, H., Bamber, G. J., Beltran, J. R., Boselie, P., Lee Cooke, F., Decker, S., DeNisi, A., Dey, P. K., Guest, D., Knoblich, A. J., Malik, A., Paauwe, J., Papagiannidis, S., Patel, C., Pereira, V., Ren, S., … Varma, A. (2023). Human resource management in the age of generative artificial intelligence: Perspectives and research directions on ChatGPT. Human Resource Management Journal, 33(3), 606–659. https://doi.org/10.1111/1748-8583.12524

Cai, F., Zhang, J., & Zhang, L. (2024). The Impact of Artificial Intelligence Replacing Humans in Making Human Resource Management Decisions on Fairness: A Case of Resume Screening. Sustainability (Switzerland), 16(9). https://doi.org/10.3390/su16093840

Davarpanah, A., & Mohamed, N. (2020). Human resources information systems implementation and influences in higher education: Evidence from Malaysia. International Journal of Asian Business and Information Management, 11(3), 65–84. https://doi.org/10.4018/IJABIM.2020070105

Deepa, R., Sekar, S., Malik, A., Kumar, J., & Attri, R. (2024). Impact of AI-focussed technologies on social and technical competencies for HR managers – A systematic review and research agenda. Technological Forecasting and Social Change, 202. https://doi.org/10.1016/j.techfore.2024.123301

Dery, K., Hall, R., Wailes, N., & Wiblen, S. (2013). Lost in translation? An actor-network approach to HRIS implementation. Journal of Strategic Information Systems, 22(3), 225–237. https://doi.org/10.1016/j.jsis.2013.03.002

Fenwick, A., Molnar, G., & Frangos, P. (2024). The critical role of HRM in AI-driven digital transformation: a paradigm shift to enable firms to move from AI implementation to human-centric adoption. Discover Artificial Intelligence, 4(1). https://doi.org/10.1007/s44163-024-00125-4

Fitch, A. K., & Bays, H. E. (2022). Obesity definition, diagnosis, bias, standard operating procedures (SOPs), and telehealth: An Obesity Medicine Association (OMA) Clinical Practice Statement (CPS) 2022. Obesity Pillars, 1. https://doi.org/10.1016/j.obpill.2021.100004

Garson, G. D. (2016). PARTIAL LEAST SQUARES (PLS-SEM) 2016 Edition. Statistical Publishing Associates. www.statisticalassociates.com

Guggemos, J. (2024). To fear or not to fear – Human resource development professionals' positioning towards artificial intelligence with a focus on augmentation. Computers and Education: Artificial Intelligence, 7. https://doi.org/10.1016/j.caeai.2024.100260

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). A PRIMER ON PARTIAL LEAST SQUARES STRUCTURAL EQUATION MODELING (PLS-SEM) Third Edition (Third edition.). SAGE Publications, Inc.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In European Business Review (Vol. 31, Issue 1, pp. 2–24). Emerald Group Publishing Ltd. https://doi.org/10.1108/EBR-11-2018-0203

Horodyski, P. (2023). Recruiter's perception of artificial intelligence (AI)-based tools in recruitment. Computers in Human Behavior Reports, 10, 100298. https://doi.org/10.1016/J.CHBR.2023.100298

Jia, X., & Hou, Y. (2024). Architecting the future: exploring the synergy of AI-driven sustainable HRM, conscientiousness, and employee engagement. Discover Sustainability, 5(1). https://doi.org/10.1007/s43621-024-00214-5

Keshtidar, M., Ghandehari, M. R. E., & Harati, M. (2017). The effect of knowledge management through human resources information systems on customer relationship management in aquatic sport centers. Annals of Applied Sport Science, 5(3), 69–77. https://doi.org/10.29252/acadpub.aassjournal.5.3.69

Li, J., & Huang, J. S. (2020). Dimensions of artificial intelligence anxiety based on the integrated fear acquisition theory. Technology in Society, 63, 101410. https://doi.org/10.1016/J.TECHSOC.2020.101410

Manivannan, S. K., & Valliammal, M. (2019). Implementation of electronic human resource management. International Journal of Recent Technology and Engineering, 8(2 Special), 414–418. https://doi.org/10.35940/ijrte.B1080.0782S419

Marín Díaz, G., Galán Hernández, J. J., & Galdón Salvador, J. L. (2023). Analyzing Employee Attrition Using Explainable AI for Strategic HR Decision-Making. Mathematics, 11(22). https://doi.org/10.3390/math11224677

Marler, J. H., & Parry, E. (2016). Human resource management, strategic involvement and e-HRM technology. International Journal of Human Resource Management, 27(19), 2233–2253. https://doi.org/10.1080/09585192.2015.1091980

Mauro, T. G., & Borges-Andrade, J. E. (2020). Human resource system as innovation for organisations. Innovation and Management Review, 17(2), 197–214. https://doi.org/10.1108/INMR-03-2019-0037

Melliani, H., Mouhtat, I., Kerfal, W., & Razouk, A. (2024). Artificial Intelligence in Recruitment: Navigating the Era of Web 4.0. Qubahan Academic Journal, 4(2), 558–568. https://doi.org/10.48161/qaj.v4n2a283

Menzies, J., Sabert, B., Hassan, R., & Mensah, P. K. (2024). Artificial intelligence for international business: Its use, challenges, and suggestions for future research and practice. Thunderbird International Business Review, 66(2), 185–200. https://doi.org/10.1002/tie.22370

Moharrak, M., Nguyen, N. P., & Mogaji, E. (2024). Business environment and adoption of AI: Navigation for internationalization by new ventures in emerging markets. Thunderbird International Business Review, 66(4), 355–372. https://doi.org/10.1002/tie.22384

Murugesan, U., Subramanian, P., Srivastava, S., & Dwivedi, A. (2023). A study of Artificial Intelligence impacts on Human Resource Digitalization in Industry 4.0. Decision Analytics Journal, 7. https://doi.org/10.1016/j.dajour.2023.100249

Nain, V., & Shyam, H. S. (2024). EMPIRICAL ANALYSIS OF THE ROLE OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCES RECRUITMENT AND SELECTION. Proceedings on Engineering Sciences, 6(2), 817–826. https://doi.org/10.24874/PES06.02A.008

Nawaz, N., Arunachalam, H., Pathi, B. K., & Gajenderan, V. (2024). The adoption of artificial intelligence in human resources management practices. International Journal of Information Management Data Insights, 4(1). https://doi.org/10.1016/j.jjimei.2023.100208

Padmaja, C. V. R., Narayana, S. L., Anga, G. L., & Bhansali, P. K. (2024). The rise of artificial intelligence: a concise review. IAES International Journal of Artificial Intelligence, 13(2), 2224–2233. https://doi.org/10.11591/ijai.v13.i2.pp2226-2235

Pang, X. (2024). Optimizing Organizational Structures with Artificial Intelligence: Algorithm Design and Application. Revue d'Intelligence Artificielle, 38(1), 341–350. https://doi.org/10.18280/ria.380136

Petrigna, L., Palma, A., Gómez-López, M., & Bianco, A. (2021). Systematic revision of the standard operating procedures for the evaluation of lower limbs through the jumps. Espiral. Cuadernos Del Profesorado, 14(28).

Pomperada, J. R. (2022). Human Resource Information System with Machine Learning Integration. Qubahan Academic Journal, 2(2), 5–8. https://doi.org/10.48161/qaj.v2n2a120

Potgieter, I. L., & Mokomane, S. E. (2020). Implementation of human resource management functions in selected small manufacturing companies in ga-rankuwa industrial area, gauteng, South Africa. SA Journal of Human Resource Management, 18, 1–11. https://doi.org/10.4102/sajhrm.v18i0.1282

Prentice, C., Wong, I. A., & Lin, Z. C. (2023). Artificial intelligence as a boundary-crossing object for employee engagement and performance. Journal of Retailing and Consumer Services, 73. https://doi.org/10.1016/j.jretconser.2023.103376

Quaosar, G. M. A. A., Hoque, M. R., & Bao, Y. (2018). Investigation on the precursors to and effects of human resource information system use: The case of a developing country. Cogent Business and Management, 5(1), 1–15. https://doi.org/10.1080/23311975.2018.1485131

Rasheed, M. H., Khalid, J., Ali, A., Rasheed, M. S., & Ali, K. (2024). Human Resource Analytics in the Era of Artificial Intelligence: Leveraging Knowledge towards Organizational Success in Pakistan. Journal of Chinese Human Resources Management, 15(3), 3–20. https://doi.org/10.47297/wspchrmWSP2040-800501.20241503

Rigotti, C., & Fosch-Villaronga, E. (2024). Fairness, AI & recruitment. Computer Law and Security Review, 53. https://doi.org/10.1016/j.clsr.2024.105966

Shahreki, J., Ganesan, J., Raman, K., Chin, A. L. L., & Chin, T. S. (2019). The effect of human resource information system application on employee satisfaction and turnover intention. Entrepreneurship and Sustainability Issues, 7(2), 1462–1479. https://doi.org/10.9770/jesi.2019.7.2(47)

Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 5325 – 5338
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4641

Sousa, M. J., & Dias, I. (2020). Business intelligence for human capital management. International Journal of Business Intelligence Research, 11(1), 38–49. https://doi.org/10.4018/IJBIR.2020010103

Srivastava, S., & Bajaj, B. (2022). HRIS Symbolic Adoption, Its Relationship With Technological Adoption Factors, WLB, and Creativity. International Journal of Human Capital and Information Technology Professionals, 13(1). https://doi.org/10.4018/IJHCITP.300312

Suen, H.-Y., & Hung, K.-E. (2024). Revealing the influence of AI and its interfaces on job candidates' honest and deceptive impression management in asynchronous video interviews. Technological Forecasting and Social Change, 198. https://doi.org/10.1016/j.techfore.2023.123011

Tanantong, T., & Wongras, P. (2024). A UTAUT-Based Framework for Analyzing Users' Intention to Adopt Artificial Intelligence in Human Resource Recruitment: A Case Study of Thailand. Systems, 12(1). https://doi.org/10.3390/systems12010028

Timming, A. R., & Macneil, J. (2023). Bridging human resource management theory and practice: Implications for industry-engaged academic research. Human Resource Management Journal, 33(3), 592–605. https://doi.org/10.1111/1748-8583.12523

Vaithilingam, S., Ong, C. S., Moisescu, O. I., & Nair, M. S. (2024). Robustness checks in PLS-SEM: A review of recent practices and recommendations for future applications in business research. Journal of Business Research, 173, 114465. https://doi.org/10.1016/J.JBUSRES.2023.114465

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 InsightsVolume 1 V, 1(2), 100047. https://doi.org/10.1016/J.JJIMEI.2021.100047

Walkowiak, E. (2023). Digitalization and inclusiveness of HRM practices: The example of neurodiversity initiatives. Human Resource Management Journal, 1–21. https://doi.org/10.1111/1748-8583.12499

Wuisan, D. S. S., Sunardjo, R. A., Aini, Q., Yusuf, N. A., & Rahardja, U. (2023). Integrating Artificial Intelligence in Human Resource Management: A SmartPLS Approach for Entrepreneurial Success. APTISI Transactions on Technopreneurship, 5(3), 334–345. https://doi.org/10.34306/att.v5i3.355