Research Article

Digitalization and Automatization on the Performance of Employees of the Karanganyar Environmental Service through Job Satisfaction

Rahayu Pancaningsih[1]*, Agus Suyatno[2], Esti Dwi Rahmawati[3]

[1] Universitas Duta Bangsa, Indonesia; e-mail : 210414048@mhs.udb.ac.id
[2] Universitas Duta Bangsa, Indonesia; e-mail : agus_suyatno@udb.ac.id
[3] Universitas Duta Bangsa, Indonesia; e-mail : esti_dwirahmawati@udb.ac.id
* Corresponding Author : Rahayu Pancaningsih

Abstract: This study aims to examine the effect of digitalization and automation on employee performance, with job satisfaction as a mediating variable. The background of this research is based on the dynamics of modern organizations that are required to continuously adapt to technological developments, particularly in the era of digital transformation. The implementation of digital technology and automation systems has become a key strategy for improving operational efficiency, accelerating work processes, and optimizing workforce productivity. However, this transformation also poses new challenges, particularly regarding how technology impacts employee job satisfaction and overall performance. This study employed a quantitative approach with a survey method. A questionnaire using a 4-point Likert scale was distributed to 65 employees of the Karanganyar Regency Environmental Agency. Data collection was conducted directly, and data analysis was conducted using Structural Equation Modeling-Partial Least Squares (SEM-PLS) to examine the relationships between variables and the mediating role of job satisfaction. The results indicate that digitalization and automation have a positive and significant impact on employee performance. Furthermore, job satisfaction was also shown to play a significant mediating role in strengthening the influence of digitalization and automation on performance. These findings demonstrate that the success of technology implementation in the workplace is not solely determined by technical aspects, but also depends heavily on how the technology improves employee well-being and job satisfaction. Therefore, organizations need to consider employee psychological aspects at every stage of their digital transformation. This research provides theoretical and practical contributions to understanding the role of digitalization and automation in improving employee performance through a job satisfaction-oriented approach.

Keywords: Automatization, Digitalization, Employee Performance, Job Satisfaction, Public Sector

1. Introduction

The most valuable asset in a company is its human resources, which are individuals who work together to achieve common goals and contribute to long-term success to provide a competent and qualified workforce (Syafitriyani & Indra, 2024). According to Hamadamin and Atan, effective human resource management is the key for organizations to create quality and highly competitive human resources, so as to realize company goals in the midst of a changing and challenging work environment (Rahmadani et al., 2024). Therefore, it is essential to implement human resource management in an effective and efficient manner, as it serves as a key internal factor influencing an organization's success or failure (Metalia & Aryani, 2023). Numerous factors contribute to this, such as the rise of digitalization and workplace automation. These elements can naturally bring either beneficial or adverse effects to an organization or institution.

Digitalization has emerged as a prominent issue, driving substantial transformations across multiple facets of human life, including how people work, communicate, and manage organizations, thereby increasing complexity. (Awaluddin, 2023). This all-digital condition encourages the demand to move faster and be more targeted (Shidqi et al., 2023). Digital technology supports effectiveness and efficiency and contributes to achieving goals more practically (Zahirah et al., 2024). Work is considered effective and efficient if it is in accordance with policies, supported by adequate facilities and able to provide fast and precise information to support organizational goals (Atmaja et al., 2018).

Digitalization and robotization are changing the world of work which requires agencies to adapt to new technologies, modern ways of working, and evolving skills. In this case, HR plays an important role in driving change and adding strategic value to organizations in the digital era (Rita, 2023). This digital transformation has a direct impact on the way the HR function works, where various digital tools and applications are utilized to develop processes, make more informed decisions and solve problems effectively (Rita, 2023).

The office serves as the center of information management, starting from the process of collecting, processing, storing, and distributing information to various parties. Consequently, developments in information and communication technology have had a substantial impact on the workforce. One example of its implementation is office automation, designed to enhance employee efficiency and productivity (Sopari & Alawiyah, 2024). The use of automation systems plays a crucial role in handling data and information that facilitate communication and coordination processes, including tasks like creation, storage, distribution, and other organizational activities. When effectively implemented, an office automation system is believed to enhance human resource performance in achieving the company's objectives (Febrianto & Nurwaqiah, 2023).

The implementation of a digital platform to monitor and record employee performance at the Karanganyar Regency Environmental Agency is a step forward in the effort towards a more efficient and transparent government. This integrated system is designed to facilitate data processing and produce more accurate administration. However, this digitization process does not always run smoothly. The implementation of digitalization at the Karanganyar Regency Environmental Service is to use information systems as a form of monitoring the performance of its employees.

This research presents a new approach by investigating how digitalization and automation relate to employee performance and job satisfaction acting as a mediating factor within the Environmental Service Office of Karanganyar Regency. While numerous prior studies have examined the impact of digitalization and automation on performance individually, this research provides a more holistic approach by combining both variables within a single analytical framework. Hence, research seeks to contribute new and more focused perspectives on how to effectively leverage digitalization and automation in improving employee performance within the public sector, especially in the context of governmental institutions.

2. Literature Review

Performance can be described as the output of an individual's efforts, evaluated based on factors like work quality, amount produced, timeliness, and teamwork ability in reaching the organization's predetermined goals. Performance also reflects the output resulting from the implementation of certain tasks or responsibilities during a certain period of time (Ikut, 2023). Performance can also be interpreted as the results of work obtained by individuals or teams in accordance with their duties and responsibilities in line with organizational goals in an efficient and effective manner (Yuniarti et al., 2021).

Performance can be influenced by one of them job satisfaction. Job satisfaction can be understood as a person's emotional reaction arising from an evaluation of his job and the experiences gained at work (Adi et al., 2023). Job satisfaction significantly influences performance, indicating that its level can lead to either positive or negative outcomes. High job satisfaction tends to enhance performance, which in turn helps the company achieve its established targets and objectives more effectively (Shidqi et al., 2023).

Digitalization involves changing data or information from a physical form into a digital one, making it accessible and manageable through information technology. This concept has been widely applied in various sectors including business, education, government and others (Christover et al., 2023). Forms of digitization innovation in local governments include three

main categories, namely digitization innovation in public services, digitization innovation for internal administrative needs and various other digitization innovations tailored to the business sector or specific needs of local governments (Walo et al., 2021). Digitalization makes it easier to complete tasks in the workplace and improve employee performance through job satisfaction. This is further explained the research of (Dewi & Krisnadi, 2023), The findings of the research demonstrated that digitalization contributes positive and significant impact to performance, with job satisfaction playing a key intermediary role in this relationship.

Office automation is a process of improvement in the implementation of tasks that aim to increase work productivity by utilizing advanced technology (Rohmana, 2023). According to Ahmadi Aidi, office automation is an effort to integrate advanced technology to improve the process of carrying out work, with the aim of increasing work productivity (Yusuf et al., 2020). Automation helps minimize errors, improve accuracy, speed up work processes, and support the creation of a paperless work environment, which ultimately increases efficiency, security, and productivity in the office (Sopari & Alawiyah, 2024). A study carried out by (Pratama et al., 2023) indicates that automation significantly affects human resource performance in the digital age. In addition, research conducted by (Chen & Li, 2024) found that automation can increase job satisfaction. As well as research by (Valtonen & Kimpimäki, 2023) discovered that automation can enhance employee performance, in part by increasing job satisfaction.

3. Proposed Method

In this study the method used was quantitative method. This study involved a population of 185 employees from the Karanganyar Regency Environmental Service. A simple random sampling method was utilized in this study, with the sample size determined through the Slovin formula, yielding a total of 65 respondents. The data were analyzed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) method, supported by the use of SmartPLS 3 software.

4. Results and Discussion

Measurement Model (Outer Model)

Outer model testing is conducted to determine the quality of the research data by examining its validity and reliability.

1. Validity Test

Table 1 Average Variance Extracted Results

Variable	AVE Value
Digitalization	0, 833
Automatization	0,754
Employee Performance	0,543
Job Satisfaction	0,573

Source: SmartPLS 3.0 Data Processing Results 2025

Based on table 1, it shows that all research variables are valid because according to (Duryadi, 2021), AVE must be more than 0.5 and data processing results reveal that digitalization, automatization, employee performance and job satisfaction possess AVE scores above 0,5. The Digitalization variable achieved the highest AVE score of 0,833, while the Employee Performance variable recorded the lowest at 0,543.

2. Reliability Test

Reliability is assessed by examining the composite reliability value, where a value greater than 0,7 is considered acceptable (Duryadi, 2021).

Table 2 Composite ReliabilityValue

Variable	Composite Reliability	Description
Digitalization	0,909	Reliable
Automatization	0,902	Reliable
Employee Performance	0,856	Reliable
Job Satisfaction	0,870	Reliable

Source: SmartPLS 3.0 Data Processing Results 2025

Based on Table 2 , This indicates that digitalization, automatization, employee performance and job satisfaction have composite reliability values exceeding 0, 70, allowing the conclusion that there are no issues with the reliability test.

Inner Model

The inner model illustrates the connections among latent variables as guided by the underlying theoretical foundation of the research. In this research, inner model aims to evaluate how strongly the examined variables affect one another. The findings from the inner model are interpreted based on the percentage of variance derived from various evaluations. Presented below are the outcomes of the structural model analysis conducted using the SmartPLS version 3.0 software.
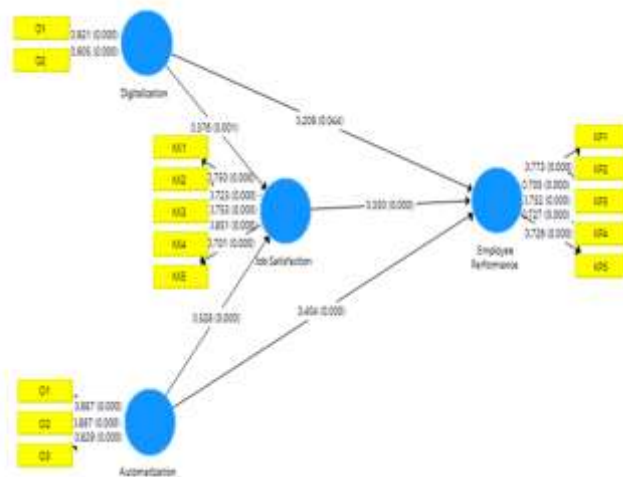

Figure 1 Coefficient Patch Diagram

R-Square

Table 3 R-Square Adjusted Result

Variable	R-Square Adjusted
Job Satisfaction	0,736
Employee Performance	0,812

Source : SmartPLS 3.0 Data Processing Results 2025

Table 3 presents the R² values, where job satisfaction has a score of 0,736 and employee performance has a score of 0,812. With this R2 value, it can be explained that the two variables are in the strong category. This assessment helps measure the strength of the impact exerted by the independent variables. P-value < α then it can be said to be significant. The coefficient of determination is utilized to assess the degree to which endogenous variables are impacted by other variables. R2 scores are categorized as follows : 0,67 (strong), 0,33 (moderate), and 0,19 (weak) (Duryadi, 2021).

Discussion

Table 4 Path Coefficients and Specific Indirect Effects Results

	Original Sample (O)	Sample Mean (M)	StandardDeviation(STDEV)	T Statistics (|O/STDEV|)	P Values
Digitalization -> Employee Performance	0,209	0,210	0,104	2,014	0,044
Automatization -> Employee Performance	0,404	0,402	0,091	4,428	0,000
Digitalization -> Job Satisfaction -> Employee Performance	0,132	0,130	0,051	2,586	0,010
Automatization -> Job Satisfaction -> Employee Performance	0,185	0,188	0,059	3,135	0,002

Source: SmartPLS 3.0 Data Processing Results 2025

1. Relationship between Digitalization and Employee Performance

The results from third hypothesis test reveal a significant relationship between digitalization and employee performance within the Environmental Service Office of Karanganyar Regency. The digitalization variable has an original sample value of 0,209, a p-value of 0,044, and a t-statistic of 2,014. These figures reveal a significant relationship between digitalization and employee performance, as the p-value < 0,05 and the t-statistic >1,96. Therefore, the first hypothesis (H1) is accepted. These findings are consistent with the study by (Ilyas & Bahagia, 2021), which also found a significant outcom of digitalization on employee performance.

2. Relationship between Automatization and Employee Performance

The findings from testing hypothesis 2 indicate a significant connection between automatization and employee performance within the Karanganyar Regency Environmental Service. Where the automatization variable has an original sample of 0,404, p value of 0,000 and t-statistic of 4,428. These figures reveal a significant relationship between automatization and employee performance, as the p-value < 0,05 and the the t statistic > 1,96. This indicates that the second hypothesis (H2) is accepted. The outcomes are consistent with the research by (Pratama et al., 2023), indicating that automation significantly influences performance in the digital era.

3. The Relationship between Digitalization and Employee Performance through Job Satisfaction as an Intervening Variable

The findings from testing hypothesis 3 indicate a significant connection between digitalization on employee performance mediated by job satisfaction within the Karanganyar Regency Environmental Service. Where the original sample variable is 0,132, p value of 0,010 and t statistic of 2,586. These figures reveal a significant relationship between digitalization and employee performance through job satisfaction, as the p-value < 0,05 and the t-statistic >1,96. This reveal that third hypothesis (H3) is accepted.

These outcomes support the conclusions of the research by (Dewi & Krisnadi, 2023) indicating that digitalization can improve employee performance through job satisfaction. As well as research (Shidqi et al., 2023) which found that job satisfaction mediates the relationship between digitalization and employee performance, where the higher employee satisfaction the better their performance.

4. The relationship between automatization and employee performance through job satisfaction as an intervening variable.

The findings from 4 hypothesis test indicate a significant connection between automatization on employee performance performance mediated by job satisfaction within the Karanganyar Regency Environmental Service. Where the original sample variable of 0,185, p value of 0,002 and t statistic of 3,135. These figures reveal that significant relationship between automatization and employee performance through job satisfaction, as the p-value < 0,05 and the t-statistic > 1,96. This reveal that fourth hypothesis (H4) is accepted. These findings are consistent with the study by (Chen & Li, 2024), found that automation can increase job satisfaction. As well as research by (Valtonen & Kimpimäki, 2023) found that automation can enhance employee performance, partly by increasing job satisfaction..

5. Conclusions

Based the analysis of the connection between Digitalization and Automation and Employee Performance at the Karanganyar Environmental Service mediated by Job Satisfaction. It can be concluded that : Digitalization is significantly connection with Employee Performance at the Environmental Service of Karanganyar Regency. Automatization is significantly associated with Employee Performance at the Environmental Service of Karanganyar Regency. Digitalization has a significant relationship to Employee Performance through Job Satisfaction at the Karanganyar Regency Environmental Service. Automatization has a significant relationship to Employee Performance through Job Satisfaction at the Karanganyar Regency Environmental Agency.

Limitation

This research has several limitations as follows : Number of Samples (size) : in this research only a few were used as respondents from a total of 185 population, only taking 35%, namely 65 respondents from the total. so this can result in insufficient information from a broader perspective. Focus on one government agency : This research was only conducted at 1 government agency, namely the Karanganyar Regency Environmental Service which is

engaged in the Environment, thus providing limitations for observing the performance of employees in other government agencies.

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