THE IMPLEMENTATION OF DIGITALIZATION ON EMPLOYEE PERFORMANCE MODERATED BY EMPLOYEE ENGAGEMENT AT THE GENERAL BUREAU OF THE REGIONAL SECRETARIAT OF NORTH SUMATRA PROVINCE

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Abstract

This study aims to determine the effect of digitalization implementation on employee performance moderated by employee engagement in the General Bureau of the Regional Secretariat of North Sumatra Province (Setdaprovsu). The North Sumatra Provincial Government, particularly in the General Bureau of the Setdaprovsu, has begun implementing a digital-based work system. This is done to be in line with the central government and other provinces that have already used digital technology. Digitalization is expected to make work faster, more efficient, and improve employee performance. However, some older employees find it difficult to use modern technology. A lack of understanding of digital systems makes it difficult for them to adapt. Therefore, it is important to determine whether the implementation of digitalization truly has an impact on employee performance, and whether employee engagement in their work can help in facing this challenge. This research method uses a quantitative approach by distributing questionnaires to 76 employees of the General Bureau of the Setdaprovsu as respondents online using Google-form. Then the data obtained will be converted into numbers with a Likert Scale which aims to find the effect of the independent variables on the dependent variable and intervening variables, then processed using the Smart-PLS (Partial Least Squares) Statistics application. Based on the analysis, it can be concluded that the implementation of digitalization has a positive impact on employee performance. This indicates that the higher the level of digital technology utilization in the workplace, the greater the effectiveness and efficiency of employee performance. Furthermore, employee engagement has been shown to positively moderate the relationship between digitalization and employee performance. Therefore, the influence of digitalization on performance will be stronger if employees are highly engaged with their work.

Keywords: *digitalization, employee performance, employee engagement, quantitative, moderation*

INTRODUCTION

Currently, government agencies are starting to actively use technology for efficiency and cost savings where the Electronic-Based Government System (SPBE) allows the automation of administrative processes that previously took a lot of time and human resources. This can reduce operational costs and increase efficiency in the delivery of public services. The basis for implementing SPBE in North Sumatra Province, especially in the Regional Secretariat of North Sumatra Province, is the existence of Presidential Regulation of the Republic of Indonesia Number 95 of 2018 concerning Electronic-Based Government Systems and Regulation of the Governor of North Sumatra Number 12 of 2022 concerning Governance of Electronic-Based Government Systems of the North Sumatra Provincial Government. In achieving the goals of regional apparatus organizations, they must not only focus on internal factors, but must also be good at responding and accommodating various changes in the external environment efficiently. The progress of an agency or organization is determined by employee performance, so the need to maintain the effectiveness and efficiency as well as the existence of employee performance, one of which is by implementing digitalization.

Performance is a result achieved by workers in their work according to certain criteria that apply to a job (Octaviani & Fuad, 2016). Digitalization or digital transformation radically interferes with and changes fundamental assumptions about the way of life and work organization of postmodern societies that are increasingly global and more digital than before. Therefore, it is increasingly important for organizations to quickly, efficiently, and appropriately plan digital transformations to achieve flexibility and maintain existence. Digitalization has increased the efficiency and effectiveness of human resource management functions, and currently human resource managers and candidates use a number of platforms such as Facebook, LinkedIn, Skype (video conferencing), and others for the recruitment process (M. Adenuddin Alwy, 2022). Employee performance is not only influenced by technological developments, but also by internal factors, namely employee engagement with their agency or organization. The concept of employee engagement is crucial in conceptualizing and determining the role of human capital in organizational performance. This concept was introduced by Gallup in 2004 empirically in business units, health centers, and educational units. When employees are engaged with a company, they develop a sense of business awareness (Octaviani & Fuad, 2016). Currently, the work

system in the North Sumatra provincial government, particularly the General Bureau of the North Sumatra Provincial Secretariat, is beginning to implement digitalization to align with the work systems of the central government and several other provinces that have already implemented digitalization. However, many employees in the General Bureau of the North Sumatra Provincial Secretariat are relatively old and lack a grasp of current technology. Based on the above problems, a study was conducted that aimed to determine the effect of the implementation of digitalization on employee performance moderated by employee engagement in the General Bureau of the North Sumatra Provincial Secretariat.

LITERATURE REVIEW
1. Performance
Performance is the work results that can be achieved by an individual or group of people in an organization, in accordance with their respective authorities and responsibilities, in order to achieve the goals of the organization concerned legally, without violating the law and in accordance with norms and ethics (Muis et al., 2018). Performance elements and standards must be measurable, understandable, verifiable, fair, and achievable. For this reason, it is necessary to establish Key Performance Indicators (KPIs) complete with various strategies and work programs needed to achieve the desired performance. The performance assessment elements that are determined must meet the SMART criteria, namely Specific (precise), Measurable (measurable), Achievable (achievable), Result oriented (results oriented), and Time related (time-bound) (Tsauri, 2014). In general, the elements that need to be assessed in the performance assessment process are loyalty, work performance, responsibility, obedience, honesty, cooperation, initiative, and ability. Government Regulation Number 30 of 2019 concerning Civil Servant Performance Assessment Article 4 Civil Servant Performance Assessment is carried out based on objective, measurable, accountable, participatory and transparent principles.

2. Digitalization
Digitalization or digital transformation simultaneously affects many areas within an organization and there are many stakeholders involved in determining the transformation strategy, for example, marketing, information technology, product development, strategy, or human resources. DDigitalization is a process of changing media from print to electronic form (Asaniyah, 2017). Digitalization is the increasing availability of digital data made possible by advances in creating, transferring, storing, and analyzing digital data, and has the potential to structure, shape, and influence the contemporary world (Brennen & Kreiss 2016). Digitalization is the process of transforming data from physical and analog to virtual and digital (Siregar, 2019). Digitalization has a significant impact on changing aspects of life. With the advent of digitalization, the administration sector is implementing technology to store employee data, making it easier for employees to access it electronically, and simplifying the recording and reporting processes.

3. Employee Engagement
Employee engagement is the individual's involvement with satisfaction and enthusiasm for the work performed (Robbins, 2009). Employee engagement is considered as the positive energy and motivation possessed by employees that helps the company to achieve its goals (Schiemann, 2011). Engagement is where there is a positive mind and a sense of happiness in work which can be seen from the employee's work enthusiasm or employee dedication, employee absorption in work (Schaufeli & Bakker, 2004). Employee engagement is a state of an employee who has positive thoughts and attitudes and a sense of happiness in work.

THEORETICAL FRAMEWORK AND HYPOTHESIS FORMULATION
Theoretical Framework of Thought
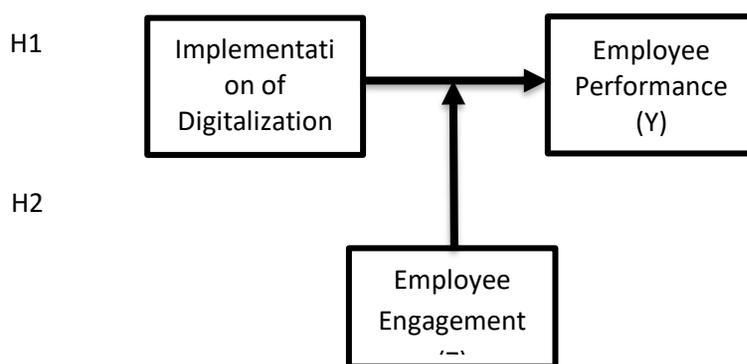Based on the literature review above, a research framework was prepared which can be seen in Figure 1 as follows:

Figure 1
Framework

Hypothesis Formulation

The Relationship between Digitalization Implementation and Employee Performance

Digitalization has a positive impact on operational performance (M. Putri et al., 2022). Digitalization or digital transformation is a growing phenomenon that influences business strategy, structure, and processes, and has potential benefits for performance (Truant & Broccardo, 2021). The results of research by Pertiwi, W., & Nurhikmah (2018) stated that there is a significant influence between the digitalization system and employee performance at the BTPN Syariah Bank, Majalengka branch. Based on the description above, the following hypothesis is proposed:

H1: The implementation of digitalization has a positive effect on employee performance.

The Relationship Between Employee Engagement, Digitalization Implementation, and Employee Performance

The results of Ratna's (2018) research show that the use of information technology with work stress moderation can improve the performance of employees of PT. PLN (Persero) Malang Transmission Implementation Unit (UPT). The results of Sulistianingtiyas & Djastuti's (2020) research state that digitalization in the workplace increases employee performance expectations thereby increasing work productivity, fostering good employee attitudes towards the use of technology, increasing employee self-efficacy in completing work, encouraging employees to take the initiative, update skills, creative solutions, active participation, new challenges, and enabling employee involvement in an integrated and sustainable way of thinking with enthusiasm and determination to work with dedication in doing work seriously. Based on the description above, the following hypothesis is proposed:

H2: Employee engagement moderates the effect of digitalization implementation on employee performance.

METHOD

Research Site

This research was conducted at the General Bureau of the Regional Secretariat of North Sumatra Province, North Sumatra Governor's Office, 3rd Floor, Jalan Pangeran Diponegoro Number 30, Madras Hulu, Medan Polonia District, Medan City, North Sumatra Province.

Research Variables

In this study, the variables used consist of dependent variables, independent variables, and moderating variables. The dependent variable in this study is Employee Performance, and the independent variable is the Implementation of Digitalization. Finally, Employee Engagement serves as a moderating variable.

Data collection technique

The data collection used for this study used a questionnaire, namely a number of written questions used to obtain information from respondents in the form of reports about their personality, or things they know. It is a data collection tool in the form of questions to be filled in or answered by respondents. According to Sugiyono (2019), a questionnaire is a data collection technique carried out by providing a set of written questions or statements to respondents to answer. Data measurement is done by assigning a score to each answer to the questions in the questionnaire. Scoring in this study is based on a Likert scale of 1-5.

Implementation Stage

Researchers collect the necessary information and data. At this stage, researchers distribute questionnaires to respondents using Google Forms, which can be accessed online.

Data Processing and Analysis Stages

The data obtained is then compiled and processed into data ready for analysis. The analyzed data is then used as a basis for drawing conclusions.

Data Analysis Techniques

In this study, the data analysis technique used was Partial Least Square (PLS). PLS is a structural equation model (SEM) based on components or variance. PLS is used to confirm theories and explain the existence or absence of relationships between latent variables, in addition to calculating moderator variables directly. According to Ghozali (2015), PLS is an alternative approach that shifts from the covariance-based SEM approach to variance. Covariance-based SEM generally tests causality or theory, while PLS is more of a predictive model so it can analyze theories that are still weak. PLS can be used even though the data distribution is very skewed or non-normally distributed because it uses a random multiplication method (bootstrapping) and can be used for research with small samples.

Validity Test (Outer Model)

Validity testing is used to measure the accuracy of each question contained in the indicator or questionnaire. In this study, validity testing was conducted using the SmartPLS program. Validity testing procedures are Convergent Validity and Discriminant Validity. Convergent Validity is a measurement model by correlating item scores (component scores) with construct scores (construct scores) which produce loading factor values. A high loading factor value is considered if the indicator correlates more than 0.7. However, in research at the scale development stage, a loading factor of 0.5 to 0.6 is considered sufficient (Imam Ghozali & Latan, 2015). Meanwhile, Discriminant Validity is a measurement model by assessing indicators based on the cross-loading value of the indicator with the value of its construct. Discriminant Validityis done by comparing the square root of average variance extracted (AVE) value of each construct with the correlation between constructs with other constructs in the model (I Ghozali, 2011). According to Fornell & Larcker, (1981) the recommended AVE value is greater than 0.5. Reliability testing is used to measure a questionnaire as an indicator. A questionnaire is said to be reliable if the respondents' answers to the questions are consistent or stable (I Ghozali, 2011). In this study, the instrument reliability test was carried out using the Cronbach Alpha (α) statistical test. A construct or variable is said to be reliable if it has a composite reliability value and Cronbach Alpha > 0.7 (Imam Ghozali & Latan, 2015).

The Structural Model Test (Inner Model or Structural Model) is used to analyze the relationship or strength of influence between latent variables. Evaluation of the structural model is carried out by observing the magnitude of the R-Square, F-Square, and Estimate for Path Coefficients. The following is an explanation of the R-Square, Q-Square, F-Square, and Estimate for Path Coefficients.

1. R-Square Evaluation of the inner model is done by looking at the R-square (R2) value. The greater the R-square value, the greater the influence of a particular independent latent variable on the dependent latent variable. Changes in R-square values can be used to assess the influence of a particular independent latent variable on the dependent latent variable, whether it has a substantive influence (Imam Ghozali, 2008). Chin provides criteria for R-square values of 0.67, 0.33, and 0.19 as strong, moderate, and weak (Chin, 1998 in Ghozali & Latan, 2015).

2. Estimate for Path Coefficients

Estimate for Path Coefficientsused to see the significant influence between variables by looking at the parameter coefficient values and the significance values of t statistics and p values using the bootstrapping method (Imam Ghozali & Latan, 2015).

RESULTS AND DISCUSSION

The author will analyze the collected data according to the main problem outlined in the introduction. The results of the data processing provide information that will indicate whether the formulated hypothesis is acceptable or not.

Respondent characteristics based on gender can be seen in Table 1 below:

Gender	Frequency	Percentage (%)
Man	52	68
Woman	24	32
Total	76	100

Table 1

Based on Table 1, it can be seen that of the 76 respondents, the highest number of respondents were male, namely 52 respondents (68%), while the female gender was 24 respondents (32%). This table shows that employees working in the General Bureau of the North Sumatra Provincial Secretariat are more male than female.

Respondent characteristics based on age can be seen in Table 2 below:

Age	Frequency	Percentage (%)
Under 21 years	0	0
21 years – 25 years	0	0
26 years – 30 years	3	4
31 years – 35 years	4	5
36 years – 40 years	8	11
41 years – 45 years	7	9
Over 45 years old	54	71
Total	76	100

Table 2

THE IMPLEMENTATION OF DIGITALIZATION ON EMPLOYEE PERFORMANCE MODERATED BY EMPLOYEE ENGAGEMENT AT THE GENERAL BUREAU OF THE REGIONAL SECRETARIAT OF NORTH SUMATRA PROVINCE

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Based on Table 2, it can be seen that respondents are divided into 7 age categories, namely 0 respondents (0%) under 21 years old, 0 respondents (0%) aged 21-25 years old, 3 respondents (4%) aged 26-30 years old, 4 respondents (5%) aged 31-35 years old, 8 respondents (11%) aged 36-40 years old, 7 respondents (9%) aged 41-45 years old, and the remaining 54 respondents (71%) aged over 45 years old. In this study, employees aged over 45 years were the most dominant, namely 71%.

Respondent characteristics based on education can be seen in Table 3 below:

Education	Frequency	Percentage (%)
Junior High School	3	4
High School	32	42
Vocational High School	10	13
D-III	3	4
D-IV	5	7
S-1	21	28
S-2	2	3
Total	76	100

Table 3

Based on Table 3 shows that of the 76 respondents, namely respondents with junior high school education level as many as 3 respondents (4%), respondents with senior high school education level as many as 32 respondents (42%), respondents with vocational high school education level as many as 10 respondents (13%), respondents with D-III education level as many as 3 respondents (4%), respondents with D-IV education level as many as 5 respondents (7%), respondents with S-1 education level as many as 21 respondents (28%), and respondents with S-2 education level as many as 2 respondents (3%). In this study, employees with high school education were the most dominant, namely 42%.

Respondent characteristics based on length of service can be seen in table 4 below:

Years of service	Frequency	Percentage (%)
Under 1 year	0	0
1-5 years	2	3
6-10 years	2	3
11-15 years	5	7
Over 15 years old	67	88
Total	76	100

Table 4

Based on Table 4, it can be seen that out of 76 respondents, there are no respondents (0%) who have worked for less than 1 year, as many as 2 respondents (3%) who have worked between 1-5 years, as many as 2 respondents (3%) who have worked between 6-10 years, as many as 5 respondents (7%) who have worked between 11-15 years, and as many as 67 respondents (88%) who have worked over 15 years. In this study, the majority of employees of the General Bureau of the North Sumatra Provincial Secretariat have worked for more than 15 years, namely 88%.

Descriptive Analysis

Descriptive analysis is used to describe research data. The data in question are respondent data and research variable data. Respondent data is in the form of a frequency table based on certain criteria. Research variables are in the form of conditions of each research variable such as mean, mode, standard deviation, minimum and maximum. Descriptive analysis of research variables also includes categorization of variables, namely from measurements that originally used 10 scales into 5 categories. The theoretical mean value is the highest theoretical value plus the lowest theoretical value divided by 2. The lowest theoretical value (if the answer to each questionnaire item is 1) While the highest theoretical value (if the answer to each questionnaire item is 5). The empirical mean value is greater than the theoretical mean value, meaning the variable is categorized as good. The description of research respondents can be seen in the results of descriptive analysis in the form of a frequency table. The following table contains the assessment of the average for each question item:

| Average	Information
1.00 – 1.80	Strongly Disagree
1.81 – 2.60	Don't agree
2.61 – 3.40	Neutral
3.41 – 4.20	Agree
4.21 – 5.00	Strongly agree

Source: Sugiyono (2016:216)

The following shows the Loadings values for each indicator:

Table 1

	Digitalization (X)	Attachment (Z)	Performance (Y)	(Z)*(X)
X.1	0.894			
X.3	0.894			
Y.2			1,000	
Z.3		0.934		
Z.4		0.909		
Z*X				1,000

Source: Processed from Smart PLS Software (2025)

Figure 1 Validity Testing Based on Factor Loading
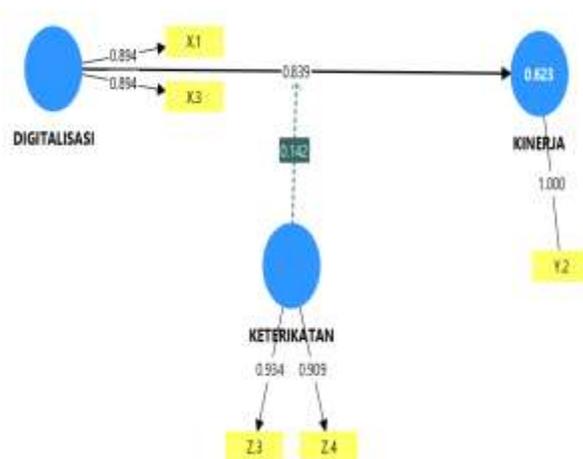
Source: Processed from Smart PLS Software (2025)

Based on the validity testing of the factor loadings in Table 1 and Figure 1, all loading values were found to be >0.7, which means they met the validity requirements based on the loading values. Next, validity testing was conducted based on the Average Variance Extracted (AVE) value.

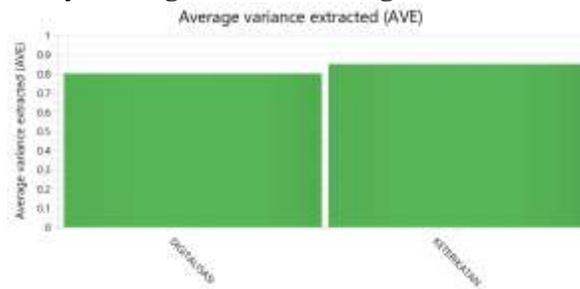**Table 2 Validity Testing based on Average Variance Extracted (AVE)**

	AverageVariance Extracted (AVE)
Attachment	0.849
Digitalization	0.800

Source: Processed from Smart PLS Software (2025)

Figure 2 Validity Testing based on Average Variance Extracted (AVE)

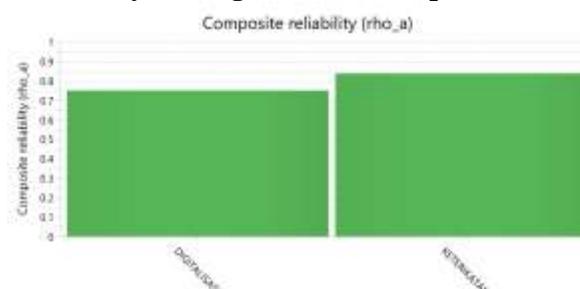Source: Processed from Smart PLS Software (2025)

The recommended AVE value is above 0.5 (Mahfud and Ratmono, 2013:67). All AVE values are >0.5, which means they meet the validity requirements based on AVE. Next, reliability testing is conducted based on the composite reliability (CR) value.

Table 3 Reliability Testing based on Composite Reliability (CR)

	Composite Reliability(CR)
Attachment	0.837
Digitalization	0.750

Source: Processed from Smart PLS Software (2025)

Figure 3 Reliability Testing based on Composite Reliability (CR)
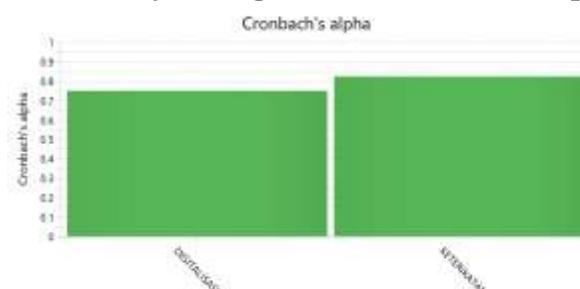

Source: Processed from Smart PLS Software (2025)

The recommended CR value is above 0.7 (Mahfud and Ratmono, 2013:67). All CR values were found to be >0.7, which means they met the reliability requirements based on CR. Next, reliability testing was conducted based on Cronbach's Alpha (CA) values.

Table 4 Reliability Testing based on Cronbach's Alpha (CA)

	Composite Reliability(CR)
Attachment	0.750
Digitalization	0.824

Source: Processed from Smart PLS Software (2025)

Figure 4 Reliability Testing based on Cronbach's Alpha (CA)

Source: Processed from Smart PLS Software (2025)

The recommended CA value is above 0.7 (Mahfud and Ratmono, 2013:67). All CA values were found to be >0.7, which means they met the reliability requirements based on Cronbach's alpha. Next, discriminant validity testing was conducted using the Fornell-Larcker approach. The following shows the results of the discriminant validity testing.

Table 5 Discriminant Validity Testing

	Digitalization	Attachment	Performance
Digitalization	0.894		
Attachment	0.914	0.922	
Performance	0.783	0.709	1,000

Source: Processed from Smart PLS Software (2025)

In discriminant validity testing, the square root of the AVE of a latent variable is compared with the correlation between that latent variable and other latent variables. The square root of the AVE for each latent variable is greater than the correlation between that latent variable and other latent variables. Therefore, it is concluded that the discriminant validity requirements have been met.

Significance Test of Effect (Boostrapping) (Hypothesis Test)

The results of the significance test of the influence are in the following table:

	Originalsample (O)	Samplemean (M)	Standard deviation(STDEV)	T Statistics (|O/STDEV|)	P values
Digitalization (X) -> Performance (Y)	0.839	0.827	0.290	2,894	0.004
(X)*(Z) -> (Y)	0.142	0.125	0.118	1,206	0.228

Source: Processed from Smart PLS Software (2025)

Based on the results in the table above, the following results were obtained:
1. Digitalization (X) has a positive effect on Performance (Y), with a path coefficient value (Original sample column) of 0.839, with a P value = 0.004 (H1 is accepted)
2. Employee engagement (Z) moderates the implementation of digitalization in influencing employee performance (Y), although 22.8% of the results occurred by chance with P values = 0.228 (H2 is accepted)

CONCLUSION

The results of this study indicate that the implementation of digitalization has a positive impact on employee performance. This indicates that the higher the level of digitalization implemented in the work system, the better the resulting employee performance. Digitalization can increase efficiency, accelerate information access, and improve workflows, ultimately contributing to improved individual and organizational performance. Furthermore, this study also found that employee engagement positively moderates the relationship between digitalization and employee performance. In other words, the effect of digitalization on performance will be stronger when employees have a high level of engagement with their work. Employees who feel emotionally, cognitively, and behaviorally engaged in their work tend to adapt more quickly to digital systems and utilize them optimally to increase productivity.

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