

The Effect of Generational Differences on Performance Employees at PLN UP2D Makassar

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Abstract

The urgency of this study is to examine how generational differences influence employee performance at PLN UP2D Makassar, enabling the organization to develop more effective workforce management strategies in a multigenerational workplace. Rapid technological change and the increasing presence of multigenerational employees in the workplace have created challenges for organizations in managing differences in work values, communication styles, and technological adaptability. Therefore, understanding the impact of generational differences on employee performance has become increasingly important for organizations seeking to maintain productivity and competitiveness. This study aims to examine and analyze the effect of generational differences on employee performance at PLN UP2D Makassar. The research employed a quantitative approach using a causal-comparative design. Data were collected through questionnaires distributed to all employees, totaling 70 respondents, using a saturated sampling technique. Data analysis was conducted using simple linear regression supported by validity, reliability, and classical assumption tests with SPSS. The findings reveal that generational differences have a positive and significant effect on employee performance. This is evidenced by a regression coefficient of 0.960 and a significance value of 0.000, which is below the 0.05 threshold. Additionally, the t-statistic value of 14.957 indicates a strong influence of generational differences on performance. The coefficient of determination (R^2) of 0.767 suggests that 76.7% of the variation in employee performance can be explained by generational differences, while the remaining 23.3% is influenced by other variables not included in the model. The results imply that organizations should implement inclusive human resource management strategies that accommodate multigenerational characteristics through adaptive communication, collaborative work systems, and technology-based training programs. In conclusion, effective management of generational diversity can improve employee performance, strengthen workplace collaboration, and enhance organizational productivity.

Keywords: *Generational Differences, Employee Performance, Human Resource Management, Multigenerational Workforce, Organizational Productivity*

Introduction

In the era of globalization and rapid technological transformation, organizations are increasingly required to adapt to dynamic business environments characterized by digitalization, innovation, and workforce diversity (Ciampi et al., 2021). One of the most significant forms of diversity emerging in contemporary organizations is generational diversity (Telyani et al., 2022). Modern workplaces are now occupied by employees from different generations, particularly Millennials (Generation Y) and Generation Z, each possessing distinct characteristics, values, communication styles, and approaches to work (Benítez-Márquez et al., 2022; Schroth, 2021). These differences are shaped by varying social, economic, technological, and cultural experiences during their formative years, influencing their attitudes, behaviors, and expectations

in the workplace (Costanza et al., 2021). As organizations continue to integrate digital systems and technology-based operations, interactions among employees from different generations become increasingly complex and influential in determining organizational effectiveness and employee performance.

Generational diversity has become a strategic issue in human resource management because each generation demonstrates unique expectations toward leadership, work environment, organizational culture, career development, and work-life balance (Rudolph et al., 2021). Generation Y, commonly referred to as Millennials, is generally characterized by collaborative behavior, flexibility, openness to feedback, and a strong orientation toward meaningful work and work-life balance. Meanwhile, Generation Z tends to be more technologically adaptive, independent, innovative, and highly connected to digital communication systems (Mahmoud et al., 2022; Pichler et al., 2021; Herliani & Priscilla, 2025).

Although these characteristics can create opportunities for creativity, innovation, and organizational learning, they may also generate communication barriers, misunderstandings, conflicts, and differences in work approaches if not managed effectively. Consequently, organizations must develop adaptive human resource strategies capable of accommodating multigenerational characteristics to ensure organizational harmony and optimal performance outcomes (Babullah, 2024; Al-Asfour & Lettau, 2021).

The importance of understanding generational differences becomes even more relevant in organizations undergoing digital transformation, including state-owned enterprises operating in highly technical sectors such as electricity distribution. PLN, as Indonesia's state-owned electricity company, continues to modernize its operational systems through the integration of digital technologies, automation, and real-time monitoring systems. One of its operational units, PLN UP2D Makassar, plays a strategic role in maintaining electricity distribution reliability and operational efficiency in South Sulawesi.

In such a highly technical and technology-driven environment, effective collaboration among employees from different generations is essential to ensure smooth coordination, rapid problem-solving, and sustainable organizational performance. However, differences in communication preferences, technological adaptation, and work values among employees may influence work effectiveness and employee productivity. Therefore, understanding the relationship between generational differences and employee performance within this organizational context becomes increasingly important.

Employee performance represents one of the most critical indicators of organizational success because it reflects employees' ability to achieve organizational goals effectively and efficiently (Babullah, 2024). According to human resource management theory, employee performance reflects the degree to which employees complete tasks based on predetermined standards related to quality, quantity, timeliness, effectiveness, and responsibility. Employee performance is influenced by multiple factors, including competence, motivation, organizational support, leadership, work environment, organizational culture, and employee commitment (Erwandana & Sitohang, 2023; Walukow et al., 2016; Utami et al., 2022).

In a multigenerational workforce, these determinants are further shaped by generational characteristics that influence how employees interact, communicate, and respond to organizational demands. Differences in work expectations, learning styles, and adaptation to technological systems can significantly affect employees' ability to perform effectively within a collaborative organizational setting.

Several previous studies have examined the influence of generational differences on employee performance and organizational outcomes. Recent research indicates that generational diversity can positively contribute to organizational innovation and productivity when supported by inclusive leadership and adaptive organizational culture. Generation Z employees demonstrate higher adaptability to digital systems and technological innovation, thereby contributing positively to organizational productivity in technology-intensive industries (Mahmoud et al., 2022; Herliani & Priscilla, 2025). Millennials emphasize teamwork, collaboration, and flexibility, which positively influence organizational communication and employee engagement (Al-Asfour & Lettau, 2021; Iskandar & Utami, 2024).

Furthermore, generational diversity has been found to enhance knowledge sharing and organizational learning when organizations implement collaborative work systems and flexible management practices. Multigenerational teams can improve problem-solving capabilities and organizational creativity because they bring diverse perspectives, experiences, and approaches to workplace challenges (Pichler et al., 2021; Sousa et al., 2023; Nurhidayah & Larasati, 2026). Likewise, generational characteristics significantly influence employee performance through differences in work motivation, communication styles, and technology adaptation (Prasetyo & Sutanto, 2022; Putri & Handayani, 2023; Hidayat & Santoso, 2021).

However, despite the positive findings reported in several studies, other researchers have presented contradictory evidence regarding the relationship between generational differences and employee performance. Some scholars argue that generational differences are often overstated and may not directly affect performance outcomes. Many workplace differences commonly attributed to generational identity may actually be explained by individual personality traits, organizational culture, leadership style, and career stage rather than generational membership itself. Consequently, generational categories alone may be insufficient predictors of employee performance and workplace behavior (Nurasih & Sanusi, 2025).

Similarly, leadership effectiveness and organizational climate have been found to exert a stronger influence on employee performance than generational differences. Although employees from different generations may possess distinct preferences and communication styles, these differences do not necessarily result in significant variations in job performance (Stoker et al., 2022). Research also suggests that work environment, leadership style, organizational culture, and employee engagement play a more dominant role in shaping employee performance than generational affiliation alone (Utami & Nugroho, 2023; Andriyanto & Fadilla, 2024; Putri & Mayasari, 2025). Furthermore, the relationship between generational diversity and employee performance appears to be highly context-dependent and influenced by organizational management practices, technological readiness, and employee engagement strategies (Sousa et al., 2023; Rudolph et al., 2021).

The inconsistencies among previous findings indicate that the relationship between generational differences and employee performance remains inconclusive and requires further empirical investigation. While some studies highlight the positive impact of generational diversity on organizational productivity and innovation, others argue that generational differences do not significantly affect performance unless supported by organizational factors such as leadership, communication systems, workplace culture, and employee commitment. These contradictory findings reveal a significant theoretical and empirical gap in the literature regarding the actual impact of generational diversity on employee performance.

In addition to inconsistencies in findings, several limitations can also be identified in previous studies. First, many prior studies focus primarily on private-sector organizations,

service industries, or educational institutions, with limited attention given to state-owned enterprises and technical operational environments. Second, most existing studies employ descriptive or comparative approaches rather than causal quantitative methods capable of statistically measuring the direct influence of generational differences on employee performance. Third, research examining generational diversity in the Indonesian context, particularly within electricity distribution organizations, remains relatively limited. Consequently, there is insufficient empirical evidence explaining how generational characteristics influence employee performance in organizations operating under highly technical and digitalized systems such as PLN UP2D Makassar.

The context of PLN UP2D Makassar presents unique organizational characteristics that distinguish this study from previous research. As a strategic operational unit responsible for monitoring and maintaining electricity distribution systems, PLN UP2D Makassar requires employees to operate complex digital technologies, respond quickly to technical disruptions, and coordinate effectively across departments. Employees from different generations are required to collaborate within an environment demanding accuracy, technological competence, adaptability, and effective communication. In such a setting, differences in technological familiarity, communication patterns, and work approaches among generations may significantly influence operational performance and organizational productivity.

Moreover, the acceleration of digital transformation within PLN increases the urgency of understanding generational dynamics in the workplace. Younger employees, particularly Generation Z, generally demonstrate higher technological literacy and adaptability to digital systems, while older generations may possess stronger organizational experience and technical expertise developed through years of service (Mahmoud et al., 2022; Pichler et al., 2021). Furthermore, work-life balance, organizational commitment, workplace flexibility, and employee loyalty have emerged as important determinants of employee performance among younger generations (Sari & Wibowo, 2025; Utami et al., 2022). The integration of these diverse competencies can potentially improve organizational effectiveness if managed properly. However, inadequate management of generational diversity may also create resistance to change, communication barriers, and decreased collaboration effectiveness. Therefore, examining the influence of generational differences on employee performance in PLN UP2D Makassar becomes highly relevant both theoretically and practically.

Based on the review of previous studies, the research gap in this study can be clearly identified. Previous research has extensively discussed generational diversity and employee performance separately; however, limited studies have specifically analyzed the direct causal relationship between generational differences and employee performance within state-owned enterprises operating in technology-intensive environments. Furthermore, contradictory findings from previous studies indicate the need for further empirical investigation to determine whether generational differences significantly influence employee performance within specific organizational contexts. This study seeks to fill this gap by providing empirical evidence from PLN UP2D Makassar using a quantitative causal-comparative approach supported by statistical analysis.

The novelty of this research lies in several aspects. First, this study specifically focuses on generational differences within a state-owned electricity distribution company undergoing digital transformation, which remains underexplored in previous literature. Second, unlike earlier studies that predominantly employ descriptive methods, this research utilizes a quantitative causal approach to measure the direct effect of generational differences on employee

performance through simple linear regression analysis. Third, this study integrates dimensions of work style, communication patterns, technological adaptation, and work motivation as indicators of generational differences, thereby providing a more comprehensive understanding of multigenerational workforce dynamics. Fourth, the study contributes empirical evidence from the Indonesian organizational context, particularly within the energy sector, which has received limited scholarly attention in generational diversity research.

This research is expected to contribute both theoretically and practically. Theoretically, the findings are expected to enrich the literature on human resource management, organizational behavior, and generational diversity by clarifying the relationship between generational differences and employee performance within technology-driven organizations. Practically, the results are expected to provide valuable insights for organizational leaders and human resource managers in designing inclusive workplace policies, adaptive communication systems, and multigenerational collaboration strategies. Organizations may use these findings to improve teamwork effectiveness, minimize generational conflict, and optimize employee productivity in the context of digital transformation.

Accordingly, this study aims to analyze and quantify the effect of generational differences on employee performance at PLN UP2D Makassar. Specifically, this research seeks to answer the following research question: Do generational differences significantly influence employee performance at PLN UP2D Makassar? By addressing this question, the study intends to provide empirical evidence regarding the role of generational diversity in shaping employee performance and organizational effectiveness within a modern, technology-oriented workplace environment.

Method

This study employed a quantitative research design using a causal-comparative approach to examine the effect of generational differences on employee performance. The quantitative method was selected because it enables the objective measurement of variables and facilitates statistical testing to determine causal relationships between the independent and dependent variables. The causal-comparative approach is appropriate for this study because it seeks to identify whether generational differences significantly influence employee performance without directly manipulating the variables. The independent variable in this study is generational differences, while employee performance serves as the dependent variable. This approach allows the researcher to systematically analyze the relationship between both variables within the organizational context of PLN UP2D Makassar.

The study was conducted at PLN UP2D Makassar, one of the operational units responsible for electricity distribution monitoring and control in South Sulawesi, Indonesia. The organization was selected because it represents a multigenerational workforce operating within a technology-driven and digitally integrated environment. Employees at PLN UP2D Makassar consist primarily of Millennials (Generation Y) and Generation Z, whose differing work styles, communication patterns, and technological adaptability make the organization an appropriate setting for examining generational diversity and employee performance.

The population of this study consisted of all employees working at PLN UP2D Makassar, totaling 70 employees. Considering the relatively small population size, this study employed a saturated sampling technique or census method, in which all members of the population were included as respondents. The use of saturated sampling ensures comprehensive data representation and minimizes sampling bias, thereby improving the accuracy and reliability of the findings. Respondents included employees with different educational backgrounds, work

experiences, ages, and job responsibilities to capture diverse generational characteristics within the organization.

The primary data collection technique used in this research was a structured questionnaire. The questionnaire was developed based on established theoretical concepts and previous empirical studies related to generational differences and employee performance. The generational differences variable was measured through several indicators, including work style, communication patterns, technological adaptability, work values, and work motivation. Meanwhile, employee performance was measured using indicators such as quality of work, quantity of work, timeliness, responsibility, discipline, and teamwork. All questionnaire items were assessed using a five-point Likert scale ranging from strongly disagree (1), disagree (2), neutral (3), agree (4), to strongly agree (5). The use of the Likert scale allows respondents to express their perceptions quantitatively and facilitates statistical analysis.

In addition to questionnaires, supporting data were collected through documentation techniques. Documentation included organizational reports, employee demographic data, organizational structure documents, and internal records relevant to the research variables. These supporting data were used to strengthen the interpretation of research findings and provide contextual understanding regarding the organizational environment at PLN UP2D Makassar.

Before the questionnaire was distributed to respondents, the research instrument underwent expert validation to ensure content validity and measurement accuracy. Expert validation was conducted by two academics specializing in Human Resource Management and one practitioner from the human resource division of PLN. The experts evaluated the questionnaire items in terms of clarity, relevance, language appropriateness, and conformity with the research indicators. The validation process aimed to ensure that each item accurately represented the constructs being measured and was suitable for the organizational context.

The validity level of the instrument was calculated using the following formula:

$$V = \frac{\sum X}{N}$$

where:

VVV = validity score

$\sum X$ = total score given by validators

NNN = maximum possible score

The validity criteria used in this study are presented as follows:

4.21 – 5.00 = Very Valid

3.41 – 4.20 = Valid

2.61 – 3.40 = Fairly Valid

1.81 – 2.60 = Less Valid

1.00 – 1.80 = Invalid

Based on the expert validation results, all questionnaire items obtained an average score above 4.20, indicating that the instrument was categorized as “very valid” and feasible for use in data collection. After expert validation, a pilot test was conducted involving 20 respondents outside the research sample to examine the validity and reliability of the questionnaire

statistically. The validity test was conducted using the Pearson Product Moment correlation technique. Questionnaire items were considered valid if the calculated correlation coefficient (r_{count_count}) exceeded the critical value of r_{table_table} at a significance level of 0.05. All questionnaire items demonstrated correlation coefficients higher than the required threshold, indicating that the items were valid and capable of measuring the intended constructs accurately. Reliability testing was performed using Cronbach's Alpha coefficient to evaluate the consistency and stability of the instrument. The reliability formula applied in SPSS analysis is expressed as follows:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right)$$

where:

α (alpha) = Cronbach's Alpha coefficient

k = number of questionnaire items

$\sum \sigma_b^2$ = total variance of each item

σ_t^2 = total variance

The instrument was considered reliable if the Cronbach's Alpha value exceeded 0.70. The reliability test results showed that all variables had Cronbach's Alpha coefficients above 0.70, indicating high internal consistency and reliability. This study also included feasibility and practicality testing of the research instrument. The practicality test aimed to determine whether the questionnaire was easy to understand, practical to use, and appropriate for respondents. Practicality assessment was conducted using respondent responses from the pilot test stage. The practicality score was calculated using the following formula:

$$P = \frac{\sum X}{N} \times 100\%$$

where:

PPP = practicality percentage

$\sum x$ = total score obtained

N = maximum possible score

The practicality criteria were determined as follows:

81% – 100% = Very Practical

61% – 80% = Practical

41% – 60% = Fairly Practical

21% – 40% = Less Practical

0% – 20% = Not Practical

The practicality testing results indicated that the questionnaire achieved a score above 85%, meaning that the instrument was categorized as "very practical" and easily understood by respondents. Furthermore, effectiveness testing was conducted to determine whether the instrument effectively measured the research variables and produced accurate data relevant to the study objectives. Effectiveness was assessed based on respondent comprehension, completeness of responses, and consistency of answers during the pilot testing process. The effectiveness level was calculated using the formula:

$$E = \frac{\text{Obtained Score}}{\text{Maximum Score}} \times 100\%$$

The effectiveness criteria used were as follows:

- 81% – 100% = Very Effective
- 61% – 80% = Effective
- 41% – 60% = Moderately Effective
- 21% – 40% = Less Effective
- 0% – 20% = Ineffective

The results demonstrated that the research instrument achieved an effectiveness score above 80%, indicating that the questionnaire was categorized as “very effective” for measuring generational differences and employee performance variables. Prior to hypothesis testing, classical assumption tests were conducted to ensure that the data met the requirements for regression analysis. These tests included normality, heteroscedasticity, and multicollinearity tests. The normality test was conducted using the Kolmogorov-Smirnov test to determine whether the data distribution was normal. Data were considered normally distributed if the significance value exceeded 0.05. The heteroscedasticity test was conducted using scatterplot analysis to determine whether residual variance remained constant across observations. Meanwhile, multicollinearity testing was conducted using the Variance Inflation Factor (VIF) and tolerance values. A VIF value below 10 and tolerance above 0.10 indicated the absence of multicollinearity among variables. The data analysis technique used in this study was simple linear regression analysis conducted using the Statistical Package for the Social Sciences (SPSS). Simple linear regression was selected because the study involved one independent variable and one dependent variable. The regression model used in this study is formulated as follows:

$$Y = a + bX + e$$

where:

- Y = employee performance
- a = constant
- b = regression coefficient
- X = generational differences
- e = error term

Hypothesis testing was conducted using the t-test to determine whether generational differences significantly influenced employee performance. The decision-making criteria were established as follows:

- If the significance value (ppp) < 0.05, the hypothesis is accepted.
- If the significance value (ppp) > 0.05, the hypothesis is rejected.

Additionally, the coefficient of determination (R^2) was calculated to determine the extent to which generational differences explain variations in employee performance. The higher the R^2 value, the greater the contribution of the independent variable in explaining the dependent variable. Overall, the research procedures applied in this study were systematically organized and designed to ensure methodological rigor, validity, reliability, practicality, and effectiveness. Through the use of validated instruments, comprehensive testing procedures, and appropriate statistical techniques, this study provides a reliable methodological framework

for examining the influence of generational differences on employee performance within a multigenerational organizational environment.

Results

Respondent Characteristics

The characteristics of respondents were analyzed to describe the demographic profile of the employees involved in this study. The analysis includes gender, age, and education level.

Table 1. Respondent Characteristics by Gender

<i>Gender</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Male	39	56%
Female	31	44%
Total	70	100%

Table 1 presents the distribution of respondents based on gender at PLN UP2D Makassar. The data indicate that male employees dominate the workforce, accounting for 39 respondents or 56% of the total sample, while female employees consist of 31 respondents or 44%. This distribution reflects the organizational composition within the electricity distribution and technical operations sector, which traditionally involves a higher proportion of male employees due to the technical and operational nature of the work.

However, the relatively balanced percentage between male and female respondents demonstrates that female participation in the organization is also substantial and significant. The presence of both male and female employees in relatively comparable proportions provides a diverse demographic profile that supports the objectives of this study in examining generational differences and employee performance. Gender diversity may contribute to differences in communication styles, collaboration approaches, adaptability, and workplace interactions, which can influence organizational dynamics.

Moreover, the data indicate that the organization has created opportunities for workforce inclusiveness regardless of gender. Such diversity is important in a multigenerational organizational environment because employees from different generations may also exhibit varying work preferences and behavioral characteristics depending on their social and professional experiences. The respondent distribution shown in Table 1 also confirms that the sample used in this study adequately represents the workforce composition at PLN UP2D Makassar. Since the study employed a saturated sampling technique involving all employees, the demographic profile accurately reflects the actual organizational condition. Therefore, the gender characteristics presented in this table strengthen the reliability of the research data and provide contextual support for further analysis regarding generational differences and employee performance.

Table 2. Respondent Characteristics by Age

<i>Age Category (Generation)</i>	<i>Frequency</i>	<i>Percentage (%)</i>
22–29 (Gen Z)	48	69%
30–45 (Millennials)	22	31%
Total	70	100%

The dominance of Generation Z employees is consistent with the findings of the previous studies, who reported that younger employees increasingly dominate organizations undergoing digital transformation because of their strong digital literacy and adaptability to technological

innovation (Mahmoud et al., 2022). This condition is particularly relevant in PLN UP2D Makassar, where operational activities rely heavily on digital monitoring systems.

Table 2 illustrates the distribution of respondents based on age categories, which are grouped according to generational classifications. The findings reveal that the majority of respondents belong to Generation Z, aged between 22 and 29 years, totaling 48 employees or 69% of the total respondents. Meanwhile, employees categorized as Millennials, aged between 30 and 45 years, consist of 22 respondents or 31%. These findings indicate that the workforce composition at PLN UP2D Makassar is dominated by younger employees who are generally more familiar with digital technology, fast communication systems, and adaptive work environments.

The dominance of Generation Z employees reflects the organizational transition toward a younger and more digitally oriented workforce. Generation Z employees are often characterized by high technological literacy, flexibility, creativity, and rapid adaptability to digital transformation. These characteristics are highly relevant in organizations such as PLN UP2D Makassar, which increasingly relies on technology-based operational systems and real-time monitoring processes. At the same time, the presence of Millennial employees contributes valuable professional experience, teamwork orientation, and organizational understanding that may complement the strengths of younger employees.

The age distribution presented in this table is highly relevant to the objectives of this study because generational differences constitute the primary independent variable being analyzed. The coexistence of Generation Z and Millennials within the same workplace creates opportunities for collaboration as well as potential differences in communication styles, work values, and technological adaptation. Consequently, the demographic composition shown in Table 2 provides a strong foundation for examining how generational diversity influences employee performance within a multigenerational organizational setting.

Table 3. Respondent Characteristics by Education

<i>Education Level</i>	<i>Frequency</i>	<i>Percentage (%)</i>
High School	2	3%
Diploma	6	9%
Bachelor (S1)	60	86%
Master (S2)	2	3%
Total	70	100%

Table 3 presents the educational background of respondents involved in this study. The results show that the majority of employees at PLN UP2D Makassar possess a Bachelor's degree (S1), totaling 60 respondents or 86% of the total sample. Respondents with Diploma qualifications account for 6 employees or 9%, while employees with High School and Master's degree qualifications each consist of 2 respondents or 3%. These findings indicate that the workforce within the organization is predominantly composed of highly educated employees with formal academic qualifications relevant to technical and operational responsibilities.

The dominance of Bachelor's degree holders reflects the increasing demand for professional competencies and analytical skills in organizations operating within technology-intensive sectors such as electricity distribution. Employees with higher educational qualifications are generally expected to possess stronger problem-solving abilities, technological understanding, communication skills, and adaptability to organizational changes. These competencies are particularly important in PLN UP2D Makassar, where employees are required to manage digitally integrated operational systems and maintain service reliability. The

educational composition also supports the implementation of organizational digital transformation initiatives because highly educated employees tend to adapt more effectively to technological innovation and modern work systems.

Furthermore, the educational diversity shown in the table may contribute to variations in employee perspectives, learning capacities, and work approaches, which are relevant to generational dynamics in the workplace. Overall, the findings in Table 3 indicate that the respondents involved in this study possess adequate educational qualifications to provide reliable responses regarding generational differences and employee performance, thereby strengthening the validity and credibility of the research findings.

Descriptive Analysis of Variables

Descriptive statistics were used to examine the distribution of responses for each research variable.

Table 4. Descriptive Statistics of Generational Differences (X)

<i>Indicator</i>	<i>Mean Score</i>
X1.1	3.13
X1.2	3.09
X1.3	3.16
X1.4	3.16
X1.5	3.23
X1.6	3.21
X1.7	2.97
X1.8	3.30
X1.9	3.50
X1.10	3.37
Average	3.21

Table 4 presents the descriptive statistical analysis of the generational differences variable measured through ten indicators related to work style, communication patterns, technological adaptability, work values, and employee motivation.

The average score of 3.21 indicates that generational differences are perceived positively within the organization. This finding supports Diversity Management Theory, which suggests that workforce diversity can enhance organizational effectiveness when differences are managed appropriately. Similar findings were reported by previous studies, who found that generational diversity facilitates knowledge sharing and organizational learning (Pichler et al., 2021). Among the indicators, X1.9 obtained the highest mean score of 3.50, suggesting that respondents strongly recognize certain generational characteristics within organizational interactions.

Similarly, indicators X1.10 and X1.8 also demonstrate relatively high mean scores of 3.37 and 3.30 respectively, indicating positive perceptions toward communication and adaptability among employees from different generations. Conversely, indicator X1.7 obtained the lowest mean score of 2.97, implying that some aspects of generational interaction may still require improvement, particularly in areas associated with coordination or differences in work approaches. Overall, the average score above 3.00 suggests that generational diversity is clearly present within the organization and is perceived as an influential factor in workplace interactions. The findings also indicate that employees generally acknowledge differences in work attitudes, communication preferences, and technological adaptation among generational groups. Such conditions are common in multigenerational workplaces where employees from different age groups collaborate in completing organizational tasks.

The descriptive statistics presented in Table 4 provide an initial overview of how respondents perceive generational differences within their work environment. These findings serve as important preliminary evidence supporting further inferential analysis regarding the effect of generational differences on employee performance. The relatively positive average score also indicates that the organizational environment has accommodated multigenerational interaction to a considerable extent.

Table 5. *Descriptive Statistics of Employee Performance (Y)*

<i>Indicator</i>	<i>Mean Score</i>
Y1	3.10
Y2	3.00
Y3	3.13
Y4	3.48
Y5	3.57
Y6	3.45
Y7	2.97
Y8	3.25
Y9	3.68
Y10	3.93
Average	3.36

Table 5 presents the descriptive statistical analysis of the employee performance variable measured through ten indicators related to quality of work, quantity of output, timeliness, teamwork, responsibility, and discipline. The average employee performance score of 3.36 indicates relatively high performance among employees. According to Human Resource Management Theory, employee performance is influenced by organizational support, competence, and workplace interactions. Similar results were reported by previous studies, who found that effective management of generational diversity contributes positively to employee productivity (Rudolph et al., 2021). The highest mean score was obtained by indicator Y10 with a value of 3.93, followed by indicator Y9 with a score of 3.68.

These results indicate that employees demonstrate strong performance in several aspects related to responsibility, cooperation, or task completion. Additionally, indicators Y4, Y5, and Y6 also show relatively high scores, suggesting that respondents perceive employee productivity and teamwork positively within the organizational environment. However, indicator Y7 recorded the lowest mean score of 2.97, indicating that certain aspects of performance may still require improvement. The average score exceeding 3.00 demonstrates that employees generally perform their duties effectively according to organizational expectations.

The findings also reflect that employees are capable of adapting to workplace demands despite existing generational differences. This result is particularly important considering that PLN UP2D Makassar operates within a highly technical and digitally integrated environment requiring collaboration, efficiency, and responsiveness. The descriptive analysis shown in Table 5 provides an overview of the current condition of employee performance within the organization. These findings support the assumption that organizational performance may be influenced by workforce dynamics, including generational diversity. Therefore, the descriptive statistics serve as an important basis for conducting further regression analysis to determine whether generational differences significantly affect employee performance.

Instrument Testing

The validity and reliability of the research instruments were tested before conducting further analysis.

Table 6. Validity Test Results

Variable	Number of Items	Result
Generational Differences	10	Valid
Employee Performance	10	Valid

Table 6 presents the results of the validity test conducted on the research instruments used to measure generational differences and employee performance variables. The findings indicate that all questionnaire items for both variables were declared valid. Specifically, the generational differences variable consisted of 10 valid items, while the employee performance variable also contained 10 valid items. These results confirm that all questionnaire statements were capable of accurately measuring the constructs intended in this study. The validity test was conducted to determine the extent to which each questionnaire item represented the dimensions of the variables being measured. An instrument is considered valid when the correlation value of each item exceeds the minimum required threshold according to statistical criteria.

The results presented in Table 6 demonstrate that all questionnaire items met the validity requirements, indicating strong consistency between the indicators and their corresponding theoretical constructs. The validity of the instrument is an essential aspect of quantitative research because it ensures the accuracy and credibility of the collected data. By using valid questionnaire items, the researcher can confidently conclude that respondents' answers genuinely reflect their perceptions regarding generational differences and employee performance. In addition, valid instruments contribute to minimizing measurement errors and increasing the quality of statistical analysis. The findings shown in Table 6 indicate that the questionnaire used in this study is appropriate for further analysis. Since all items were statistically valid, the instrument can be considered effective in capturing information related to workplace generational dynamics and employee performance within the organizational context of PLN UP2D Makassar. Consequently, the validity results strengthen the methodological rigor and reliability of the overall research process.

Table 7. Reliability Test Results

Variable	Cronbach's Alpha	Threshold	Result
Generational Differences	0.836	> 0.60	Reliable
Employee Performance	0.821	> 0.60	Reliable

Table 7 presents the reliability test results for the research variables using Cronbach's Alpha coefficient. The findings show that the generational differences variable obtained a Cronbach's Alpha value of 0.836, while the employee performance variable achieved a value of 0.821. Both values exceed the minimum reliability threshold of 0.60, indicating that the research instrument is reliable and demonstrates high internal consistency. Reliability testing is conducted to assess the consistency and stability of the questionnaire items in measuring the intended variables. A reliable instrument produces consistent results when used repeatedly under similar conditions. The Cronbach's Alpha values shown in Table 7 indicate that the questionnaire items for both variables are highly consistent and capable of measuring the constructs accurately.

Higher Cronbach's Alpha values generally reflect stronger reliability and better instrument quality. The reliability results suggest that respondents interpreted and answered the questionnaire items consistently. This consistency is important because it reduces the possibility of random measurement errors and increases confidence in the accuracy of the collected data. In addition, reliable instruments support the validity of subsequent statistical analyses, including regression analysis and hypothesis testing. Overall, the findings presented in Table 7 confirm that the research instrument used in this study possesses strong reliability and is suitable for

further statistical analysis. The high Cronbach's Alpha values strengthen the credibility of the study and indicate that the questionnaire effectively measures generational differences and employee performance within the organizational setting of PLN UP2D Makassar.

Classical Assumption Tests

Classical assumption tests were conducted to ensure that the regression model met statistical requirements.

Table 8. Normality Test (Kolmogorov-Smirnov)

Statistic	Value
N	70
Test Statistic	0.096
Asymp. Sig. (2-tailed)	0.186

Table 8 presents the results of the normality test using the Kolmogorov-Smirnov method to determine whether the regression residuals are normally distributed. The findings indicate that the number of observations used in this study is 70 respondents, with a test statistic value of 0.096 and an Asymp. Sig. (2-tailed) value of 0.186. Since the significance value is greater than the standard significance level of 0.05, the regression residuals are considered normally distributed. The normality test is an important prerequisite in regression analysis because it ensures that the residual values generated by the regression model follow a normal distribution pattern. A normal distribution of residuals indicates that the regression model satisfies one of the classical assumptions required for accurate and unbiased statistical estimation. If the data were not normally distributed, the regression analysis results could potentially become biased or unreliable.

The significance value of 0.186 demonstrates that the residual distribution does not significantly deviate from normality. Therefore, the data used in this study fulfill the normality assumption required for simple linear regression analysis. These findings indicate that the statistical procedures applied in this research are appropriate and that the regression model can be used for hypothesis testing. Furthermore, the normality test results strengthen the credibility of the subsequent analysis regarding the influence of generational differences on employee performance. Since the data distribution satisfies the normality requirement, the regression coefficients, t-test results, and coefficient of determination can be interpreted accurately. Thus, Table 8 confirms that the research data are statistically suitable for inferential analysis within the organizational context of PLN UP2D Makassar.

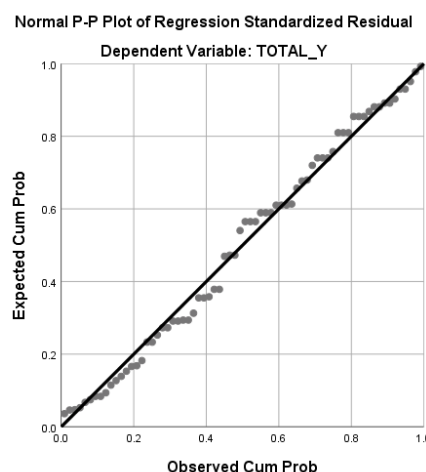


Figure 1. Normal P-P Plot of Regression Standardized Residual

Figure 1 illustrates the Normal P-P Plot of Regression Standardized Residual used to visually examine the normality of the regression residuals. The figure shows that the plotted points generally follow and spread closely around the diagonal line. This pattern indicates that the residual values are distributed normally and do not exhibit significant deviations from the expected normal distribution pattern. The Normal P-P Plot is commonly used as a complementary method to statistical normality tests such as the Kolmogorov-Smirnov test. While statistical tests provide numerical evidence regarding normality, graphical analysis allows researchers to visually assess the distribution of residuals. In this study, the distribution of points around the diagonal line demonstrates that the residuals do not display serious skewness or irregular patterns, confirming that the regression model satisfies the normality assumption.

The visual findings in Figure 1 support the results presented in Table 8, where the significance value exceeded 0.05. The consistency between the statistical test and graphical analysis strengthens confidence in the quality of the regression model used in this study. The normal distribution of residuals indicates that the model can produce accurate parameter estimates and reliable hypothesis testing results. Overall, Figure 1 confirms that the regression analysis conducted in this research meets the classical assumption of normality. Consequently, the regression model used to analyze the effect of generational differences on employee performance can be considered statistically appropriate and suitable for further inferential analysis. These findings contribute to the methodological rigor and validity of the research conducted at PLN UP2D Makassar.

Table 9. Multicollinearity Test

Variable	Tolerance	VIF
Generational Differences	1.000	1.000

Table 9 presents the results of the multicollinearity test conducted to determine whether there is a strong correlation among independent variables within the regression model. The results show that the generational differences variable obtained a tolerance value of 1.000 and a Variance Inflation Factor (VIF) value of 1.000. These values indicate that multicollinearity is not present in the regression model. The multicollinearity test is an important classical assumption test in regression analysis because excessive correlation among independent variables can distort regression coefficients and reduce the accuracy of statistical interpretation. A regression model is considered free from multicollinearity if the tolerance value exceeds 0.10 and the VIF value is below 10.

Based on the findings shown in Table 9, both criteria have been satisfied, indicating that the independent variable does not exhibit problematic correlations. Since this study uses only one independent variable, namely generational differences, the absence of multicollinearity is expected. Nevertheless, conducting the test remains important to ensure the validity and stability of the regression model. The VIF value of 1.000 indicates that the regression coefficient is not inflated by correlations with other variables, while the tolerance value confirms that sufficient independent variance exists within the model. The findings presented in Table 9 demonstrate that the regression model used in this study satisfies the multicollinearity assumption. Therefore, the regression analysis results can be interpreted reliably without concerns regarding instability or distortion of coefficients. This strengthens the accuracy and credibility of the statistical analysis examining the effect of generational differences on employee performance at PLN UP2D Makassar.

Table 10. Heteroscedasticity Test (Glejser)

Variable	Sig. Value
Generational Differences	0.444

Table 10 presents the results of the heteroscedasticity test using the Glejser method. The findings indicate that the generational differences variable obtained a significance value of 0.444. Since the significance value exceeds the standard threshold of 0.05, the regression model is considered free from heteroscedasticity problems. The heteroscedasticity test is conducted to determine whether the residual variance remains constant across all observations in the regression model. A good regression model should exhibit homoscedasticity, meaning that the residual variance is stable and evenly distributed. If heteroscedasticity occurs, the regression results may become inefficient and lead to inaccurate statistical conclusions.

The significance value of 0.444 shown in Table 10 demonstrates that the residual variance is consistent and does not vary systematically across the data points. Consequently, the regression model fulfills the homoscedasticity assumption required in classical linear regression analysis. This result indicates that the regression coefficients estimated in this study are reliable and unbiased. The absence of heteroscedasticity strengthens the validity of the regression analysis used to examine the influence of generational differences on employee performance. Since the model satisfies this classical assumption, the statistical interpretation of hypothesis testing and coefficient estimation can be performed with greater confidence. Therefore, the findings presented in Table 10 support the suitability of the regression model applied in this study conducted at PLN UP2D Makassar.

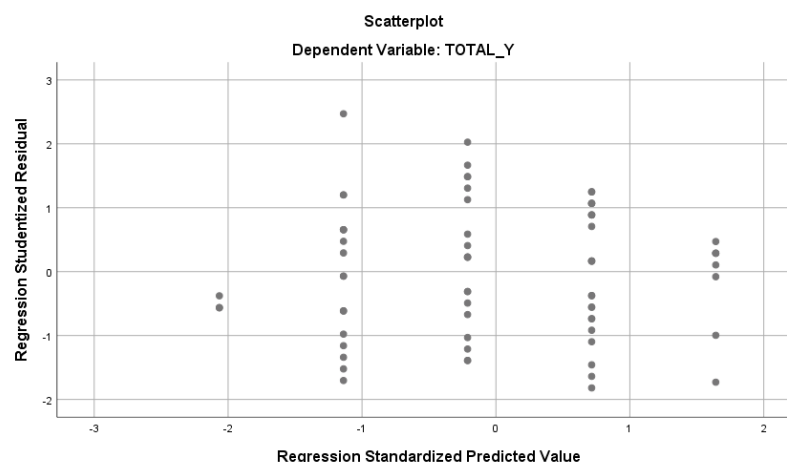


Figure 2. Scatterplot of Heteroscedasticity Test

Figure 2 presents the scatterplot of the heteroscedasticity test used to visually evaluate the distribution of residual values in the regression model. The figure shows that the data points are randomly distributed above and below the horizontal axis without forming a specific pattern. This indicates that the regression model does not experience heteroscedasticity problems. The scatterplot analysis serves as a visual complement to the Glejser statistical test presented in Table 10. In a regression model that satisfies the homoscedasticity assumption, residual points should spread randomly and evenly without clustering or forming systematic patterns such as funnels, waves, or curves.

The scatterplot shown in Figure 2 demonstrates such random distribution, confirming that the residual variance remains constant across observations. The random spread of points also suggests that the regression model is stable and suitable for statistical analysis. The absence of

heteroscedasticity indicates that the estimated regression coefficients are efficient and capable of producing accurate interpretations regarding the relationship between generational differences and employee performance. Overall, Figure 2 confirms that the regression model used in this study fulfills the classical assumption of homoscedasticity. The consistency between the visual analysis and the Glejser test results strengthens the reliability of the statistical model applied in this research. Therefore, the regression analysis conducted at PLN UP2D Makassar can be considered methodologically appropriate and statistically robust.

Hypothesis Testing

Hypothesis testing was conducted using the t-test to examine the significance of the independent variable.

Table 11. Simple Linear Regression Results

Variable	Coefficient (B)	t-value	Sig.
Constant	-0.108	-0.051	0.959
Generational Differences	0.960	14.957	0.000

The significant positive effect of generational differences on employee performance supports Diversity Management Theory, which argues that workforce diversity can become a strategic organizational resource when managed effectively. This finding is consistent with studies conducted, who reported that generational diversity positively influences organizational productivity and innovation (Mahmoud et al., 2022; Pichler et al., 2021; Rudolph et al., 2021). The findings indicate that the regression coefficient for the generational differences variable is 0.960 with a t-value of 14.957 and a significance value of 0.000. These results demonstrate that generational differences have a positive and statistically significant effect on employee performance.

The positive regression coefficient indicates that improvements in the management and interaction of generational differences are associated with increases in employee performance. In other words, the better the organization accommodates differences in work style, communication, technological adaptability, and work values among employees, the higher the employee performance achieved within the organization. The t-value of 14.957 is substantially higher than the critical t-table value, while the significance value of 0.000 is far below the standard threshold of 0.05. These findings confirm that the influence of generational differences on employee performance is statistically significant.

Therefore, the research hypothesis stating that generational differences significantly influence employee performance is accepted. The regression results presented in Table 11 indicate that generational diversity constitutes an important factor influencing workplace performance within the organizational environment of PLN UP2D Makassar. The findings support inclusive multigenerational human resource management as a key factor in improving organizational productivity, collaboration, and work effectiveness.

Regression Analysis

Simple linear regression analysis was conducted to determine the effect of generational differences on employee performance.

Table 12. t-Test Results

Variable	t-value	Sig.
Generational Differences	14.957	0.000

Table 12 presents the results of the t-test conducted to examine the significance of the effect of generational differences on employee performance. The findings show that the generational differences variable obtained a t-value of 14.957 with a significance value of 0.000. Since the significance value is lower than 0.05, the effect of generational differences on employee performance is statistically significant. The t-test is used to determine whether the independent variable individually influences the dependent variable within the regression model. The high t-value obtained in this study indicates that generational differences contribute strongly to explaining variations in employee performance. This result confirms that differences in communication styles, technological adaptation, work motivation, and work values among employees significantly affect organizational performance outcomes.

The significance value of 0.000 further strengthens the conclusion that the relationship between generational differences and employee performance is not caused by random variation. Instead, the findings indicate a meaningful and measurable relationship between the two variables. Consequently, the research hypothesis proposed in this study is accepted. Overall, the t-test results demonstrate that generational diversity plays an important role in shaping employee performance within the workplace environment of PLN UP2D Makassar. These findings provide empirical support for the argument that effective management of multigenerational employees is essential for improving organizational productivity and collaboration.

Coefficient of Determination

The coefficient of determination was calculated to measure the explanatory power of the model.

Table 13. Coefficient of Determination (R^2)

Model	R	R Square	Adjusted R Square
1	0.876	0.767	0.763

Table 13 presents the coefficient of determination results used to measure the explanatory power of the regression model. The findings indicate that the regression model obtained an R value of 0.876 and an R Square value of 0.767, with an Adjusted R Square value of 0.763. These results show that generational differences explain approximately 76.7% of the variation in employee performance. The coefficient of determination reflects the extent to which the independent variable contributes to explaining changes in the dependent variable. An R Square value of 0.767 indicates a strong explanatory relationship between generational differences and employee performance. In other words, the regression model demonstrates substantial predictive capability regarding employee performance within the organizational setting.

The remaining 23.3% of employee performance variation is influenced by other factors not included in this study, such as leadership style, organizational culture, work environment, compensation, and employee motivation. Nevertheless, the relatively high R Square value confirms that generational differences represent a major factor affecting employee performance at PLN UP2D Makassar. Overall, the coefficient of determination results strengthen the conclusion that generational diversity significantly contributes to organizational performance outcomes. The findings also indicate that effective management of multigenerational employees may substantially improve employee productivity, teamwork, and organizational effectiveness within technology-driven work environments.

Discussion

The Effect of Generational Differences on Employee Performance

The results indicate that generational differences have a positive and significant effect on employee performance at PLN UP2D Makassar. This finding is evidenced by the regression coefficient of 0.960, a t-value of 14.957, and a significance value of 0.000 ($p < 0.05$). In addition, the coefficient of determination ($R^2 = 0.767$) indicates that generational differences explain 76.7% of the variation in employee performance. These results suggest that differences in communication styles, work values, technological adaptability, and work motivation among employees contribute positively to organizational performance.

The findings imply that generational diversity should be viewed as a strategic organizational resource rather than a challenge. In the context of PLN UP2D Makassar, employees from Generation Z tend to possess strong digital literacy and adaptability to technological change, while Millennial employees contribute organizational experience, teamwork orientation, and communication skills. The combination of these characteristics creates complementary competencies that support operational effectiveness and productivity.

Relationship with Theory

The findings support Human Resource Management Theory, which states that employee performance is influenced not only by individual competence but also by organizational and contextual factors. Generational diversity represents an important contextual factor that shapes employee behavior, communication patterns, collaboration, and adaptation to organizational demands. The positive relationship identified in this study indicates that employees from different generations can contribute effectively to organizational goals when diversity is managed appropriately.

The results also support Diversity Management Theory, which argues that workforce diversity can improve creativity, innovation, and problem-solving capabilities when supported by inclusive organizational practices. In PLN UP2D Makassar, generational diversity appears to facilitate knowledge sharing and collaboration between employees with different experiences and competencies, thereby enhancing overall performance. Furthermore, the findings are consistent with Social Exchange Theory, which suggests that employees demonstrate higher levels of performance when organizational environments accommodate their needs, expectations, and work preferences.

Comparison with Previous Studies and Interpretation of Findings

The findings are consistent with previous studies reporting that generational diversity positively influences employee performance. Generation Z employees have been shown to possess strong technological adaptability and digital competence that enhance productivity in technology-oriented organizations (Mahmoud et al., 2022). Similarly, Millennials contribute positively to teamwork, collaboration, and organizational communication (Al-Asfour & Lettau, 2021). Previous studies also found that multigenerational teams improve organizational learning and problem-solving through knowledge sharing and diverse perspectives (Pichler et al., 2021). The present study confirms these findings within the context of the Indonesian energy sector.

The results also support the argument that generational differences influence employee attitudes toward technological change, organizational commitment, and workplace motivation (Rudolph et al., 2021). However, the findings differ from studies suggesting that generational

differences do not significantly affect employee performance and that leadership, organizational culture, and personality factors are more influential determinants (Costanza et al., 2021; Stoker et al., 2022).

This discrepancy may be explained by differences in organizational context. Unlike many previous studies conducted in general office environments, PLN UP2D Makassar operates in a highly digitalized and technology-intensive environment where technological adaptability is essential for operational success. Consequently, generational characteristics associated with digital literacy, innovation, and responsiveness to technological change become more important determinants of employee performance. This finding supports the view that the impact of generational diversity on employee performance is context-dependent and influenced by organizational characteristics and technological demands (Sousa et al., 2023).

Conclusion

This study examined the effect of generational differences on employee performance at PLN UP2D Makassar. The findings revealed that generational differences have a positive and significant effect on employee performance. The simple linear regression analysis produced a regression coefficient of 0.960, a t-value of 14.957, and a significance value of 0.000 ($p < 0.05$), indicating that the research hypothesis was accepted. Furthermore, the coefficient of determination ($R^2 = 0.767$) shows that generational differences explain 76.7% of the variation in employee performance, while the remaining 23.3% is influenced by other factors outside the model.

These findings confirm that generational diversity contributes positively to employee performance in technology-oriented organizations. Employees from Generation Z provide strong digital literacy and technological adaptability, while Millennial employees contribute organizational experience, collaboration skills, and communication competencies. The integration of these characteristics supports organizational productivity and operational effectiveness at PLN UP2D Makassar.

The study has practical implications for human resource management, particularly in developing inclusive leadership, cross-generational collaboration, and technology-based training programs. Organizations should view generational diversity as a strategic resource capable of enhancing organizational performance.

This study is limited by its focus on a single organization and the use of only one independent variable. Therefore, the generalizability of the findings may be limited. Future research is recommended to include additional variables such as leadership style, organizational culture, employee engagement, and job satisfaction, as well as broader samples from different industries and regions to obtain a more comprehensive understanding of factors influencing employee performance.

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