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# The Influence Of Individual And Occupational Characteristics On Employee Commitment With Job Satisfaction As A Mediation At Pt. State Electricity Company (Persero) PLN UP3 Medan

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## Abstract

This study aims to examine the influence of individual characteristics and job characteristics on employee work commitment with job satisfaction as a mediating variable at PT PLN (Persero) UP3 Medan. The research uses an associative quantitative method with a Structural Equation Modeling (SEM) approach using SmartPLS software. The results show that both individual characteristics and job characteristics have a positive and significant influence on job satisfaction. Job satisfaction also significantly influences employee commitment. Furthermore, there is a significant indirect effect of individual and job characteristics on employee commitment through job satisfaction as a mediating variable. These findings highlight the importance of understanding and managing individual and job characteristics to improve employee satisfaction and commitment within the organization.

***Keywords:*** *Individual Characteristics, Job Characteristics, Job Satisfaction, Employee Commitment, Mediation*



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## INTRODUCTION

The competition in the business world is getting tighter. Companies are trying harder to win over consumers and limited resources. Globalization has made the world feel smaller, and business competition has a significant impact on company performance. This competition occurs at various levels, both local, regional, national, and international (Learned & São Paulo, São Paulo , 2023)

Companies that are able to adapt and compete well will be winners in the competition. The success of a company depends heavily on the quality of its human resources. In the context of increasingly fierce business competition, companies need to have employees who are not only skilled and competent, but also have a high level of satisfaction and commitment to their work. (Lestari, 2015)

Human Resources (HR) have an important role in supporting the activities, continuity, and success of an organization. Human resources have the potential to be positive in achieving the vision, mission, goals, and goals of the organization if managed properly, even though a company has advanced technology and large capital does not guarantee the achievement of the vision and mission without the support of quality human resources. (Rahman et al., 2020)

Employees are the main asset of the company who plans and executes every organizational activity. They bring a variety of diverse thoughts, feelings, desires, and backgrounds, including education, age, and gender, into the company. Employees cannot be

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confused with machines, money, or materials that are passive and can be fully mastered to achieve the company's goals. In general, employees in each company have different diversity and characteristics (Hasibuan, 2008).

Every employee and employee has various characteristics, These characteristics have a very important role in increasing job satisfaction. According to individual characteristics, it encompasses all behaviors and abilities possessed by individuals as a result of innate and environment. These characteristics can be measured through attitudes, interests, and needs. Each individual brings the values formed from the environment in which he lives, and those values will be carried into the work situation. An individual's biographical characteristics can be seen from factors such as age, gender, marital status, number of dependents, and length of service. (Moses et al., 2014) (Dessler, 2000)

Individual characteristics provide the distinctive characteristics that distinguish each individual, reflecting the unique potential that each one has. Therefore, management must understand individual behavior in order to align it with organizational goals. With a good understanding, management can optimize each employee's contribution, improve team performance, and achieve company goals effectively. This knowledge also helps in creating a harmonious and productive work environment. ( Düsseldorf & Susanty , 2015)

Job characteristics also affect the increase in job satisfaction. According to Stoner (1986), the characteristics of the job include the attributes of the task such as the magnitude of the responsibility, the variety of the task, and the intrinsic level of satisfaction provided by the job. Jobs that provide intrinsic satisfaction tend to motivate many people more than jobs that don't. Each employee needs the appropriate skills to complete varied tasks, with each different activity requiring diverse skills, determined by the type of activity they do. (Moses et al., 2014)

According to job satisfaction, is a positive feeling about a person's work that comes from an evaluation of their characteristics. Job satisfaction is influenced by individual characteristics and job characteristics. Therefore, employee job satisfaction is an important aspect that must be paid attention to by companies. Low employee job satisfaction is one of the symptoms that can damage conditions in a company (Robbins Stephen & Judge, 2008) (Akbar, 2009)

According to the indicators, individual characteristics that affect job satisfaction are (Akbar, 2009) Ability, Value, *Attitude,* Interest, Education, Needs. Meanwhile, according to job characteristics, it can be grouped into five main characteristics for various types of work, including (Moses et al., 2014) Skill *variety, Task identity,* Important Labor *(Task significance),* Autonomy , *Feedback*.

Organizational commitment is a condition where an individual provides support and has the desire to remain part of the organization. This commitment demonstrates a belief in the organization's goals and values, the ability to strive to achieve the organization's goals, and a strong desire to maintain its membership in the organization. Employee commitment is a form of identification, loyalty, and involvement that an employee shows towards his organization or unit. (Robbins Stephen & Judge, 2008)

Based on the Job Characteristics Model developed by Hackman and Oldham (1975) as described in Job Characteristics has a significant impact on employee performance, job satisfaction, and resignation behavior. This model states that jobs that are challenging and give employees a greater degree of autonomy tend to inspire them. This not only increases job satisfaction but can also reduce employee resignation rates. In other words, jobs that provide challenges and autonomy can play an important role in motivating and retaining employees in an organization. (Achieng et al., 2014)

Meanwhile, the results of the study are that individual characteristics do not affect job satisfaction. The results of the analysis showed a P value of 0.013, which is greater than 0.05. Thus, it can be concluded that there is no influence between individual characteristics and job satisfaction. This research was conducted on employees at PT. PAG Lhokseumawe.

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This means that individual characteristics do not have an impact on the job satisfaction of employees of PT. PAG Lhokseumawe. The results of the study of Individual characteristics that affect employee performance are marital status, while gender, age, and work experience have no impact on employee performance. (Mulia et al., 2020) (Sutanto & Ratna, 2015)

The results of the study showed that job characteristics did not have a significant influence on organizational commitment. Instead, research conducted by found that job characteristics have a positive and significant influence on organizational commitment. (Purwanto et al., 2017) ( Martono et al., 2017)

The State Electricity Company (PLN) of Medan City, North Sumatra, is one of the main operational units of PT PLN (Persero) which is responsible for the supply and distribution of electricity in the Medan area and its surroundings. As one of the major cities in Indonesia, the need for electricity in Medan is very important to support various economic, social, and industrial activities. In the midst of increasingly fierce global competition, PLN Medan City is committed to continuing to improve the quality of its services and operational performance.

PLN Medan City faces challenges in ensuring reliable and sustainable electricity availability. For this reason, good performance management is required, including a deep understanding of the job characteristics and individual employees. Strategic measures such as employee training and development, as well as the application of advanced technology, continue to be undertaken to meet these challenges. focus on human resource development and effective work characteristics. Individual characteristics such as abilities, values, attitudes, interests, education, and needs greatly affect job satisfaction and employee commitment at PLN Medan City. Challenging jobs with high autonomy can increase satisfaction and reduce resignation rates, as described in the Job Characteristics Model developed by Hackman and Oldham (1975), as described in . (Achieng et al., 2014).

# METHODOLOGY

**Types of Research**

This study applies an associative quantitative research method. According to sampling techniques that are generally done randomly. Data collection is carried out using research instruments, and data analysis is quantitative or statistical, with the aim of testing the hypothesis that has been established. This study aims to test theories or hypotheses through statistical calculations, by conducting measurements in a linear manner and explaining the causal relationship between variables, so that the results will show whether the hypothesis is accepted or rejected (Sugiyono, 2017) .

**Data Collection Techniques**

According to the technique, data collection can be done through questionnaires and observations. In this study, the author used primary data obtained directly from direct observation results and questionnaires distributed to respondents. ( Sugiyono , 2017)

**Data Analysis Model**

The data analysis technique in this study uses a structural equation model (*SEM - Structural Equation Modeling*). *SEM* is a multivariate statistical technique used to analyze the structural relationship between measured variables and latent variables.

A. *Convergent Validity*

The indicator is assessed based on the correlation between the item/component score and the construct score, which can be seen from *Standardized Loading Factor* which describes the magnitude of the correlation between each measurement item (indicator) and its contract. Convergent validity is related to the principle that the manifest variables of a construct should be highly correlated. The convergent validity test can be seen from the loading *factor*

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*value* for each construct indicator. *The rule of thumb* that is usually used to assess convergent validity is that the *loading factor* value must be more than 0.7 for confirmatory studies and the *loading factor* value of 0.6-0.7 for exploratory studies is still acceptable, and the *average variance extracted (AVE) value* must be greater than 0.5 (Ghozali & Latan, 2015).

*B. Composite Reliability*

An indicator for measuring a construct can be seen in the coefficient of a latent variable. Evaluation of composite reliability using two measuring tools: internal consistency and Cronbach's alpha. If the value obtained is more than 0.70, then the construct is considered to have high reliability ( Ghozali & Latan , 2015)

Inner Model analysis describes the relationship between latent variables based on *substantive theory*. Inner Model Analysis is evaluated using

*a. R-Square*

In the inner evaluation of the model, it begins by looking *at the R-square* for each dependent latent variable. Then in the interpretation it is the same as the interpretation in regression. The change in the value on *the R-square* can be used to assess the influence of a particular independent latent variable on whether it has a substantive influence. R-Square values of 0.75, 0.50 and 0.25 can be concluded that the model is strong, moderate and weak. ( Ghozali & Latan , 2015)

*b. Q-Square*

*Q-square* measures how well the observation value is produced by the model and the estimation of its parameters. A *Q-square* value greater than 0 (zero) indicates that the model has *a predictive relevance* value, while if the *Q-square* value is less than 0 (zero), it indicates that the model lacks *predictive relevance* ( Ghozali & Latan , 2015) .

c. Hypothesis Test (t-statistics)

In hypothesis testing, it can be seen from the t-statistical value and the probability value. For hypothesis testing, namely using statistical values, for alpha 5% the t-statistical value used is 1.96. So that the criteria for accepting/rejecting the hypothesis are Ha accepted and H0 is rejected when the t-statistic > 1.96. To reject/accept the hypothesis using probability, Ha is accepted if the value of p < 0.05 ( Ghozali & Latan , 2015).

# RESULTS AND DISCUSSION

**Data Analysis Results**

***Outer Model***

**1. Validity Test**

The results of data processing for the validity test test are as follows:

**Table 1 Validity Test Results**

| | Individual Characteristics (X1) | Job Satisfaction (Z) | Employee Work Commitment (Y) | Job Characteristics (X2) |
|---|---|---|---|---|
| **KI1** | 0,854 | | | |
| **KI2** | 0,987 | | | |
| **KI3** | 0,925 | | | |
| **KI4** | 0,824 | | | |
| **KK1** | | 0,853 | | |
| **KK2** | | 0,943 | | |
| **KK3** | | 0,942 | | |
| **CD4** | | 0,979 | | |
| **KK5** | | 0,860 | | |
| **GB1** | | | 0,854 | |
| **GB2** | | | 0,987 | |
| **GB3** | | | 0,925 | |

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| | | |
|---|---|---|
| **GB4** | 0,824 | |
| **GB5** | 0,867 | |
| **KP1** | | 0,887 |
| **KP2** | | 0,788 |
| **KP3** | | 0,890 |
| **KP4** | | 0,782 |
| **FP5** | | 0,793 |

Source: Smartpls output, data processed by researchers (2025)

Based on the results of the validity test using SMARTPLS in Table 4.1, it can be seen that the *loading factor* value on the statement item of each variable is more than 0.7. This shows that the instrument of each variable is declared valid.

**2. Reliability Test**

To evaluate *composite reliability*, there are two measuring tools, namely *internal consistency* and Cronbach's alpha. In this measurement, if the value obtained is more than 0.70, then the construct is considered to have high reliability. The results of data processing for reliability test testing are as follows: (Ghozali & Latan, 2015)

**Table 2 Reliability Test Results**

| | **Cronbach's alpha** | **Composite reliability (rho_a)** | **Composite reliability (rho_c)** | **Average variance extracted (AVE)** |
|---|---|---|---|---|
| **Individual Characteristics (X1)** | 0,764 | 0,915 | 0,859 | 0,643 |
| **Job Satisfaction (Z)** | 0,848 | 0,914 | 0,887 | 0,634 |
| **Employee Work Commitment (Y)** | 0,953 | 0,976 | 0,963 | 0,841 |
| **Job Characteristics (X2)** | 0,897 | 1,003 | 0,901 | 0,699 |

Source: Smartpls output, data processed by researchers (2025)

The variables Individual Characteristics (X1), Job Characteristics (X2), Employee Work Commitment (Y), and Job Satisfaction (Z) above show results that are very consistent with *Cronbach's Alpha* values of more than 0.70, as shown in Table 4.1 above. Therefore, items from these variables can be used for subsequent measurements.

***Inner Model***

***R Square***

The inner evaluation of the model begins by looking at *the R-square value* for each dependent latent variable. This interpretation is similar to the interpretation on regression. The change in *the value of R-square* is used to assess the substantive influence of an independent latent variable on a dependent latent variable. *R-Square* values of 0.75, 0.50, and 0.25 indicate that the model has strong, medium, and weak strengths. The results of data processing for ( Ghozali & Latan , 2015) *the R-Square* test are as follows:

**Table 3 *R-Square Test Results***

| | **R-square** | **R-square adjusted** |
|---|---|---|
| **Job Satisfaction (Z)** | 0,689 | 0,610 |
| **Employee Work Commitment (Y)** | 0,621 | 0,604 |

Source: Smartpls output, data processed by researchers (2025)

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Based on the results of data processing for *R-Square* in Table 4.3, an *R-Square value* for Job Satisfaction was obtained of 0.599 which shows that the regression model of the influence of Individual Characteristics and Job Characteristics on Job Satisfaction has moderate strength because *the R-Square value* is greater than 0.50 and less than 0.75 (0.50 < 0.689 < 0.75). Meanwhile, the *R-Square* value for Employee Work Commitment is 0.621 which shows that the regression model of the influence of Individual Characteristics and Job Characteristics on Employee Work Commitment through Job Satisfaction has moderate strength because the *R-Square value* is greater than 0.50 and less than 0.75 (0.50 < 0.621 < 0.75).

***Q Square***

*Q-Square* measures how well the model and its parameter estimates produce observation values. A *Q-Square* value greater than 0 indicates that the model has *predictive relevance*, while *a Q-Square* value of less than 0 indicates that the model lacks *predictive relevance* ( Ghozali & Latan , 2015) . The results of data processing for *the Q-Square* test test are as follows:

**Table 4. *Q-Square Test Results***

| | SSO | SSE | Q² (=1-SSE/SSO) |
|---|---|---|---|
| **Job Satisfaction (Z)** | 476,000 | 374,136 | 0,214 |
| **Employee Work Commitment (Y)** | 476,000 | 377,017 | 0,208 |
| **Individual Characteristics (X1)** | 455,000 | 455,000 | |
| **Job Characteristics (X2)** | 369,000 | 369,000 | |

Source: Smartpls output, data processed by researchers (2025)

Based on the results of data processing for *Q-Square* in Table 4.4, a *Q-Square* value greater than 0 was obtained. Where a *Q-Square value* for Job Satisfaction of 0.214 is obtained greater than 0 (0.214 > 0) which shows that the regression model of the influence of Individual Characteristics and Job Characteristics on Job Satisfaction has *predictive relevance*. Meanwhile, the *Q-Square* value for purchase decisions is 0.208 greater than 0 (0.208 > 0) which shows that the regression model of the influence of Individual Characteristics and Job Characteristics on Employee Work Commitment through Job Satisfaction has *predictive relevance*.

**1. Statistical Test**

Hypothesis testing can be seen from the t-statistical value and the probability value. For hypothesis testing using statistical values, at alpha 5%, the t-statistical value used is 1.656. The criteria for acceptance or rejection of the hypothesis are that Ha is accepted and H0 is rejected when the t-statistic > 1.656. To reject or accept a hypothesis based on probability, Ha is accepted if the value of p < 0.05 . The results of data processing for hypothesis test testing are as follows: ( Ghozali & Latan , 2015)

**a. Direct Effect**

**1) Equation 1 (Z = α + β1X1 + β2X2 + ε)**

The results of data processing for hypothesis test testing in equation 1 are as follows:

**Table 5 Results of Equation 1 Hypothesis Test**

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| **Individual Characteristics (X1) -> Job Satisfaction (Z)** | 0,236 | 0,260 | 0,103 | 2,294 | 0,024 |
| **Job Characteristics (X2) -> Job Satisfaction (Z)** | 0,272 | 0,295 | 0,095 | 2,851 | 0,005 |

Source: Smartpls output, data processed by researchers (2025)

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Based on the test results in Table 4.5, the direct influence of Individual Characteristics and Job Characteristics on Job Satisfaction can be explained as follows:

1. Influence of Individual Characteristics (X1) on Job Satisfaction (Z). Based on the test results in Table 4.5, a regression coefficient value of 0.236 and a t-statistical value of 2.294 with a *probability value* of 0.024 were obtained. The *probability* value is greater than the predetermined error tolerance (0.024 < 0.05). This shows that Individual Characteristics have a positive and significant effect on Job Satisfaction, so H1 is accepted.
2. The Effect of Job Characteristics (X2) on Job Satisfaction (Z). Based on the test results in Table 4.5, a regression coefficient value of 0.272 and a t-statistical value of 2.851 with a *probability value* of 0.005 were obtained. The *probability* value is smaller than the predetermined error tolerance (0.005 < 0.05). This shows that Job Characteristics have a positive and significant effect on Job Satisfaction, so H2 is accepted.

**2) Equation 1 (Y = α + β1Z + ε)**

The results of data processing for the hypothesis test in equation 2 are as follows:

**Table 6 Results of Equation 2 Hypothesis Test**

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| **Job Satisfaction (Z) -> Employee Work Commitment (Y)** | 0,036 | 0,022 | 0,115 | 2,317 | 0,016 |

Source: Smartpls output, data processed by researchers (2025)

Based on the test results in Table 4.6, the direct influence of Job Satisfaction on Employee Work Commitment can be explained as follows:

1. The Effect of Job Satisfaction (Z) on Employee Work Commitment (Y). Based on the test results in Table 4.6, a regression coefficient value of 0.036 and a t-statistical value of 2.317 with a *probability value* of 0.016 were obtained. The *probability* value is smaller than the predetermined error tolerance (0.016 < 0.05). This shows that Job Satisfaction has a positive and significant effect on Employee Work Commitment, so H3 is accepted.

**b. Indirect Effect**

In this analysis, it will be seen that the high coefficient of influence is both direct and indirect. Testing through mediation to dig deeper into whether the mediation variable successfully mediates the influence of independent variables on the dependent or not, can be described in *Output Indirect Effect*, if the number *P value* less than 0.05, the independent variable affects the dependent variable through the mediation variable. The results of the path analysis on *Output Indirect Effect*, if the P value is less than 0.05, then there is a mediation effect. The indirect influence testing can be seen in the following Table 4.7:

**Table 7 Indirect Effect Test Results**

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| **Individual Characteristics (X1) -> Job Satisfaction (Z) -> Employee Work Commitment (Y)** | 0,199 | 0,009 | 0,022 | 2,448 | 0,007 |
| **Job Characteristics (X2) -> Job Satisfaction (Z) -> Employee Work Commitment (Y)** | 0,203 | 0,004 | 0,029 | 2,120 | 0,019 |

Source: Smartpls output, data processed by researchers (2025)

Based on the results of the calculation in Table 4.7, the indirect influence of Individual Characteristics (X1), and Job Characteristics (X2) on Employee Work Commitment (Y) through Job Satisfaction (Z), can be explained as follows:

1. Individual Characteristics (X1) to Employee Work Commitment (Y) through Job Satisfaction (Z). In this study, it was found that Individual Characteristics have a positive

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and significant effect on Employee Work Commitment through Job Satisfaction. Based on the results in Table 4.7, a t-value of 2.448 with *a p-value* of 0.007 was obtained, because the *t-statistic value* was greater than the t-value of the table, which was 1.656 (2.448 > 1.656) and *the p-value* was smaller than 0.05 (0.007 < 0.05), so it was concluded that there was an influence of Individual Characteristics on Employee Work Commitment through Job Satisfaction, then H4 is accepted.

2. Job Characteristics (X2) to Employee Work Commitment (Y) through Job Satisfaction (Z). In this study, it was found that Job Characteristics have a positive and significant effect on Employee Work Commitment through Job Satisfaction. Based on the results in Table 4.7, a t-value of 2.120 with *a p-value* of 0.019 was obtained, because the *t-statistical value* was greater than the t-value of the table, which was 1.656 (2.120 > 1.656) and *the p-value* was smaller than 0.05 (0.019 < 0.05), so it was concluded that there was an influence of Job Characteristics on Employee Work Commitment through Job Satisfaction, then H5 is accepted.

# CONCLUSIONS

Based on the research results, using the Altman Model (Z-Score) it was found that the companies studied were more in the "Gray Area" category, while calculations using the Grover Model (G-Score) showed that the companies studied were more in the "healthy" category. Using the Altman (Z-Score) model, the Samsung company has the highest score among the five companies. Meanwhile, using the Grover Model (G-Score), Apple has the highest score among the five companies.

The Altman model (Z-Score) has the highest level of accuracy in calculating potential bankruptcy, compared to the Grover model (G-Score). In this research, the Altman model (Z-Score) is the most effective model used to predict potential bankruptcy. The Altman model (Z-score) and the Grover model (G-Score) have their respective strengths and weaknesses. Altman model (Z- score) and Grover (G-Score) uses different financial ratios, different weights, and different threshold values in calculating bankruptcy scores. Therefore, the bankruptcy prediction results from the two models can vary depending on the financial condition of the company being analyzed**.** The researcher realized that this research still has many limitations, namely the analysis model used in the comparison is still relatively few, by comparing two models and the determination of the research population and sample is not optimal.

The researcher is aware that the results of this research are not yet fully feasible as a measuring tool for predicting company bankruptcy. However, through the Altman and Grover models, companies can consider analyzing and knowing the company's financial condition as an early warning system. For further research, it is recommended to use other models and methods to analyze bankruptcy as a comparison, because there is no perfect model, and there is no model that accommodates the actual situation faced by the company.

In general, the task of bankruptcy prediction is to predict whether the company will go bankrupt or not. To accurately conduct the prediction, have to use algorithms to train the datasets, such as the financial data from the firm's financial statements, or also called the Multivariant Discriminant Analysis (MDA) model, such as Altman and Grover. Through the process of dataset, can obtain a classifier with good classification accuracy, which can be used to do the bankruptcy prediction. For future trend in bankruptcy prediction using deep leaning techniques, such as Convolutional Neural Network (CNN). One particular trend is the diversification of data sources. Former bankruptcy prediction papers would usually use numerical data, such as financial statement data, accounting data. Now using CNN, the textual data, like news or public report even some comments from experts, are used to do the prediction (Qu et al., 2019).

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