

THE INFLUENCE OF WORK CULTURE AND WORK ENVIRONMENT ON EMPLOYEE WORK MOTIVATION WITH LEADERSHIP AS MODERATING VARIABLES AT REPRESENTATIVE OFFICES THE BANK INDONESIA REPRESENTATIVE OFFICES OF NORTH SUMATRA PROVINCE

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ABSTRACT

This study aims to examine the influence of work culture and work environment on employee work motivation with leadership as a moderating variable at the Representative Office of Bank Indonesia in North Sumatra Province. A quantitative approach was employed, and data were collected through questionnaires distributed to employees. The data were analyzed using Partial Least Square (PLS). The results reveal that both work culture and work environment have a positive and significant effect on employee work motivation. Furthermore, leadership positively moderates the relationship between work culture and motivation but negatively moderates the relationship between work environment and motivation. These findings indicate that a strong work culture and a supportive work environment can enhance motivation, while the effectiveness of leadership plays a crucial role in strengthening or weakening these relationships. This research is expected to contribute theoretically and practically to the development of human resource management within banking institutions, particularly Bank Indonesia.

Introduction

In the face of increasingly dynamic and complex national economic developments, Bank Indonesia (BI) is required to ensure that all organizational processes run effectively, adaptively, and support optimal performance. One crucial factor in maintaining the institution's professionalism and stability is employee motivation, as high motivation plays a role in increasing productivity, service quality, and accuracy in strategic decision-making. However, recent years have shown a decline in motivation in various government agencies, including BI, influenced by changes in the work environment, increasing workloads, and demands for digitalization of operational processes.

At the Bank Indonesia Representative Office in North Sumatra Province, issues related to work culture began to emerge from the unequal application of work values among employees, such as differences in discipline, initiative, and levels of participation in team activities. Some employees tended to work alone and demonstrated little collaboration, resulting in suboptimal work completion. This situation reflected that the implementation of work culture had not been optimally implemented. Furthermore, the work environment—both physical and non-physical—was also a factor that potentially affected employee motivation. Internal observations revealed complaints about the comfort of the workspace, inconsistent communication between units, and an imbalance in employees' ability to adapt to digital work systems. An uncondusive work environment can trigger burnout, reduce concentration, and weaken motivation to achieve organizational goals.

In such situations, the role of leadership becomes increasingly important and is expected to strengthen or weaken the influence of work culture and the work environment on employee motivation. Field findings indicate variations in leadership styles among superiors, with some able to create open communication, provide clear direction, and build a positive work atmosphere, while others are less responsive and provide minimal support to the team. This inconsistency can affect employee perceptions of work culture and the comfort of the work environment. Based on the conditions above, it is clear that employee motivation is not only determined by internal organizational factors, but also by the success of leadership in moderating the influence of work culture and the work environment. Therefore, this study is important to examine the extent of the influence of work culture and the work environment on employee motivation at the Bank Indonesia Representative Office in North Sumatra Province, as well as the role of leadership as a moderating variable in this relationship.

Formulation of the problem

After describing the background, the problem formulation is as follows:

1. Does work culture have a positive and significant effect on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province?
2. Does the non-physical work environment have a positive and significant effect on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province?
3. Does leadership have a positive and significant effect on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province?
4. Does work culture, moderated by leadership, have a positive and significant effect on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province?
5. Does the non-physical work environment, moderated by leadership, have a positive and significant effect on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province?

Research Objectives

1. To test and analyze the effect of work culture on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province.
2. To test and analyze the effect of the non-physical work environment on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province.
3. To test and analyze the effect of leadership on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province.
4. To test and analyze the effect of work culture, moderated by leadership, on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province.
5. To test and analyze the effect of the non-physical work environment, moderated by leadership, on employee work motivation at the Bank Indonesia Representative Office of North Sumatra Province.

Benefits of Research (Paraphrase)

1. Theoretical Benefits

1. This research contributes to the development of human resource management science, particularly regarding how work culture and work environment influence employee motivation.
2. This study adds to the academic literature on the role of leadership as a moderating variable in the relationship between organizational variables.
3. The research results can be a reference for further research that wants to examine work culture, work environment, work motivation, and leadership in a moderation model.

2. Practical Benefits

a. For the Bank Indonesia Representative Office of North Sumatra Province

1. Provides an overview of aspects of work culture and work environment that have been proven to have a positive effect on employee motivation.
2. To be the basis for evaluation and consideration in formulating strategies for strengthening organizational culture and improving the quality of the work environment.
3. Helping leaders understand the strategic role of leadership in strengthening or weakening the influence of work culture and work environment on employee motivation.

b. For Employees

1. Increase employee insight regarding the importance of a healthy work culture and a conducive work environment to support work motivation.
2. Encourage employees to play a more active role in building a harmonious, collaborative and productive work atmosphere.

c. For Researchers

1. Provides additional knowledge and experience in conducting empirical research on organizational variables and work behavior.

2. To be a scientific reference for further research in the field of HR or organizational studies with similar topics.

THEORITICAL REVIEW

Work Motivation

According to Mangkunegara (2017), work motivation is the condition or energy that drives employees to achieve work performance according to the standards set by the organization. According to Herzberg (1966) in Nurahmah et al., (2019), motivation is an intrinsic drive that arises from factors such as achievement, recognition, responsibility, growth, and the work itself.

Indicators of Work Motivation

Indicators of motivation according to Herzberg (1966) in Nurahmah et al., (2019) are:

1. Achievement
2. Education level
3. Responsibility
4. Interest in the work
5. Effort and perseverance
6. Readiness to accept challenges

Work Culture

According to Sutrisno (2019), work culture is a pattern of behavior and habits formed from organizational values that are internalized by employees, thus influencing how they work and interact.

According to Wibowo (2016), work culture is a set of values, beliefs, and attitudes that serve as guidelines for employees in acting, behaving, and completing work to align with organizational goals.

Indicators of Work Culture

According to Wibowo, (2016)

1. Work discipline
2. Responsibility
3. Cooperation
4. Initiative
5. Work integrity

Non-Physical Work Environment

According to Mangkunegara (2017), the non-physical work environment is the organizational climate created from social relations, organizational structure, and work patterns that affect employee motivation and performance. According to Nitisemito (2015), the non-physical work environment is work conditions related to interpersonal relationships, including relationships between employees and superiors and among co-workers, which can create psychological comfort in working.

Indicators of Non-Physical Work Environment

Indicators of the Non-Physical Work Environment according to Mangkunegara (2017) are as follows:

1. Harmonious work relations

2. Clear organizational structure
3. Supervisor support
4. Safe and comfortable psychological conditions

Leadership (Moderating Variable)

According to Hasibuan (2018), leadership is a person's ability to direct, influence, and encourage employees to be willing to work effectively to achieve organizational goals. According to Yukl (2017), leadership is the process of influencing others to understand and agree on what needs to be done, and how to do it to achieve common goals.

Indicators of Leadership

According to Yukl (2017), they are:

1. Ability to provide direction
2. Ability to motivate
3. Communication with employees
4. Appropriate decisions
5. Leader's exemplary attitude

Conceptual Framework

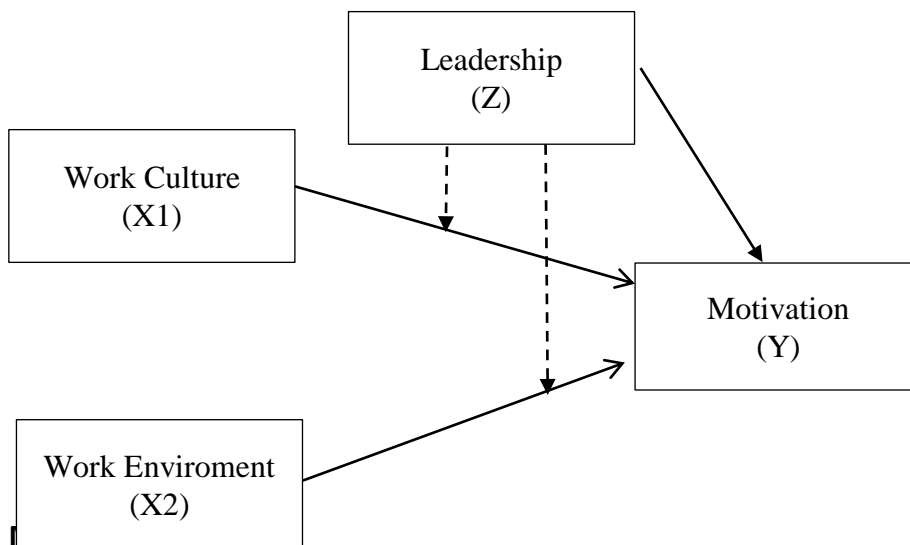


Figure 1. Conceptual Framework

Hypothesis

Based on the conceptual framework image, the hypothesis in this study is as follows:

1. Work culture has a positive and significant effect on the work motivation of employees at the Bank Indonesia Representative Office of North Sumatra Province.
2. The non-physical work environment has a positive and significant effect on the work motivation of employees at the Bank Indonesia Representative Office of North Sumatra Province.
3. Leadership has a positive and significant effect on the work motivation of employees at the Bank Indonesia Representative Office of North Sumatra Province.

4. Work culture, moderated by leadership, has a positive and significant effect on the work motivation of employees at the Bank Indonesia Representative Office of North Sumatra Province.
5. The non-physical work environment, moderated by leadership, has a positive and significant effect on the work motivation of employees at the Bank Indonesia Representative Office of North Sumatra Province.

Method

Research Type

According to Sugiyono (2020), the definition of the quantitative method is: The quantitative method is a research method based on positivist philosophy, used to research a specific population or sample, data collection uses research instruments, data analysis is quantitative or statistical, with the aim of testing previously established hypotheses.

Location and Time

The timeframe for this research is from November 2025 to December 2025. The research location is at the Bank Indonesia Representative Office of North Sumatra, Jl. Balai Kota No. 4, Medan, North Sumatra 20111.

Population

The population of this study are all employees of the Bank Indonesia Representative Office of North Sumatra, totaling 80 employees. According to Sugiyono (2020), a population is a generalization area consisting of objects that have certain qualities and characteristics determined by the researcher to be studied and then conclusions are drawn.

Sample

The research sample used is all employees who are the population, totaling 80 employees. According to Sugiyono (2020), a sample is part of the number and characteristics possessed by that population. Meanwhile, sample size is a step to determine the size of the sample taken in conducting a study.

Data source

This research uses primary data as the primary source. Primary data is data obtained directly from the primary source or research location by the researcher (Sugiyono, 2020).

Data collection technique

Data collection was conducted by distributing questionnaires containing statements that respondents had to complete. A questionnaire is a data collection technique that involves providing respondents with a list of written questions or statements to answer (Sugiyono, 2020).

Data Analysis Techniques (Paraphrase)

This study uses *Partial Least Squares Structural Equation Modeling* (PLS-SEM) analysis processed using SmartPLS 3 software. The PLS-SEM method was chosen because it is capable of testing complex models, includes relationships between latent variables and indicators, and remains effective for use with small sample sizes and non-normally distributed data (Hair et al., 2019; Chin, 2010).

1. Conceptual Model Development

In the initial stage, a research model is created based on the theory and hypotheses used. All latent variables and their indicators are identified and then arranged in a *path diagram*.

a. Independent, dependent, and moderating variables are determined according to the formula research.

b. Models can be reflective if the indicators reflect the construct, or formative if the indicators shape the construct (Hair et al., 2019).

2. Evaluation of the Outer Model (Measurement Model)

This stage aims to ensure that the indicators used are able to measure the construct appropriately, through validity and reliability testing.

a. Convergent Validity is tested using the AVE value with a minimum criterion of 0.5 (Hair et al., 2019).

b. Composite Reliability is assessed to measure the internal consistency of the indicator, with a minimum limit of 0.7.

c. Cronbach's Alpha is also used to test reliability with a minimum limit of 0.7.

d. Discriminant validity is tested using Fornell-Larcker or HTMT to ensure each construct is different from other constructs (Hair et al., 2019). Evaluation of the measurement model is important to ensure all indicators are valid and reliable before testing the relationship between variables (Hair et al., 2019).

3. Evaluation of the Inner Model (Structural Model)

The inner model is used to assess the causal relationship between latent variables in the model.

a. R^2 (Coefficient of Determination) is used to see the ability of the independent variable to explain the dependent variable, with categories of 0.25 (weak), 0.50 (moderate), and 0.75 (strong) (Hair et al., 2019).

b. Path Coefficients show the strength and direction of influence between variables.

c. t-statistics and p-values were obtained through bootstrapping to assess significance. A relationship was considered significant if $t > 1.96$ or $p < 0.05$.

d. Effect Size (f^2) is used to see the magnitude of the contribution of each independent variable.

4. Bootstrapping

The bootstrapping technique is used to test statistical significance through the *resampling process*.

a. Resampling is repeated 5,000–10,000 times to produce stable parameter estimates.

b. Bootstrapping results provide t-values, p-values, and confidence intervals to determine whether the influence between variables is significant or not (Hair et al., 2019).

PLS-SEM does not require normally distributed data, so bootstrapping is an important method in producing accurate significance tests (Hair et al., 2019).

Results and Discussion

Research Test

Initial testing of the questionnaire instrument was conducted to ensure that the data obtained from each variable and indicator had an adequate level of accuracy and consistency. Based on these test results, it can be confirmed that the four variables in the research model meet the eligibility criteria for further analysis.

Evaluation of Measurement Model (Outer Model)

Convergent Validity

In this analysis, an indicator is considered valid if it has a *loading factor* above 0.70 and an Average Variance Extracted (AVE) value of at least 0.50. The higher the value, the better the indicator's ability to represent the construct. Therefore, all indicators meeting a value above 0.70 are considered appropriate and valid as measures of the variables studied. The research structural model is shown in the following graph.

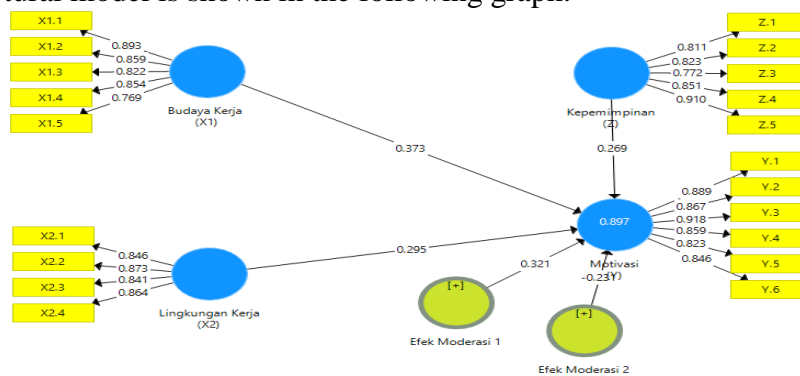


Figure 1. Research Model in SmartPLS

Source : Smart PLS 3.3.3.

The Smart PLS output for loading factor gives the results in the following table:

Outer Loadings In this study there is an equation and the equation consists of two equations.

$$Y = b1X1 + b2Z + b3X1Z + e1$$

$$Y = 0.371 + 0.195 - 0.256 + e1$$

$$Y = b2X2 + b3Z + b4X2Z + e2$$

$$Y = 0.476 + 0.195 + 0.372 + e2$$

Table 1. Outer Loadings/Cross Loading

	Work Culture _(X1)	Moderation Effect 1	Moderation Effect 2	Leadership_(Z)	Work Environment_(X2)	Motivation_(Y)
Work Culture _(X1) * Leadership_(Z)		0.891				
Work Environment_(X2) * Leadership_(Z)			0.935			
X1.1	0.893					
X1.2	0.859					
X1.3	0.822					
X1.4	0.854					
X1.5	0.769					
X2.1					0.846	
X2.2					0.873	
X2.3					0.841	
X2.4					0.864	
Y.1						0.889
Y.2						0.867
Y.3						0.918
Y.4						0.859
Y.5						0.823
Y.6						0.846
Z.1				0.811		
Z.2				0.823		
Z.3				0.772		
Z.4				0.851		
Z.5				0.910		

Source : Smart PLS 3.3.3.

The outer loadings table shows that all indicators in the Work Culture, Work Environment, Motivation, and Leadership variables have loading values above 0.75. Thus, all indicators are declared valid because they are able to accurately describe the constructs being measured. High loading values are also seen in the moderating interactions between Work Culture *and Leadership* , at 0.891 and 0.935, respectively , indicating that the moderating role in the model is functioning optimally.

Discriminant Validity

Discriminant validity testing was conducted using cross-loading values. An indicator is considered discriminantly valid if its cross-loading value is greater than the values of other variables. The test results show that each indicator has a higher cross-loading value on its own construct, thus meeting the discriminant validity criteria. Table 2 below presents the test results.

Table 2. Discriminant Validity

	Work Culture _(X1)	Moderation Effect 1	Moderation Effect 2	Leadership_(Z)	Work Environment_(X2)	Motivation_(Y)
Work Culture _(X1) * Leadership_(Z)	0.390	1,000	0.873	0.331	0.373	0.442
Work Environment_(X2) * Leadership_(Z)	0.355	0.873	1,000	0.288	0.326	0.340
X1.1	0.893	0.345	0.310	0.852	0.791	0.834
X1.2	0.859	0.302	0.323	0.766	0.735	0.815
X1.3	0.822	0.341	0.281	0.736	0.683	0.762
X1.4	0.854	0.339	0.330	0.765	0.762	0.759
X1.5	0.769	0.318	0.242	0.677	0.739	0.644
X2.1	0.713	0.345	0.317	0.693	0.846	0.751
X2.2	0.763	0.385	0.325	0.754	0.873	0.821
X2.3	0.785	0.278	0.200	0.805	0.841	0.779
X2.4	0.757	0.260	0.275	0.695	0.864	0.694
Y.1	0.864	0.351	0.238	0.895	0.868	0.889
Y.2	0.718	0.321	0.250	0.687	0.738	0.867
Y.3	0.790	0.442	0.313	0.776	0.773	0.918

Y.4	0.806	0.340	0.315	0.754	0.779	0.859
Y.5	0.768	0.425	0.333	0.716	0.674	0.823
Y.6	0.786	0.426	0.328	0.802	0.792	0.846
Z.1	0.745	0.344	0.321	0.811	0.735	0.722
Z.2	0.749	0.314	0.243	0.823	0.783	0.708
Z.3	0.668	0.141	0.080	0.772	0.671	0.661
Z.4	0.759	0.239	0.246	0.851	0.680	0.778
Z.5	0.850	0.330	0.292	0.910	0.741	0.846

Source : Smart PLS 3.3.3.

The results of the discriminant validity test show that each indicator has the highest correlation with the construct from which it is derived compared to other constructs. This finding indicates that each variable—Work Culture, Work Environment, Motivation, and Leadership—can be clearly distinguished from the other variables in the model. The values for the moderation interactions also indicate that the relationships between the moderated variables have distinct and specific characteristics, thus all constructs are declared to meet the requirements of discriminant validity.

Composite Reliability

In composite reliability testing, all variables are assessed based on their reliability coefficients. A variable is considered reliable if its reliability value is above 0.60, while a value below 0.60 or approaching 0.70 indicates weak reliability. Evaluation of the instrument's internal consistency includes Cronbach's Alpha, composite reliability, and AVE, as shown in the following table.

Table 3 . Construct Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Work Culture_(X1)	0.895	0.923	0.706
Moderation Effect 1	1,000	1,000	1,000
Moderation Effect 2	1,000	1,000	1,000
Leadership_(Z)	0.890	0.920	0.697
Work Environment_(X2)	0.879	0.917	0.733
Motivation_(Y)	0.934	0.948	0.753

Source : Smart PLS 3.3.3.

Table 3 shows that all variables have Cronbach's Alpha and Composite Reliability values above 0.87, indicating a very high level of internal consistency. Furthermore, the AVE value for each construct also exceeds 0.69, thus meeting the requirements for convergent validity. These results indicate that all variables in the model have good reliability and validity.

Inner Model Analysis

To ensure the accuracy and robustness of the structural model, an evaluation of the inner model is performed. This assessment process is a crucial part of measuring the feasibility of the model being built.

Coefficient of Determination (R²)

Data processing was performed using the SmartPLS 3.0 application. The steps in determining the R-square value are as follows:

Table 4. R Square Results

	R Square	Adjusted R Square
Motivation_(Y)	0.897	0.890

Source : Smart PLS 3.3.3.

An R-square value of 0.897 indicates that the variables in the model are able to explain 89.7% of the variation in Motivation (Y). Meanwhile, an Adjusted R-square of 0.890 confirms that the model has very strong and consistent predictive capabilities.

Hypothesis Testing

The relationship between the constructs and the data in this study needs to be confirmed after the structural model is built. The evaluation process is carried out by examining the T-statistics and P-values as the basis for statistical analysis. An effect is declared significant if the P-value is <0.05 and the T-statistic is >1.96. The results of the path coefficient test are as follows:

Table 5. Hypothesis Results

	Original Sample (O)	T Statistics (O/STDEV)	P Values	Results
Work Culture_(X1) -> Motivation_(Y)	0.373	2,944	0.002	Accepted
Moderation Effect 1 -> Motivation_(Y)	0.321	3,525	0,000	Accepted
Moderation Effect 2 -> Motivation_(Y)	-0.231	2,915	0.002	Accepted
Leadership_(Z) -> Motivation_(Y)	0.269	2,660	0.004	Accepted
Work Environment_(X2) -> Motivation_(Y)	0.295	3,187	0.001	Accepted

Source : Smart PLS 3.3.3.

The explanation of the research results in table 5 is as follows:

1. Work culture has been shown to have a positive and significant effect on motivation ($T = 2.944$; $p = 0.002$). This indicates that the better the implementation of work culture in an organization, the higher the motivation experienced by employees. Therefore, the hypothesis is accepted.
2. Moderation Effect 1 showed a positive and significant influence on Motivation ($T = 3.525$; $p = 0.000$). This means that the presence of the first moderating factor strengthens the relationship between the main variable and increasing employee motivation. This hypothesis is accepted.
3. Moderation Effect 2 was also significant ($T = 2.915$; $p = 0.002$), but the direction of the effect was negative. This indicates that the second moderation actually weakened the influence of the primary variable on motivation. Nevertheless, the hypothesis was accepted because the effect was significant.
4. Leadership has a positive and significant influence on motivation ($T = 2.660$; $p = 0.004$). This means that the better the leadership quality, the higher the employee motivation. This hypothesis is accepted.
5. The work environment was shown to have a positive and significant effect on motivation ($T = 3.187$; $p = 0.001$). A comfortable and supportive work environment can increase employee enthusiasm and motivation. Therefore, the hypothesis is accepted.

Conclusion

After explaining the results, the conclusions of this study are as follows:

1. A positive work culture has been proven to significantly increase employee motivation. This means that establishing a positive work culture is a crucial factor in boosting employee morale.
2. The first moderating effect successfully strengthened the relationship between the primary variable and increased motivation. This indicates that this moderating factor plays a significant role in increasing its influence on employee motivation.
3. The second moderating effect was also significant, but it weakened the relationship between the main variables. Nevertheless, this moderation still plays a role in influencing employee motivation.
4. Good leadership contributes significantly to increasing employee motivation. This confirms the crucial role of leaders in creating motivation and work enthusiasm.
5. A conducive work environment has been proven to significantly increase employee motivation. A comfortable and supportive environment is a key factor in fostering higher work motivation.

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