

Work Environment, Compensation, Work Motivation, Leadership Style, and Employee Work Productivity: Evidence from PT Bumi Menara Internusa

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ABSTRACT

This study examines the effects of work environment and compensation on employee work productivity, while considering the roles of work motivation and leadership style in a labor-intensive marine product processing company, PT Bumi Menara Internusa. The study applied a quantitative explanatory design and collected questionnaire data from 81 employees. The data were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0. The measurement model showed acceptable indicator reliability, with standardized outer loadings ranging from 0.789 to 0.921 and construct reliability values exceeding the recommended threshold. The structural model explained 80.5% of the variance in leadership style and 80.0% of the variance in employee work productivity. Work motivation had a positive and significant effect on work productivity ($\beta = 0.386$, $t = 2.335$, $p = 0.020$). In contrast, the direct effects of work environment ($\beta = 0.310$, $p = 0.141$), compensation ($\beta = 0.180$, $p = 0.248$), and leadership style ($\beta = -0.097$, $p = 0.627$) on work productivity were not significant. Work environment positively influenced leadership style ($\beta = 0.562$, $p < 0.001$), whereas compensation had a negative significant effect on leadership style ($\beta = -0.364$, $p = 0.003$). Interaction effects involving work motivation were not significant. These findings indicate that productivity improvement in this organizational context is more strongly associated with employees' internal motivational drive than with direct improvements in work environment, compensation, or leadership style alone. The study contributes to human resource management literature by showing the differentiated roles of job resources, compensation practices, motivation, and leadership in explaining employee productivity in an Indonesian industrial context.

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INTRODUCTION

Employee work productivity is a central indicator of organizational effectiveness because it reflects the extent to which employees transform available resources into work outputs that meet expected quantity, quality, and timeliness standards. In labor-intensive industries, productivity is not only a technical issue but also a human resource management issue. Organizations must therefore understand how workplace conditions, rewards, motivational processes, and leadership practices jointly shape employees' capacity and willingness to contribute to organizational goals.

Contemporary human resource management scholarship explains employee performance through integrated frameworks rather than isolated determinants. The ability-motivation-opportunity (AMO) framework argues that performance depends on whether employees have the competence to perform, the motivation to exert effort, and the opportunity to participate effectively in work processes (Appelbaum et al., 2000; Marín-García & Tomás, 2016). Similarly, the Job Demands-Resources theory emphasizes that job resources, such as

supportive work conditions, fair supervisory practices, and development opportunities, can stimulate motivation and buffer the adverse effects of job demands (Bakker & Demerouti, 2017; Bakker et al., 2023). These perspectives provide a strong theoretical basis for examining work environment, compensation, motivation, leadership style, and productivity in a single empirical model.

The work environment is a key organizational resource because it includes both physical conditions, such as lighting, facilities, comfort, and safety, and social-psychological conditions, such as interpersonal relations and support from supervisors. A supportive work environment may reduce strain, improve focus, and encourage employees to allocate effort more effectively to their tasks (Zhenjing et al., 2022). However, the influence of the work environment on productivity may not always be direct. In some contexts, its effect may be transmitted through motivational states, leadership practices, or employees' interpretation of organizational support.

Compensation also plays an important role in human resource management because it signals how the organization values employee contribution. Fair and competitive compensation can support job satisfaction, work motivation, and performance, particularly when employees perceive a clear and just relationship between effort, performance, and rewards (Kuvaas, 2006; Chen et al., 2023). Nevertheless, compensation systems do not automatically increase productivity. Pay systems may be less effective when they are perceived as inequitable, weakly linked to performance, or disconnected from intrinsic sources of motivation (Gagné & Deci, 2005; Ryan & Deci, 2000b).

Work motivation is therefore a proximal psychological mechanism in explaining productivity. Self-determination theory distinguishes between autonomous motivation, in which employees act with volition and personal endorsement, and controlled motivation, in which behavior is driven mainly by external pressure or obligation (Ryan & Deci, 2000a; Gagné & Deci, 2005). Employees with stronger motivation are more likely to persist, accept responsibility, and pursue work goals despite operational challenges. In this respect, motivation may be more directly associated with employee productivity than organizational resources themselves.

Leadership style represents the pattern of behavior used by leaders to guide, influence, and support employees. Prior meta-analytic evidence shows that transformational and transactional leadership styles can be related to performance outcomes, although the strength and direction of the effect may depend on the organizational setting and the specific leadership behaviors assessed (Judge & Piccolo, 2004). In industrial workplaces, leaders may shape the meaning of compensation policies, workplace climate, task clarity, and employee morale. However, leadership effects may also be contingent on whether employees perceive leadership behavior as credible, fair, and practically helpful.

PT Bumi Menara Internusa operates in the marine product processing industry, where employee productivity is essential for maintaining output quality, operational continuity, and competitiveness. The company faces human resource challenges related to productivity variation, employee perceptions of compensation, workplace conditions, and differences in leadership practices across work units. This study addresses these issues by analyzing the relationships among work environment, compensation, work motivation, leadership style, and employee work productivity using PLS-SEM. The study contributes to the literature by providing empirical evidence from an Indonesian industrial setting and by clarifying which factors are most directly associated with productivity in the observed model.

Literature Review and Hypothesis Development

1. Employee work productivity

Employee work productivity refers to the ability of employees to produce work outputs efficiently and effectively. In organizational research, productivity is typically associated with the quantity of completed work, quality of output, timeliness, efficiency, and achievement of work targets. Within the AMO framework, productivity is not explained by ability alone; employees also need motivation and opportunity to translate capability into performance (Appelbaum et al., 2000; Marín-García & Tomás, 2016). Thus, productivity should be examined as an outcome of both organizational conditions and individual psychological processes.

2. Work environment and employee productivity

The work environment includes physical and non-physical elements surrounding employees while they perform their duties. Physical elements include lighting, workspace comfort, temperature, equipment, and facilities, whereas non-physical elements include interpersonal relationships, communication climate, and perceived support. The Job Demands-Resources theory conceptualizes such workplace elements as job resources when they help employees achieve work goals, reduce job demands, or stimulate learning and growth (Bakker & Demerouti, 2017).

A supportive work environment can help employees concentrate, reduce fatigue, and coordinate work more effectively. Empirical evidence suggests that workplace conditions can influence employee performance through commitment, achievement striving, and other mediating mechanisms (Zhenjing et al., 2022). Therefore, a positive work environment is expected to contribute to employee productivity, even though the size of this effect may vary across organizational contexts. H1: Work environment has a positive effect on employee work productivity.

3. Compensation and employee productivity

Compensation refers to the financial and non-financial rewards employees receive in exchange for their contribution to the organization. Financial compensation includes salary, wages, incentives, bonuses, and allowances, while non-financial compensation may include recognition, development opportunities, and other forms of organizational support. Compensation is theoretically connected to productivity because it can influence employees' perceptions of fairness, expectancy, and the instrumentality of performance (Vroom, 1964; Chen et al., 2023).

However, the compensation-productivity relationship is complex. Pay level and pay administration may influence motivation and commitment differently (Kuvaas, 2006). Pay-for-performance can enhance job performance, but the effect is conditioned by justice perceptions, pressure, and the nature of the reward system (Chen et al., 2023). Thus, compensation is hypothesized to have a positive effect on productivity, while empirical testing remains necessary to determine whether the effect is significant in this specific context. H2: Compensation has a positive effect on employee work productivity.

4. Work environment, compensation, and leadership style

Leadership style does not operate in a vacuum. Supervisory behavior is shaped by organizational climate, resource availability, employee relations, and the way managerial authority is implemented in daily operations. A supportive work environment can enable leaders to communicate more effectively, provide clearer direction, and maintain constructive

relationships with employees. Conversely, a poor work environment may limit the effectiveness of leadership practices.

Compensation may also be associated with leadership style because pay policies are often communicated, interpreted, and implemented through supervisors. When employees perceive compensation as fair and transparent, leaders may find it easier to build trust. When compensation is perceived as inadequate or inequitable, leadership practices may be viewed less favorably, even if leaders attempt to motivate employees. Therefore, this study examines the extent to which work environment and compensation predict perceived leadership style. H3: Work environment has a positive effect on leadership style; H4: Compensation has a positive effect on leadership style.

5. Work motivation and productivity

Work motivation is the psychological force that initiates, directs, and sustains work behavior. Self-determination theory explains that employees are more likely to demonstrate high-quality motivation when their needs for autonomy, competence, and relatedness are supported (Ryan & Deci, 2000a; Gagné & Deci, 2005). Motivation can be intrinsic, when employees work because the activity is meaningful or satisfying, or extrinsic, when employees work in response to external rewards or obligations (Ryan & Deci, 2000b).

In the productivity context, motivated employees are more likely to accept responsibility, pursue targets, and improve their performance. Motivation may therefore be a more proximal predictor of productivity than distal organizational conditions. This assumption is particularly relevant in operational settings where employees need persistence, discipline, and task focus to maintain output quality. H5: Work motivation has a positive effect on employee work productivity.

6. Leadership style and productivity

Leadership style refers to consistent behavioral patterns used by leaders when influencing subordinates. Transformational leadership emphasizes inspiration, intellectual stimulation, individualized consideration, and shared purpose, while transactional leadership emphasizes performance expectations and contingent rewards. Meta-analytic evidence indicates that leadership styles can be associated with employee and organizational performance, although effects depend on leadership type, outcome criterion, and context (Judge & Piccolo, 2004).

In this study, leadership style is expected to influence productivity because leaders clarify tasks, communicate expectations, provide feedback, and create the social climate in which employees perform their duties. Effective leadership should support employee productivity by aligning individual effort with organizational goals. H6: Leadership style has a positive effect on employee work productivity.

7. Interaction role of work motivation

The effect of organizational resources on productivity may depend on employees' motivational state. A favorable work environment, good compensation, and effective leadership may have stronger productivity effects when employees are already motivated to use these resources productively. Conversely, when motivation is weak, organizational resources may not translate into higher productivity. Based on this logic, work motivation is examined not only as a direct predictor but also as an interaction factor in the relationships between work environment, compensation, leadership style, and productivity. H7: Work motivation strengthens the relationship between work environment and employee work productivity.

H8: Work motivation strengthens the relationship between compensation and employee work productivity. H9: Work motivation strengthens the relationship between leadership style and employee work productivity.

8. Research model

The research model integrates direct effects, leadership style as an endogenous organizational variable, and work-motivation interaction terms. The figure below presents the tested model based on the available SmartPLS output.

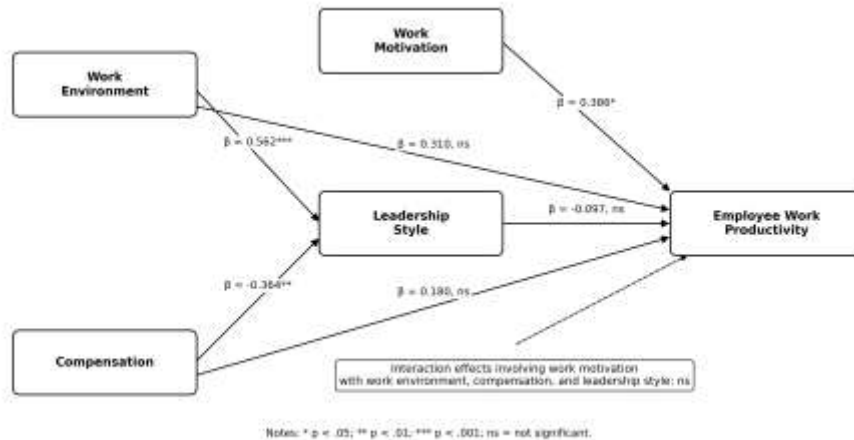


Figure 1. Revised research model and structural path coefficients

METHODS

This study used a quantitative explanatory research design. A quantitative approach was appropriate because the study tested theoretically derived relationships among latent variables using numerical data and statistical modeling. Explanatory research was used because the study aimed not merely to describe employee perceptions but to examine causal-predictive relationships among work environment, compensation, work motivation, leadership style, and employee work productivity (Creswell & Creswell, 2018).

The study was conducted at PT Bumi Menara Internusa, a company engaged in marine product processing. This setting was relevant because the company relies on productive and competent employees to maintain operational efficiency, quality, and competitiveness.

The population consisted of employees of PT Bumi Menara Internusa. The final sample comprised 81 employees who provided usable questionnaire responses. Data were collected using a structured questionnaire designed to measure employee perceptions of work environment, compensation, work motivation, leadership style, and work productivity. The available manuscript did not provide full demographic breakdowns; therefore, demographic claims beyond the number of respondents are not reported in this revised version.

The research instrument consisted of five reflective constructs: work environment, compensation, work motivation, leadership style, and employee work productivity. Each construct was measured by five indicators. Work environment indicators assessed workplace comfort, lighting, productivity-supporting atmosphere, employee relationships, and adequacy of work facilities. Compensation indicators assessed salary appropriateness, incentives, allowances, compensation-system quality, and satisfaction with compensation. Work

motivation indicators assessed passion for work, efforts to achieve work goals, motivation to work better, responsibility, and performance improvement. Leadership style indicators assessed clarity of instructions, fairness, motivational support from supervisors, openness to input, and leadership capability. Productivity indicators assessed timely completion, effectiveness and efficiency, target achievement, performance improvement, and work quality.

The data were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0. PLS-SEM is suitable for explanatory and predictive models involving multiple latent constructs and can be used when the objective is to estimate path relationships in a relatively complex model (Hair et al., 2019; Hair et al., 2022). The measurement model was evaluated using standardized outer loadings, Cronbach’s alpha, and composite reliability. The structural model was evaluated using path coefficients, t-statistics, p-values, and coefficients of determination (R²). Statistical significance was assessed using the common two-tailed criterion of p < 0.05.

The available SmartPLS output included outer loadings, reliability values, R² values, and path coefficients. For a complete international journal submission, the authors should add average variance extracted (AVE), discriminant validity results such as HTMT, and bootstrapping settings if these outputs are available. These values were not invented in this revision because they were not present in the uploaded manuscript.

RESULTS AND DISCUSSION

1. Measurement model

The measurement model results indicate that all standardized outer loadings were above 0.70, ranging from 0.789 to 0.921. These values suggest acceptable indicator reliability. Construct reliability was also adequate, with Cronbach’s alpha values ranging from 0.902 to 0.932 and composite reliability values ranging from 0.924 to 0.948. Table 1 summarizes the measurement-model results.

Table 1. Measurement-model results

Construct	Code	Indicator	Outer loading	Cronbach’s alpha	Composite reliability
Work environment	LK1	My work environment is comfortable for working	0.839	0.902	0.924
Work environment	LK2	Lighting in the workplace is adequate	0.789		
Work environment	LK3	The work atmosphere supports productivity	0.887		
Work environment	LK4	Relationships among employees are well established	0.848		
Work environment	LK5	The available work facilities are adequate	0.848		
Compensation	KP1	The salary I receive is appropriate for the job	0.863	0.906	0.929
Compensation	KP2	I receive fair incentives	0.813		
Compensation	KP3	The allowances provided by the company are adequate	0.843		
Compensation	KP4	The company compensation system is good	0.885		
Compensation	KP5	I am satisfied with the compensation provided	0.844		

Construct	Code	Indicator	Outer loading	Cronbach's alpha	Composite reliability
Work motivation	MK1	I have high enthusiasm for work	0.832	0.909	0.931
Work motivation	MK2	I always try to achieve my work goals	0.871		
Work motivation	MK3	I feel motivated to work better	0.818		
Work motivation	MK4	I take responsibility for my work	0.876		
Work motivation	MK5	I try to improve my performance	0.876		
Leadership style	GK1	My supervisor provides clear instructions	0.817	0.916	0.935
Leadership style	GK2	My supervisor is fair to employees	0.874		
Leadership style	GK3	My supervisor motivates me at work	0.864		
Leadership style	GK4	My supervisor is open to input	0.886		
Leadership style	GK5	My supervisor is able to lead well	0.869		
Work productivity	PK1	I am able to complete work on time	0.890	0.932	0.948
Work productivity	PK2	I work effectively and efficiently	0.884		
Work productivity	PK3	My work results meet the target	0.853		
Work productivity	PK4	I am able to improve my performance	0.883		
Work productivity	PK5	I work with good quality	0.921		

Note. The source table duplicated the heading “composite reliability”; the first reliability column is reported here as Cronbach’s alpha according to common SmartPLS reporting practice. The authors should confirm this label against the original SmartPLS output before submission.

2. Structural model and explanatory power

The R² value for leadership style was 0.805, indicating that work environment and compensation explained 80.5% of the variance in leadership style. The R² value for employee work productivity was 0.800, indicating that the predictors in the model explained 80.0% of the variance in employee productivity. These values suggest that the model has substantial explanatory power for both endogenous constructs.

Table 2. Coefficients of determination

Endogenous construct	R ²	Adjusted R ²
Leadership style	0.805	0.800
Employee work productivity	0.800	0.781

3. Hypothesis testing

The path-analysis results are presented in Table 3. Work motivation had a positive and significant effect on employee work productivity ($\beta = 0.386$, $t = 2.335$, $p = 0.020$), supporting H5. Work environment did not have a significant direct effect on productivity ($\beta = 0.310$, $p =$

0.141), and compensation also did not have a significant direct effect on productivity ($\beta = 0.180, p = 0.248$); therefore, H1 and H2 were not supported. Work environment had a positive and significant effect on leadership style ($\beta = 0.562, p < 0.001$), supporting H3. Compensation had a significant but negative effect on leadership style ($\beta = -0.364, p = 0.003$), which means H4 was statistically significant but not in the hypothesized positive direction. Leadership style did not significantly affect productivity ($\beta = -0.097, p = 0.627$), so H6 was not supported. The interaction effects involving work motivation were also not significant; therefore, H7, H8, and H9 were not supported.

Table 3. Structural path coefficients and hypothesis testing

Hypothesis	Path	β	t-statistic	p-value	Decision
H1	Work environment → Work productivity	0.310	1.471	0.141	Not supported
H2	Compensation → Work productivity	0.180	1.156	0.248	Not supported
H3	Work environment → Leadership style	0.562	4.549	<0.001	Supported
H4	Compensation → Leadership style	-0.364	3.019	0.003	Significant, negative direction
H5	Work motivation → Work productivity	0.386	2.335	0.020	Supported
H6	Leadership style → Work productivity	-0.097	0.486	0.627	Not supported
H7	Work motivation × Work environment → Work productivity	0.018	0.061	0.951	Not supported
H8	Work motivation × Compensation → Work productivity	-0.099	0.347	0.729	Not supported
H9	Work motivation × Leadership style → Work productivity	0.028	0.110	0.913	Not supported

Discussion

1. Work motivation as the strongest predictor of productivity

The most important finding is that work motivation had a positive and significant effect on employee productivity. This result supports self-determination theory, which emphasizes that motivated employees are more likely to persist, take responsibility, and regulate their behavior toward goal achievement (Ryan & Deci, 2000a; Gagné & Deci, 2005). In the context of PT Bumi Menara Internusa, employees who reported stronger enthusiasm, goal orientation, responsibility, and performance-improvement effort were more likely to report higher productivity. This suggests that productivity improvement programs should not focus only on physical facilities or pay, but also on the psychological conditions that make employees willing to sustain effort.

2. Non-significant direct effects of work environment and compensation

The direct effect of work environment on productivity was positive but not statistically significant. This finding does not mean that the work environment is unimportant. Rather, it suggests that the productivity effect of workplace conditions may be indirect, context-dependent, or already internalized in other constructs. The significant path from work environment to leadership style indicates that employees may interpret a supportive work environment as part of a broader managerial and supervisory climate.

Compensation also had a positive but non-significant direct effect on productivity. This result is consistent with the argument that compensation alone does not automatically generate higher performance. Pay and incentives can improve performance when employees perceive them as fair, meaningful, and linked to effort and outcomes (Kuvaas, 2006; Chen et al., 2023). If compensation is perceived as routine, insufficiently differentiated, or weakly connected to performance, its direct productivity effect may be limited.

3. Leadership style as an endogenous organizational factor

Work environment had a strong positive effect on leadership style, indicating that better workplace conditions are associated with more favorable perceptions of leadership. This finding is theoretically plausible because leaders can function more effectively when work relations, facilities, and organizational climate support communication and coordination. In contrast, compensation had a significant negative effect on leadership style. This unexpected direction may reflect employee disappointment, perceived inequity, or the possibility that compensation issues are attributed to supervisors. The negative direction should be interpreted cautiously and explored further through qualitative follow-up or additional analysis of compensation fairness.

Leadership style did not significantly affect work productivity in the structural model. This finding contrasts with meta-analytic evidence that leadership can be associated with performance (Judge & Piccolo, 2004). One explanation is that, in this specific operational context, productivity may be more directly determined by employee motivation, task routines, production systems, and work standards than by perceived leadership style alone. Another explanation is that the leadership indicators may capture general supervisory fairness and support but may not fully capture transformational, transactional, or task-oriented leadership behaviors relevant to productivity.

4. Interaction effects involving work motivation

The interaction effects between work motivation and work environment, compensation, and leadership style were not significant. This suggests that work motivation operated mainly as a direct predictor rather than as a moderator in the available model. In practical terms, highly motivated employees may be productive across varying workplace conditions, while less motivated employees may not become more productive merely because work environment, compensation, or leadership perceptions improve. This finding reinforces the importance of designing motivation programs as a direct managerial priority.

5. Theoretical implications

The study contributes to human resource management literature in three ways. First, it supports motivation-centered explanations of employee productivity by showing that work motivation was the only significant direct predictor of productivity in the model. Second, it shows that work environment may be more strongly connected to leadership perceptions than to productivity directly, suggesting that workplace resources can shape social-organizational climate. Third, it shows that compensation can have complex and even negative associations with leadership perceptions, indicating that compensation should be analyzed not only as an economic incentive but also as a fairness and communication issue.

6. Managerial implications

Managers at PT Bumi Menara Internusa should prioritize structured motivation programs that combine recognition, career-development pathways, feedback, goal clarity, and opportunities for employees to improve their competence. Because motivation was the

strongest direct predictor of productivity, productivity-improvement initiatives should include psychological and managerial interventions, not only facility or pay adjustments.

The company should also maintain a safe, comfortable, and supportive work environment because workplace conditions significantly shape leadership perceptions. Improvements in lighting, facilities, interpersonal relations, and supervisor-subordinate communication can strengthen the overall organizational climate. Compensation policies should be reviewed periodically to ensure perceived fairness, transparency, and alignment with work contribution. Finally, leadership-development programs should emphasize communication, coaching, fairness, and the ability to explain organizational policies clearly to employees.

7. Limitations and future research

This study has several limitations. First, the sample was limited to 81 employees from one company, which restricts the generalizability of the findings. Second, the study used cross-sectional questionnaire data, so causal interpretation should be made cautiously. Third, the available output did not include demographic breakdowns, AVE, HTMT, or full bootstrapping settings; these should be included in future versions of the manuscript. Fourth, the negative relationship between compensation and leadership style requires further investigation because it may reflect perceptions of fairness, communication, or attribution of compensation dissatisfaction to supervisors. Future research should include larger samples, multi-company comparisons, longitudinal designs, and qualitative interviews to explain the mechanisms behind the statistical relationships.

CONCLUSION

This study examined the relationships among work environment, compensation, work motivation, leadership style, and employee work productivity at PT Bumi Menara Internusa. The results show that work motivation is the most important direct predictor of employee productivity in the tested model. Work environment and compensation did not have significant direct effects on productivity, and leadership style also did not significantly affect productivity. However, work environment had a strong positive effect on leadership style, while compensation had a significant negative effect on leadership style. The interaction effects involving work motivation were not significant.

The findings indicate that productivity improvement should begin with strengthening employee motivation while maintaining supportive workplace conditions, transparent compensation practices, and effective supervisory communication. For practical implementation, the company should develop motivation-oriented HRM programs, improve work-environment quality, review compensation fairness, and strengthen leadership capability. For academic development, future research should test the model with broader samples and report complete PLS-SEM validity metrics to enhance methodological rigor.

Declarations

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Ethical approval and informed consent: Because the study involved employee questionnaire responses, the authors should add the relevant institutional approval, permission, and informed-consent statement if required by the target journal or institution.

Data availability: The data supporting the findings are available from the corresponding author upon reasonable request, subject to organizational permission.

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