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The Role of Work Motivation as a Mediating Variable In The Influence of Information Technology and Competence on Employee Performance of Bromo Tour Drivers in Malang City

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Abstract

Introduction/Main Objectives: This study explores how information technology and employee competence shape the performance of Bromo tour drivers in Malang City, with work motivation positioned as a mediating factor. The topic is relevant because digital transformation in the tourism sector has significantly changed service delivery and operational practices.

Background Problems: The core issue examined is whether information technology and competence can effectively enhance work motivation and, in turn, improve employee performance, leading to a central research question on the real impact of these variables within nature-based tourism operations.

Novelty: The novelty of this study lies in simultaneously assessing technology use, competence, and motivation among Bromo tour drivers—a group that has received limited scholarly attention despite their increasing reliance on digital navigation tools, booking platforms, and communication systems.

Research Methods: The research employs an explanatory quantitative approach using the SEM-PLS method. A total of 44 official Bromo tour drivers were selected through purposive sampling based on their work experience and their ability to operate digital applications relevant to daily operations.

Finding/Results: The findings reveal that information technology significantly enhances work motivation, whereas competence does not show a significant effect on either motivation or performance. Moreover, work motivation does not mediate the relationship between information technology, competence, and employee performance.

Conclusion: The study highlights the need for technology-oriented competency development and more structured motivation strategies—such as digital training, performance-based incentives, and professional guidance—to strengthen service quality and improve tourist satisfaction in the Bromo tourism area.

Keywords: information technology; competence; work motivation; employee motivation; Bromo tour driver

Introduction

The rapid development of information technology has brought substantial transformation to numerous industries, including tourism services that rely heavily on transportation providers such as tour drivers operating in the Bromo region of East Java. Various digital innovations—including online booking platforms, virtual/augmented reality integration, and IoT-based applications at tourist destinations—have reshaped both visitor experiences and the way service providers perform their duties (Tandafatu et al., 2024). In addition, research on smart tourism technology indicates that accessibility, interactivity, and personalization are strongly associated with tourist satisfaction (Pai et al., 2020). Conversely, several studies reveal that the ability to adopt technology significantly influences employee performance, and insufficient competence or poor technological adaptation often becomes a barrier that reduces work effectiveness (Jacobis et al., 2024).

In tourism-related services, employee performance is largely determined by an individual's capacity to integrate knowledge, relevant skills, and work attitudes that align with customer expectations (Spencer and Spencer, 2008). High competency enables employees to deliver safe, efficient, and professional services, whereas limited competencies may cause inefficiencies and diminish customer satisfaction (Aprilyani et al., 2019). Work motivation is also a crucial factor that bridges the relationship between competence and performance. Employees who are driven by both intrinsic and extrinsic motivation tend to exhibit stronger dedication and responsibility in carrying out their tasks (Robbins and Judge, 2019).

Empirical observations in the Bromo tour area show that although many drivers have adopted technologies such as GPS, Google Maps, and online booking systems, customer satisfaction levels remain inconsistent. Preliminary interviews with tourism service providers reveal that some drivers still struggle to respond quickly to route changes or special tourist requests due to limited digital proficiency. A study from the Indonesian Ministry of Transportation similarly reported varying levels of driver performance that are influenced by differences in competence and work motivation (Dhia & Anata, 2024). These findings illustrate a gap between technological advancement and actual performance outcomes in the field.

Previous research has explored the connections among information technology, competence, motivation, and performance across various industries. For example, Hutomo & Rofi, (2022) found that technological capability and information quality positively influence strategic decision-making, which subsequently enhances organizational performance. Meanwhile, a study by (Chanie et al., 2023) noted that knowledge characteristics—closely related to competence—positively affect proactive work behavior through the mediation of work motivation. However, these studies were mostly conducted in formal organizational settings such as banking, education, and manufacturing. Research examining similar dynamics within tourism-based transportation services, particularly those operating in natural tourist environments like Bromo, remains scarce.

From the perspective of the research gap, little is known about how individual service providers such as tour drivers utilize information technology and competence to enhance performance through work motivation. This gap highlights the need for a more comprehensive model that explains how these variables interact specifically in local tourism service settings.

The academic and practical urgency of this study lies in the need to strengthen human resource quality in tourism-related services. Within the context of Malang City and the Bromo tourism region, improving tour driver performance is essential for sustaining destination competitiveness and maintaining visitor satisfaction. The study also contributes theoretically to

the development of mediation models grounded in human performance theory and the technology acceptance model.

The novelty of this research lies in the integration of work motivation as a mediating variable linking information technology and competence to employee performance within the context of natural tourism services. By examining this mediation model in an underexplored sector, the study provides new empirical insights and offers strategic recommendations for tourism service managers aiming to enhance driver performance and tourist satisfaction in a sustainable manner.

Research Methods

This study employs a quantitative explanatory design using Structural Equation Modeling–Partial Least Squares (SEM-PLS) version 3.2.9 to analyze the causal relationships among Information Technology, Competence, Work Motivation, and Employee Performance. The SEM-PLS approach was selected because it allows simultaneous estimation of direct and indirect effects among latent variables, while also being suitable for relatively small sample sizes and data that do not meet multivariate normality assumptions (Hair, 2014). The structural model developed in this study comprises two exogenous variables—Information Technology (X_1) and Competence (X_2); one mediating variable, Work Motivation (M); and one endogenous variable, Employee Performance (Y).

The target population consists of all tour drivers operating in Malang City and the Bromo tourism area. According to data from the Malang City Tourism Office (2024), approximately 60 drivers are actively registered under licensed tour operators. A purposive sampling technique was applied with the following criteria: (1) at least one year of experience in Bromo tour services, (2) affiliation with an official travel agency or tourism driver community, and (3) familiarity with digital applications such as Google Maps, GPS, or online booking platforms. Based on these criteria, a total of 44 drivers were identified as eligible participants. This sample size meets the minimum requirement for SEM-PLS analysis, specifically the “ten-times rule” referring to the highest number of structural paths directed at any construct within the model (Hair, 2014).

Both primary and secondary data were utilized in this study. Primary data were collected through a structured questionnaire using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Secondary data were obtained from the Malang City Tourism Office, operational reports from tour providers, and relevant academic references. Prior to the full survey distribution, a pilot test was conducted with 10 respondents to ensure clarity, readability, and reliability of the measurement instrument.

Each variable was operationalized using indicators adapted from prior studies and adjusted to the characteristics of the tourism transportation sector. Information Technology was measured through indicators of system ease of use, access speed, information reliability, communication efficiency, and adaptability to innovation (Hutomo & Rofi, 2022). Competence was assessed using dimensions of job knowledge, technical skills, professional attitude, communication ability, and responsibility (Spencer & Spencer, 2008). Work Motivation included achievement drive, recognition, responsibility, opportunities for self-development, and job satisfaction (Robbins & Judge, 2019). Employee Performance was evaluated through indicators of work quality, quantity, punctuality, efficiency, and discipline (Bernardin & Russell, 1998).

Data analysis was performed using SmartPLS version 3.2.9 through two major stages: the evaluation of the outer model and the inner model. The outer model assessment aimed to

determine indicator validity and reliability by examining convergent validity (loading factors > 0.70 and AVE > 0.50), discriminant validity (Fornell–Larcker criterion and cross-loading values), and construct reliability using Composite Reliability and Cronbach's Alpha (both > 0.70). The inner model evaluation was conducted to test causal relationships among latent variables through the coefficient of determination (R^2). Hypothesis testing was performed using a bootstrapping procedure with 5,000 subsamples at a 5% significance level ($\alpha = 0.05$).

Mediation testing was carried out to determine whether Work Motivation functions as an intermediary between Information Technology and Competence toward Employee Performance. Mediation is considered significant when the t-statistic exceeds 1.96 and the pvalue is below 0.05. Partial mediation occurs when both direct and indirect effects are statistically significant, whereas full mediation is present when only the indirect effect is significant.

Result

1. Meansurement Model Evaluation (Muter model)

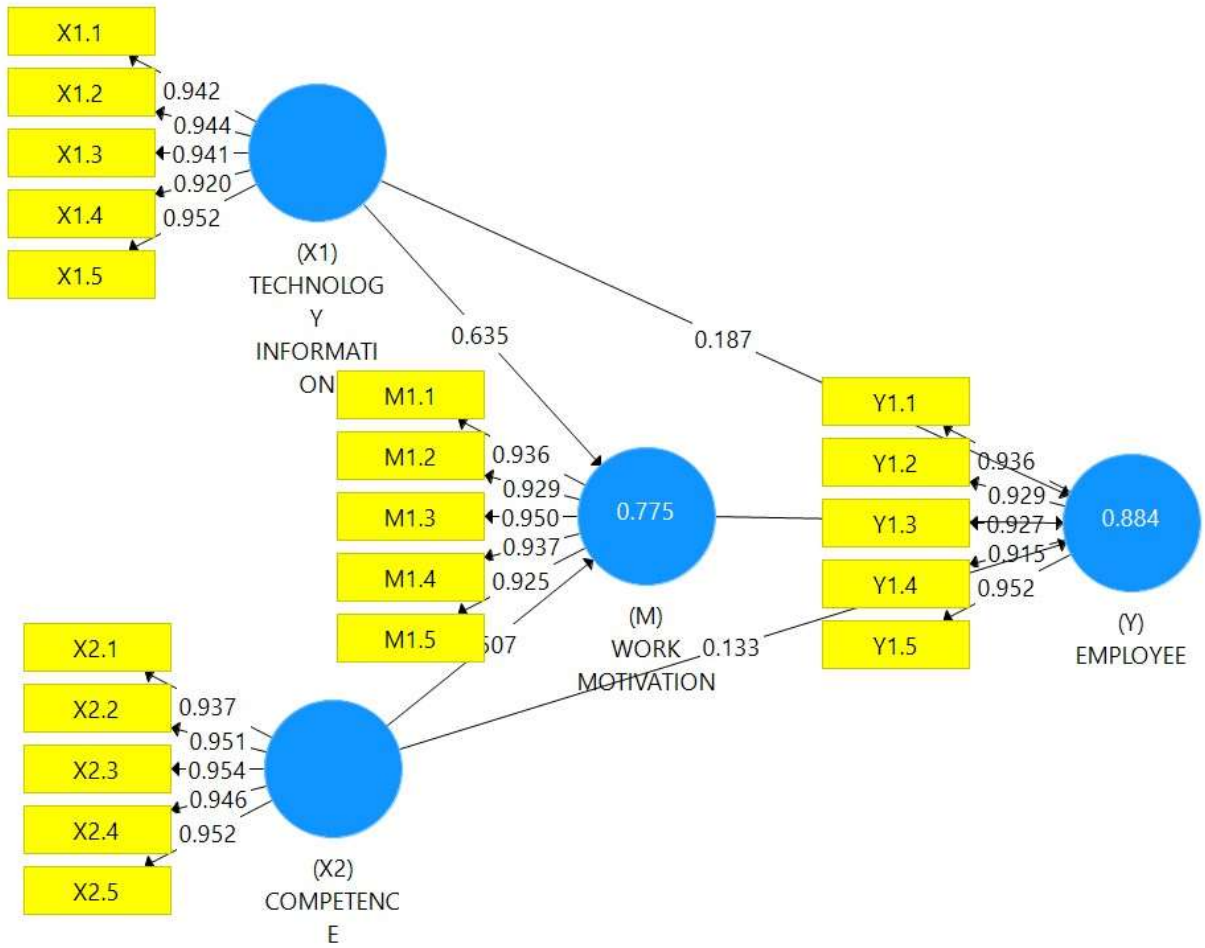

Figure 1 Conceptual Framework of the Study

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

This figure illustrates the conceptual framework of the study, depicting the directional relationships among the variables, consisting of two independent variables (X1 and X2), one mediating variable (M), and one dependent variable (Y). The arrows from X1 → M and X2 → M represent the direct effects of the independent variables on the mediator. The path from M → Y indicates the mediating influence on the dependent variable, while the paths X1 → Y and X2 → Y show the direct effects. This model evaluates both direct and indirect relationships using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, as recommended by Hair, (2014) for analyzing complex latent variable relationships.

Table 1 Convergent Validity and Measurement Reliability Indicators (Outer Loading Values)

	M	X1	X2	Y
M1.1	0.936			
M1.2	0.929			
M1.3	0.950			
M1.4	0.937			
M1.5	0.925			
X1.1		0.942		
X1.2		0.944		
X1.3		0.941		
X1.4		0.920		
X1.5		0.952		
X2.1			0.937	
X2.2			0.951	
X2.3			0.954	
X2.4			0.946	
X2.5			0.952	
Y1.1				0.936
Y1.2				0.929
Y1.3				0.927
Y1.4				0.915
Y1.5				0.952

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The outer loading values for all indicators range from 0.915 to 0.954, which exceed the minimum threshold of 0.70 Hair, (2014). This indicates that each indicator has a strong correlation with its respective construct. These results confirm that all indicators of the variables M, X1, X2, and Y are valid and consistently represent the constructs being measured (Fornell & Larcker, 1981).

Tabel 2 Discriminant Validity Assessment Using Fornell–Larcker Criterion

	M	X1	X2	Y
M	0.936			
X1	0.726	0.940		
X2	0.620	0.179	0.948	
Y	0.933	0.729	0.610	0.932

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The discriminant validity assessment using the Fornell–Larcker criterion shows that the square root of the AVE values on the diagonal (M = 0.936, X1 = 0.940, X2 = 0.948, Y = 0.932) is higher than the inter-construct correlations below them. This indicates that each construct is conceptually distinct from the others (Fornell & Larcker, 1981). Thus, discriminant validity is satisfied, and no overlap exists among the variables.

Tabel 3 Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
X2	0.964	0.965	0.972	0.875
Y	0.967	0.968	0.974	0.883
X1	0.972	0.974	0.978	0.899
M	0.962	0.963	0.971	0.868

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The reliability test results indicate that the Cronbach's Alpha and Composite Reliability values exceed 0.96, while the AVE values range from 0.868 to 0.899, all of which satisfy the established criteria for construct reliability and validity (Chin, 1998). These values demonstrate a high level of internal consistency and confirm that the indicators explain more than 50% of the variance in their respective latent constructs, thereby meeting the requirements for a valid and reliable measurement model (Hair, 2014).

2. Structural Model Evaluation (Inner Model)

Tabel 4 Coefficient of Determination (R-Square)

	R Square	R Square Adjusted
M	0.775	0.764
Y	0.884	0.875

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The R^2 values of M = 0.775 and Y = 0.884 indicate that 77.5% of the variance in M is explained by X1 and X2, while 88.4% of the variance in Y is explained by X1, X2, and M. According to Chin, (1998), R^2 values above 0.67 are categorized as substantial, suggesting that this model has strong explanatory power for the relationships among the variables.

Tabel 5 Hypotheses Test Summary Direct Effects

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Inferences
M → Y	0.714	5.267	0.000	**SUPPORTED**
X1 → M	0.635	6.997	0.000	**SUPPORTED**
X1 → Y	0.187	1.585	0.114	**NOT SUPPORTED**
X2 → M	0.507	6.684	0.000	**SUPPORTED**
X2 → Y	0.133	1.527	0.128	**NOT SUPPORTED**

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The direct effect test results show that the paths X1 → M (β = 0.635, p = 0.000), X2 → M (β = 0.507, p = 0.000), and M → Y (β = 0.714, p = 0.000) are significant, while the paths X1 → Y (p = 0.114) and X2 → Y (p = 0.128) are not significant. This indicates that the effects of X1 and X2 on Y do not occur directly but instead operate through the mediating variable M. These findings align with Hair, (2014) guidelines on path significance, which consider p-values below 0.05 as the threshold for statistical significance.

Tabel 6 Hypotheses Test Summary Specific Indirect Effects (Mediation)

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Inferences
X1 → M → Y	0.454	4.000	0.000	**SUPPORTED**
X2 → M →Y	0.362	4.291	0.000	**SUPPORTED**

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The indirect effect results indicate that the pathway X1 → M → Y (β = 0.454, p = 0.000) represents full mediation, whereas X2 → M → Y (β = 0.362, p = 0.000) demonstrates partial mediation. This confirms that M serves as the primary mediating variable linking X1 and X2 to Y. These findings align with the mediation framework proposed by Baron & Kenny, (1986), which distinguishes between full and partial mediation as mechanisms that explain intermediary effects within causal relationships.

3. Model Fit

Tabel 7 Fit Summary

	Saturated Model	Estimated Model
SRMR	0.046	0.046
NFI	0.832	0.832

Source: SmartPLS vr 3.2.9, research data analysis results, 2025

The model fit assessment shows that the SRMR value is 0.046 (<0.08) and the NFI value is 0.832 (>0.8), indicating that the model demonstrates a good level of fit (Henseler dkk., 2016). The low SRMR value reflects minimal residual error, while the sufficiently high NFI value confirms the alignment between the theoretical model and the empirical data. Therefore, the model can be considered fit and appropriate for further analysis.

Discussion

The findings of this study indicate that the use of information technology has a significant effect on the work motivation of Bromo tour drivers, whereas competence does not significantly influence either motivation or performance. These results reinforce the view that in field-based tourism settings such as Bromo, digitalization acts as a primary driver of increased work enthusiasm. Drivers who are accustomed to using technologies such as online booking systems, GPS navigation, and digital communication tools tend to feel more motivated because these tools make their work more efficient and manageable. However, the high level of motivation generated by technology does not directly translate into improved actual performance, suggesting that motivation alone is insufficient. Practical improvement in performance requires complementary efforts in structured training and enhancement of technical skills to convert motivation into tangible productivity in the field.

Furthermore, the insignificant effect of competence on both motivation and performance suggests that many Bromo tour drivers still face limitations in optimizing their professional capabilities despite having extensive field experience. This is consistent with field observations showing varied abilities in communicating with tourists, navigating alternative routes, and maintaining service etiquette. These results support the findings of Dhia & Anata, (2024), which emphasize that competence alone—without adequate motivation and technological support—does not guarantee optimal performance. Therefore, improving driver motivation should not rely solely on the integration of digital tools, but also on providing structured technology-based training, incentive systems, and proper reward mechanisms to ensure that competence and performance develop in a balanced manner.

Conclusion

This study concludes that information technology plays a significant role in enhancing the work motivation of Bromo tour drivers, whereas competence does not exert a meaningful influence on either motivation or performance. Furthermore, work motivation is not proven to mediate the relationship between information technology and competence toward performance. This implies that although digital tools have improved efficiency and work convenience, these advancements have not yet translated into tangible improvements in actual job performance. The findings highlight the necessity for strengthening human resource capacity so that the benefits of digitalization can be fully leveraged to enhance service quality in tourism operations.

In practical terms, this study emphasizes the need for technology-based competence and motivation development strategies for Bromo tour drivers. Local authorities, destination managers, and driver communities are encouraged to provide comprehensive training on navigation technologies, digital booking systems, and customer communication. Mentoring programs and performance-based incentives are also essential to sustain work motivation and improve driver professionalism. Strengthening motivation alongside technical proficiency and integrated digital support systems is expected to improve driver performance more effectively and sustainably, thereby contributing to the advancement of regional tourism services.

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