Transformational Leadership, Psychological Safety, and ICT Competencies: Effects on Employee Performance

Kepemimpinan Transformasional, Keamanan Psikologis, dan Kompetensi TIK: Pengaruhnya terhadap Kinerja Karyawan

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Abstract – In the growing digital era, transformational leadership has become one of the key factors in improving employee performance. It motivates employees to achieve organizational goals and creates a psychologically safe environment, where employees feel valued and supported. This study aims to examine the influence of transformational leadership and psychological safety on employee performance, by exploring the mediating role of ICT competence in Subang Regency MSMEs. This study employs a quantitative approach utilizing SEM-PLS methodology to explore the interrelationships among relevant variables. The research was conducted on 55 SMEs, using an online questionnaire as the data collection tool. This study emphasizes that ICT competence acts as a crucial mediating factor in the relationship between transformational leadership and psychological safety on employee performance in MSMEs in Subang Regency. The analysis results show that transformational leadership and psychological safety have a positive and significant impact on employee performance, which is enhanced by ICT competence. Transformational leadership improves employee performance by strengthening technical skills, technology knowledge, and the ability to adapt to new technologies. Similarly, psychological safety, supports employee performance through increased ICT competence, which facilitates productivity, work quality, and innovation.

Keywords: Transformational Leadership, Psychological Safety, Employee Performance, ICT Competence, MSMEs

Abstrak *– Dalam era digital, kepemimpinan transformasional menjadi kunci dalam meningkatkan kinerja karyawan dengan memotivasi mereka untuk mencapai tujuan organisasi dan menciptakan lingkungan kerja yang aman secara psikologis. Penelitian ini mengkaji pengaruh kepemimpinan transformasional dan keamanan psikologis terhadap kinerja karyawan di UMKM Kabupaten Subang, dengan kompetensi TIK sebagai variabel mediasi. Menggunakan pendekatan kuantitatif dan metodologi SEM-PLS, data dikumpulkan dari 55 responden melalui kuesioner daring. Hasil penelitian menunjukkan bahwa kepemimpinan transformasional dan keamanan psikologis berdampak positif dan signifikan terhadap kinerja karyawan. Kompetensi TIK berperan penting dalam memperkuat dampak tersebut, dengan meningkatkan keterampilan teknis, pengetahuan teknologi, dan kemampuan beradaptasi dengan teknologi baru. Hal ini juga memfasilitasi peningkatan produktivitas, kualitas kerja, dan inovasi di kalangan karyawan UMKM.*

Kata Kunci: *Kepemimpinan Transformasional, Keamanan Psikologis, Kinerja Karyawan, Kompetensi TIK, UMKM.*

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INTRODUCTION

In the increasingly advanced digital era, transformational leadership has been identified as a crucial factor in enhancing employee performance across various organizations. Transformational leadership functions as both a motivational tool and a strategic approach to create a psychologically safe work environment (Rabiul et al., 2024). In this context, transformational leaders play a role in creating an atmosphere where employees feel valued, supported, and encouraged to fully develop. This involves providing clear direction, motivating inspiration, and personal attention that supports individual growth. Additionally, rapid developments in Information and Communication Technology (ICT) are increasingly influencing the way organizations operate, particularly in the Micro, Small, and Medium Enterprises (MSMEs) sector. ICT competence, which includes technical skills and knowledge in using technology, is believed to act as an important mediator connecting transformational leadership with psychological safety and employee performance. This competence allows employees to utilize technological tools more effectively, which in turn enhances their productivity and performance.

Internationally, various public and private sector organizations have adopted transformational leadership as a key strategy to improve employee performance. Global research shows that transformational leadership can positively affect employee performance in several ways, including increased engagement, higher motivation, and a drive for innovation (H. Khan et al., 2020; Shang, 2023; Susilo, 2018). Transformational leaders are known for their ability to motivate followers to achieve shared goals by providing an inspiring vision and encouraging experimentation and creative thinking. In the current digital era, ICT competence has become a fundamental requirement for employees worldwide. Employees across various sectors are expected to have adequate technological skills to quickly adapt to technological changes and effectively utilize digital tools. Although transformational leadership and ICT competence have been recognized as important factors in improving performance, challenges in understanding and integrating the role of psychological safety in this context still exist. Psychological safety, which allows individuals to feel safe in sharing ideas and acknowledging mistakes, is not yet fully understood in relation to its impact on leadership effectiveness and technology use.

In Indonesia, the MSME sector plays a vital role in the national economy. Currently, there are 64.2 million MSMEs contributing 61% to Indonesia's GDP. In terms of workforce, MSMEs also absorb 97% of the total workforce in the country or approximately 119.6 million people (Kominfo, 2024). MSMEs are a crucial component supporting economic growth and job creation. However, many MSMEs face significant challenges in adopting technology and leveraging ICT potential to enhance their performance. Limitations in ICT competence and technological infrastructure often hinder MSMEs' ability to compete effectively in the global market (Hendrawan et al., 2024). Effective leadership and a psychologically safe work environment are essential elements that can help MSMEs overcome these challenges. Leaders who can create a supportive and motivating environment for employees, and provide support in developing technological skills, can significantly contribute to performance improvement. However, research examining the impact of transformational leadership and psychological safety on employee performance through ICT competence is still limited in Indonesia, requiring further exploration to understand these dynamics in depth.

In Subang Regency, which is one of the areas with significant MSME potential, MSME practitioners also face challenges similar to those experienced by MSMEs at the national level. The lack of understanding and application of technology among MSME practitioners in this region is a major obstacle in efforts to improve their business performance (Ausat, Siti Astuti, et al., 2022). Many MSMEs in Subang Regency still rely on traditional methods and have not fully utilized available digital technology. Additionally, effective leadership that can create a psychologically safe work environment is still underdeveloped in this region. The presence of transformational leadership supported by adequate ICT competence can serve as a strategic solution to enhance productivity and performance of MSMEs in Subang Regency. Improved technology adoption and the creation of a supportive work environment are expected to help MSME practitioners overcome their challenges and to stimulate local economic growth.

Subang Regency has many MSMEs that play a backbone role in the regional economy. However, challenges in technology adoption and improving ICT competence are major barriers to enhance employee performance in this sector. Many MSMEs in Subang

face difficulties in implementing new technology and developing the skills needed to effectively use digital tools (Marlinda & Soleha, 2024). On the other hand, effective leadership and the creation of a psychologically safe environment have not yet been fully implemented in many MSMEs in Subang. This creates a condition where the potential of transformational leadership and the benefits of ICT competence cannot be fully realized. The question arises as to how transformational leadership and psychological safety can play a role in improving employee performance through enhanced ICT competence in MSMEs in Subang Regency. This research aims to address this question by exploring how the combination of these elements can provide practical and strategic solutions to improve MSME performance in the region.

Transformational leadership, psychological safety, and ICT competence are key elements interacting to form superior work performance. Transformational leadership involves leaders with a forward-looking vision who can inspire and motivate employees to reach their best potential. Such leaders play a crucial role in creating a work atmosphere that promotes innovation and personal development. They help employees feel more connected to the organization's goals, thereby increasing commitment and enthusiasm by providing clear direction and individual attention. Transformational leadership leads to the development of strong relationships between leaders and team members, which in turn can enhance employee engagement and support the achievement of organizational goals more effectively (Garad et al., 2022). In this context, forward-looking leaders set strategic visions and build trust, providing the emotional support needed to push employees beyond their limits.

Psychological safety is a crucial factor that strengthens the positive effects of transformational leadership. When employees feel safe to express ideas and admit mistakes without fearing negative consequences, they are more likely to engage in creative processes and contribute optimally (Mogård et al., 2022). A safe and supportive work environment allows employees to openly share ideas and experiment without fear of unconstructive criticism. This, in turn, fosters innovation and continuous improvement. Psychological safety also contributes to the development of employee self-confidence, which is essential for enhancing both the quality and quantity of work outcomes. With a supportive environment, employees can focus on achieving their best performance without facing uncertainty or fear of undesirable consequences. This creates an ecosystem where creativity and productivity can thrive.

ICT competence plays a crucial role as a bridge connecting transformational leadership and psychological safety with optimal work performance. Employees with solid technological skills can utilize available tools and systems to improve productivity and efficiency (Ra et al., 2019). ICT competence enables employees to more easily implement strategies formulated by transformational leaders and leverage a safe work environment to achieve better results. Competency in technology also supports employees' ability to adapt to changes and to use the latest technology to enhance work processes. In this context, strong technical skills act as both a support tool and a driving factor to achieve organizational goals more efficiently and effectively. With ICT competence, employees can tackle challenges with innovative and effective solutions, reinforcing the synergy between leadership, psychological safety, and work performance.

However, despite the generally positive effects of transformational leadership, psychological safety, and ICT competence, there are challenges and potential negative impacts to be aware of. Transformational leadership that is overly idealistic or unrealistic can place excessive pressure on employees (Matsunaga, 2024). When leaders set very high standards without considering workload or operational realities, employees may feel pressured and unable to meet expectations. This can reduce leadership effectiveness and create dissatisfaction at work, ultimately negatively affecting employee motivation and performance. Discrepancies between leaders' expectations and actual conditions can lead to imbalances and stress that disrupt employees' well-being and productivity.

Poorly managed psychological safety can lead to less productive behavior. For example, if employees feel too comfortable and face no consequences for their performance, they may lack motivation to improve work outcomes or tackle challenges seriously. An overly safe work environment without incentives for improvement can result in a lack of initiative and innovation. The inability to balance a sense of safety

with a drive to meet high standards can hinder professional development and individual productivity (Binaebi et al., 2024). This highlights the importance of mechanisms ensuring that psychological safety does not become an excuse for low performance but instead encourages employees to reach their best potential.

ICT competence, while a valuable asset, can also pose problems if not managed correctly. Employees who rely excessively on technology or possess skills that do not align with organizational needs may struggle to complete their tasks effectively (Morandini et al., 2023). Additionally, constantly evolving technology can cause uncertainty and stress if employees cannot keep up with the latest developments. The inability to adapt to new or relevant technological skills can impact performance and work efficiency. Employees may feel pressured to continually update their skills, and failure to manage technological changes can affect their morale and motivation.

In cases where these challenges arise, the combination of transformational leadership, psychological safety, and ICT competence does not always yield the desired results. These challenges indicate that, while these three factors have significant potential to enhance work performance, their implementation must be done carefully and wisely. Achieving optimal work performance requires a balanced integration and effective management of each of these elements. Detailed attention to how each factor is applied and managed will determine the extent to which they contribute to achieve organizational goals and employee well-being.

The presentation of the research findings above reveals inconsistent results, and while various studies have examined the impact of transformational leadership on employee performance and highlighted the importance of ICT competence in addressing digital era challenges, there is still a gap in the literature exploring the role of psychological safety as a mediator in the context of micro, small, and medium enterprises (MSMEs). Psychological safety, which allows employees to feel safe sharing ideas and learning from mistakes without fear of negative repercussions, has great potential to impact work performance. However, the integration of psychological safety in the relationship between transformational leadership and ICT competence as a mediator has not been extensively studied, especially in the context of MSMEs. Furthermore, studies focusing on this phenomenon in specific areas such as Subang Regency are very limited. Subang Regency, with its unique characteristics and challenges in the MSME sector, offers an opportunity to understand how transformational leadership and psychological safety, influenced by ICT competence, affect employee performance locally. Therefore, this research aims to fill this knowledge gap by exploring in-depth the mediating role of ICT competence in the relationship between transformational leadership and psychological safety on employee performance in MSMEs in Subang Regency.

This research utilizes three key theories to explain the correlation between each variable. The Transformational Leadership Theory was first developed by James MacGregor Burns in his seminal work, Leadership (Burns, 1978). In this book, Burns proposed that transformational leadership is a form of leadership focused on profound change and intrinsic motivation. According to Burns, transformational leadership meets the basic needs of followers while engaging leaders in inspiring and encouraging followers to achieve their highest potential (Anderson et al., 2017). This concept emphasizes the importance of the reciprocal relationship between leaders and followers, where leaders play a key role in shaping a vision that can motivate and drive change. Burns argued that transformational leaders can influence followers through their strong enthusiasm and vision, as well as through their efforts to enhance individual well-being and development within the group.

The Transformational Leadership Theory, initially developed by James MacGregor Burns in 1978 and later expanded by Bernard M. Bass in 1985, outlines a leadership approach that motivates followers to transcend their own self-interest for the good of the organization. Bass identified four key dimensions: idealized influence, where leaders act as ethical role models; inspirational motivation, where leaders articulate a compelling vision; intellectual stimulation, where creativity and innovation are encouraged; and individualized consideration, where leaders focus on the unique needs of each follower. These characteristics set transformational leaders apart from transactional ones, as they not only focus on exchanges but also inspire deep organizational change and enhanced effectiveness (Bass, 1985).

Complementing this, the Psychological Safety Theory, introduced by Amy Edmondson in 1999, emphasizes the importance of creating a work environment where individuals feel safe to express ideas, ask questions, and make mistakes without

fearing negative repercussions. This concept promotes open communication, collaboration, and innovation, leading to improved team performance and organizational learning (Edmondson, 1999).

In parallel, the ICT Competence Theory, which emerged in the 1990s with contributions from Chris Dede, highlights the significance of mastering technical skills, technology knowledge, and technology adaptation to utilize digital tools effectively. ICT competence plays a vital role in enhancing both individual and organizational performance, particularly when it is supported by transformational leadership and a psychologically safe work environment (Dede, 1998).

The study formulates hypotheses with positive and significant narratives and arguments based on the theories used. The first hypothesis suggests that transformational leadership positively impacts employee performance. Transformational Leadership Theory, developed by James MacGregor Burns and Bernard M. Bass, explains that transformational leaders motivate and inspire employees to reach their full potential. Leaders with these qualities create a clear vision, provide personal support, and encourage creative thinking. Research shows that transformational leaders can enhance levels of motivation, commitment, and employee engagement, which directly contributes to improve work performance (Lai et al., 2020). Therefore, we expect that the higher the quality of transformational leadership applied, the better the employee performance. Transformational leadership, with its focus on inspiration and motivation, can positively influence employees by boosting their enthusiasm and dedication to tasks. Leaders who provide clear direction and build strong personal relationships tend to create a supportive and productive environment, which directly enhances work performance.

H1: Transformational Leadership Significantly Affects Employee Performance.

The second hypothesis posits that psychological safety positively impacts employee performance. Based on the theory of psychological safety introduced by Amy Edmondson, a psychologically safe work environment allows employees to share ideas, ask questions, and make mistakes without fear of negative consequences. Psychological safety creates an atmosphere that supports innovation and greater employee engagement. With a sense of safety, employees are more likely to contribute fully and show improved performance. Psychological safety provides a strong foundation for employees to work with high creativity and engagement. When employees feel free to speak up and innovate without risk, they will be more enthusiastic and dedicated to their work, positively impacting their overall performance (M. M. Khan et al., 2023).

H2: Psychological Safety Significantly Affects Employee Performance.

The third hypothesis proposes that ICT competence has a significant positive impact on employee performance. ICT competence encompasses technical skills, technological knowledge, and the ability to adapt to technological changes. Employees with strong ICT skills can effectively use technology to complete tasks, solve problems, and enhance productivity (de Wet & Koekemoer, 2016). Knowledge of relevant technology applications enables them to implement strategies that support work efficiency and innovation. The ability to adapt to new tools and systems also contributes to more efficient work processes and better work outcomes. In other words, increased ICT competence can enhance employee performance by facilitating optimal technology use, supporting the implementation of efficient processes, and improving the quality of work output.

H3: ICT Competence Significantly Affects Employee Performance.

The fourth hypothesis proposes that ICT competence mediates the relationship between transformational leadership and employee performance. In this context, ICT competence serves as a bridge connecting how transformational leadership can enhance employee performance. Transformational leaders who promote the adoption of technology and effective use of digital tools can improve employees' ICT skills. Employees with strong technology skills can apply the strategies and tools introduced by their leaders more efficiently, ultimately enhancing their performance (Lukowski et al., 2021). Good ICT competence enables employees to utilize technology optimally, supporting the implementation of the vision and strategies promoted by transformational leaders. With adequate technology skills, employees can work more productively and efficiently, improving work outcomes in line with their leaders' goals.

H4: ICT Competence Mediates the Relationship between Transformational Leadership and Employee Performance.

The fifth hypothesis suggests that ICT competence mediates the relationship between psychological safety and employee performance. Strong psychological safety allows employees to feel comfortable adopting and utilizing new technology. When employees feel safe, they are more open to learn and develop their ICT skills. With good ICT skills, employees can enhance their productivity and efficiency, which in turn contributes to improve work performance (Mila Sartika et al., 2023). In a psychologically safe environment, employees are more likely to explore and master relevant technologies. Increased ICT competence enables them to use available tools and systems more effectively, supporting better performance. The combination of psychological safety and strong technology skills creates optimal working conditions and drives superior results.

H5: ICT Competence Mediates the Relationship between Psychological Safety and Employee Performance.

Figure 1 below summarizes the hypotheses developed in this research by clearly illustrating the relationships between independent and dependent variables. This visual representation aids readers in understanding the interactions among the variables and the logical flow underlying the study, while also providing an overview of the framework employed. Thus, this figure serves as a guide for analyzing and interpreting the research findings.

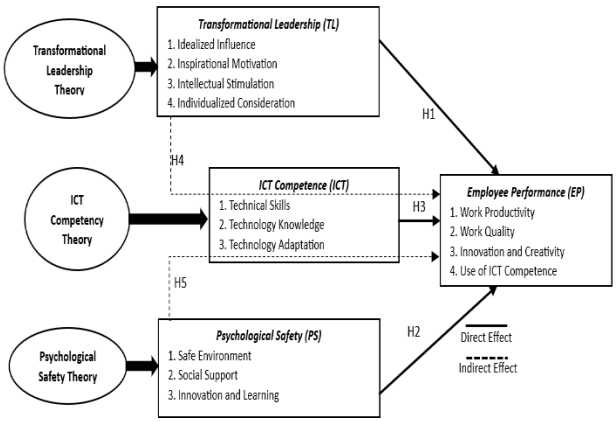

Figure 1 Research Framework

This study aims to comprehensively examine the effects of transformational leadership and psychological safety on employee performance, with a focus on the mediating role of Information and Communication Technology (ICT) competence in Micro, Small, and Medium Enterprises (MSMEs) in Subang Regency. The objective involves a detailed analysis of how transformational leadership, known for its ability to inspire and motivate employees, can influence performance through both direct and indirect effects of psychological safety. Psychological safety, which provides an environment where employees feel safe to innovate and express ideas without fear of negative consequences, is expected to be a crucial factor in this process.

The study also seeks to explore how ICT competence, encompassing relevant technological skills and knowledge, acts as a mediator in the relationship between transformational leadership and psychological safety on employee performance. High ICT competence enables employees to effectively utilize technology, which, in turn, can impact their productivity and work efficiency. This research aims to provide deeper insights into the mechanisms underlying the influence of transformational leadership and psychological safety on employee performance within the MSME context by understanding the mediating role of ICT competence. This study is anticipated to contribute to academic understanding of the factors affecting employee performance and provide practical guidance applicable to real-world settings in Subang Regency MSMEs.

RESEARCH METHOD

The research method employed in this study is grounded in a quantitative approach, emphasizing the systematic collection and statistical analysis of numerical data to investigate the relationships between transformational leadership, psychological safety, employee performance, and ICT competency. The quantitative method is selected for its capacity to provide empirical rigor and objectivity, enabling the precise measurement and analysis of complex constructs that are central to the study's objectives. By utilizing quantitative techniques, the research ensures that findings are not only scientifically valid but also generalizable across similar contexts. The integration of established quantitative methodologies with advanced analytical tools, such as Structural Equation Modeling-Partial Least Squares (SEM-PLS), further enhances the robustness of the study. This combination allows for a comprehensive examination of theoretical frameworks, facilitating the identification of causal relationships and the verification of hypotheses. The scientific validity of the findings is underscored by the use of rigorous data collection and analysis procedures,

making the study a credible and valuable contribution to the existing body of knowledge.

Study Design

The study design is structured as a survey, chosen for its efficacy in gathering large amounts of data from a specific population within a relatively short timeframe. This design is particularly suited to the study's aim of exploring the impact of transformational leadership and psychological safety on employee performance, with ICT competency acting as a mediating variable. The survey is administered through an online questionnaire distributed via Google Forms, targeting MSME owners and managers in Subang Regency. This method of data collection is selected due to its efficiency, cost-effectiveness, and the ability to reach a geographically dispersed population. The survey design incorporates Likert scales to quantitatively measure the respondents' perceptions of transformational leadership, psychological safety, ICT competency, and employee performance. The choice of a survey design allows for the collection of standardized data, facilitating the analysis of patterns and trends across the study sample. The context-specific nature of the survey—focusing on MSMEs in Subang Regency—ensures that the findings are relevant and applicable to the local business environment, providing insights that can inform both academic research and practical applications.

Research Sample

The research sample is drawn from a defined population of MSME owners and managers in Subang Regency who are actively implementing ICT in their business processes. The use of a purposive sampling technique is strategic, as it ensures that the selected participants meet specific criteria that are directly relevant to the study's objectives. The inclusion criteria require that participants be MSME owners or managers who actively use ICT in their business operations and who consider transformational leadership and psychological safety to be significant factors in their work environment. These criteria are designed to ensure that the sample is representative of the population of interest, allowing for the accurate assessment of the study variables. Conversely, the exclusion criteria filter out individuals who do not utilize ICT or who do not perceive transformational leadership or psychological safety as relevant to their business operations. This careful selection process results in a final sample of 55 participants, out of an initial pool of 82 respondents, who meet the inclusion criteria. The purposive sampling technique ensures that the study's findings are relevant to the specific context of MSMEs in Subang Regency, while also allowing for the generalization of results to similar settings.

Data Analysis

Data analysis in this study is conducted using SEM-PLS and facilitated by SmartPLS 3.0 software. SEM-PLS is chosen due to its suitability for analyzing complex relationships between latent variables and its ability to handle small to moderate sample sizes effectively. The SEM-PLS methodology is particularly advantageous for this study as it allows for the simultaneous examination of both the measurement model and the structural model, providing a comprehensive understanding of the relationships between transformational leadership, psychological safety, ICT competency, and employee performance. The analysis process begins with the assessment of the outer model, which evaluates the measurement model's convergent validity, discriminant validity, and reliability. Convergent validity is ensured by verifying that the indicators within each construct exhibit strong correlations, with loading factors exceeding the recommended threshold of 0.70. The inner model is then examined through R-square and Q-square analyses, which assess the model's explanatory power and predictive relevance, respectively. These analyses are critical for validating the theoretical framework and ensuring that the proposed relationships are supported by the data. Hypothesis testing is conducted to confirm the existence and strength of the relationships between the variables, providing empirical support for the study's theoretical propositions. The use of SEM-PLS, combined with SmartPLS 3.0 software, enhances the study's analytical rigor and offers a nuanced understanding of the dynamics at play within MSMEs in Subang Regency. This methodological approach not only strengthens the validity of the findings but also provides a solid foundation for future research in the field.

Table 1 Demographic Respondents

Demographic		Frequency	Percentage
Firm Age	1-5 years	13	23.64%
	6-10 years	24	43.64%
	11-15 years	14	25.45%
	>15 years	4	7.27%

Demographic		Frequency	Percentage
	Total	55	100%
Gender	Male	37	67.27%
	Female	18	32.73%
	Total	55	100%
Respondents Age	15-25 years	6	10.91%
	26-35 years	11	20.00%
	36-45 years	22	40.00%
	>45 years	16	29.09%
	Total	55	100%
MSMEs Sector	Agriculture and Plantation	9	16.36%
	Fisheries and Animal Husbandry	9	16.36%
	Crafts	6	10.91%
	Food and Beverages	19	34.55%
	Trade	12	21.82%
	Total	55	100%
Social-Media (ICT utilization)	WhatsApp Business	29	52.73%
	Facebook	9	16.36%
	TikTok	11	20.00%
	Instagram	6	10.91%
	Total	55	100%
E-commerce Platforms (ICT utilization)	Tokopedia	16	29.09%
	Shopee	24	43.64%
	Bukalapak	9	16.36%
	Lazada	6	10.91%
	Total	55	100%
Digital Payments (ICT utilization)	GoPay	24	43.64%
	OVO	19	34.55%
	Dana	12	21.82%
	Total	55	100%

In Subang Regency, the most dominant MSMEs are those aged between 6 to 10 years, comprising 24 companies (43.64%). The majority of MSME owners are male, totaling 37 individuals (67.27%). In terms of respondent age, the largest group is those aged 36-45 years, with 22 respondents (40.00%). In the business sector, food and beverages are the most common, with 19 companies (34.55%) operating in this sector. Regarding technology use, WhatsApp Business is the most widely used platform, by 29 companies (52.73%). In e-commerce, Shopee is the most dominant platform, utilized by 24 companies (43.64%). For digital payments, GoPay is the most frequently chosen method, used by 24 companies (43.64%). This data reflects the diversity and dynamics of MSMEs in Subang Regency, demonstrating their adaptation to various technologies and emerging market trends.

RESULTS AND DISCUSSION

Outer Model Evaluation

In the initial phase of the SEM-PLS analysis, the focus is on evaluating the outer model to ensure that the constructs meet essential validity and reliability criteria. As detailed in Table 2, all indicators associated with the constructs demonstrate loading factor values above 0.70, confirming that the constructs achieve the necessary level of convergent validity; this indicates that the measures consistently reflect the intended constructs. Furthermore, according to the analysis shown in Table 3, the model meets the discriminant validity criteria, as evidenced by the higher squared Average Variance Extracted (AVE) values relative to the correlation values, indicating that each construct is sufficiently distinct from the others. Additionally, Table 2 shows that all Cronbach's Alpha and Composite Reliability values are above 0.60, confirming that the research constructs demonstrate satisfactory reliability and validating that the constructs are measured consistently across different indicators.

Table 2 Measurement Model Analysis

Variable	Item	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Transformational Leadership (TL)	TL.1	0,732	0,782	0,779	0,645
	TL.2	0,802			
	TL.3	0,817			
	TL.4	0.775			
Psychological Safety (PS)	PS.1	0,726	0,718	0,727	0,622
	PS.2	0,719			
	PS.3	0,771			
ICT Competence (ICT)	ICT.1	0,769	0,702	0,766	0,641
	ICT.2	0,723			
	ICT.3	0,755			
Employee Performance (EP)	EP.1	0,719	0,722	0,726	0,621
	EP.2	0,806			
	EP.3	0,776			
	EP.4	0.744			

Table 3 Discriminant Validity

Var/Ind	TL	PS	ICT	EP
TL.1	**0,732**	0,327	0,429	0,412

Var/Ind	TL	PS	ICT	EP
TL.2	**0,802**	0,373	0,371	0,436
TL.3	**0,817**	0,396	0,452	0,439
TL.4	**0.775**	0,428	0,439	0,487
PS.1	0,317	**0,726**	0,338	0,323
PS.2	0,303	**0,719**	0,384	0,429
PS.3	0,483	**0,771**	0,393	0,352
ICT.1	0,411	0,444	**0,769**	0,498
ICT.2	0,490	0,426	**0,723**	0,477
ICT.3	0,519	0,422	**0,755**	0,407
EP.1	0,539	0,336	0,475	**0,719**
EP.2	0,504	0,371	0,372	**0,806**
EP.3	0,492	0,388	0,453	**0,776**
EP.4	0,447	0,397	0,437	**0.744**

Inner Model Evaluation

The next phase of SEM-PLS analysis involves testing the inner model, which uses R-square, Q-square, and hypothesis testing methods to evaluate the model's performance.

R-square assesses the extent to which exogenous constructs influence endogenous constructs. According to Table 4, an R-square value of 0.572 indicates that variables such as Transformational Leadership and Psychological Safety account for 57.2% of the variance in ICT Competence. The remaining 42.8% of the variance is attributed to factors not covered by this study. Additionally, an R-square value of 0.546 shows that Transformational Leadership, Psychological Safety, and ICT Competence collectively explain 54.6% of the variance in Employee Performance, with 45.4% of the variance attributable to external factors. As noted by (Hair et al., 2011), R-square values exceeding 0.50 signify that SEM models have acceptable explanatory power, demonstrating moderate-to-strong explanatory capability.

Predictive relevance is evaluated by calculating the Q^2 value, where a value greater than 0 indicates adequate predictive capability (Hair et al., 2011). The formula for computing Q^2 is:

$Q^2 = 1 – (1 – R1^2) \times (1 – R2^2)$

Using the obtained R-square values:

$Q^2 = 1 – (1 – 0.572) \times (1 – 0.546)$

$Q^2 = 1 – (0.428 \times 0.454)$

$Q^2 = 1 – 0.\ 0.194312$

$Q^2 = 0.\ 0.805688$

A Q^2 value of 0.805 indicates the model's effectiveness in accurately predicting observed values (Hair et al., 2011).

Hypothesis testing assesses whether path coefficients are statistically significant, with a common threshold of a P-value less than 0.05 indicating a significant correlation (Hair et al., 2011). The results of hypothesis testing are detailed in Table 5. This evaluation ensures that the proposed relationships between variables in the model are significant and relevant, providing a robust foundation for further analysis.

Table 4 R-Square Test

No	Variable	R-Square
1	ICT	0,572
2	EP	0,546

Table 5 Hypothesis Testing Results

Hypothesis	Path Coefficient	T Value	P Value	Decision
TL -> EP	0,524	7,517	0,000	**Accepted**
PS -> EP	0,475	6,411	0,000	**Accepted**
ICT -> EP	0,337	4,804	0,000	**Accepted**
TL -> ICT -> EP	0,229	2,536	0,005	**Accepted**
PS -> ICT -> EP	0,226	2,489	0,005	**Accepted**

The Significant Relationship between Transformational Leadership and Employee Performance

The first hypothesis in Table 5 indicates that transformational leadership significantly enhances employee performance in MSMEs, aligning with prior research (Ausat, Suherlan, et al., 2022). This leadership style transcends transactional methods by inspiring and motivating employees through four key indicators: Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration. Idealized Influence reflects leaders as role models, fostering respect and trust among employees. In Subang Regency's MSMEs, leaders who embody ideal behaviors boost productivity by motivating employees to emulate their commitment, leading to improved work efficiency and quality (Ybnu T et al., 2021).

Inspirational Motivation involves leaders articulating a vision that inspires employees to pursue shared goals. In Subang Regency MSMEs, effective leaders stimulate innovation by setting challenging yet attainable targets, encouraging employees to think

creatively and develop ICT competencies through learning and adaptation (Madanchian & Taherdoost, 2023). Intellectual Stimulation prompts employees to engage in critical and creative thinking by challenging established norms. Leaders who encourage this exploration in MSMEs can enhance innovation and creativity, resulting in improved task completion and productivity (Ye et al., 2022).

Individualized Consideration highlights leaders' attention to the unique needs of employees. This tailored support helps identify individual weaknesses and fosters personal development, leading to a more productive work environment (Chakraborty & Ganguly, 2019). Therefore, transformational leadership positively influences employee performance in Subang Regency's MSMEs by enhancing productivity, work quality, innovation, and ICT competence through its core indicators. This leadership approach enables employees to perform at their best, contributing significantly to the growth and success of MSMEs in the region.

The Significant Relationship between Psychological Safety and Employee Performance

The second hypothesis in Table 5 indicates that psychological safety positively and significantly affects employee performance in MSMEs, corroborating previous research (Lee, 2022). Psychological safety is defined as an environment where employees feel secure to express ideas and concerns without fear of repercussions, and it comprises three key indicators: Safe Environment, Social Support, and Innovation and Learning. A Safe Environment allows employees to share ideas and make mistakes without the fear of negative judgment, directly enhancing productivity. In Subang Regency's MSMEs, when employees feel secure, they are more likely to take initiative and reduce stress, thereby improving work efficiency and quality (Zhenjing et al., 2022).

Social Support reflects assistance from colleagues and supervisors, which is vital for fostering innovation and creativity. In MSMEs, when employees perceive strong support from their teams and leaders, they are more inclined to take risks and collaborate on new ideas. This support also promotes the use of ICT competence, encouraging employees to learn and implement new technologies (W Jabid et al., 2023). Innovation and Learning assess how an organization encourages learning and creative processes. In MSMEs in Subang Regency, a culture that promotes these aspects enhances innovation and the application of ICT. Employees who are motivated to learn are more likely to contribute new ideas and effectively utilize the latest technologies, which optimizes their skill set (Elmi et al., 2024).

Overall, the promotion of psychological safety in MSMEs positively influences employee performance. By fostering a Safe Environment, providing Social Support, and encouraging Innovation and Learning, these organizations can enhance work productivity, quality, creativity, and ICT competence, ultimately enabling employees to contribute more effectively to the company's success.

The Significant Relationship between ICT Competence and Employee Performance

The third hypothesis in Table 5 indicates that ICT competence positively and significantly affects employee performance in MSMEs, aligning with earlier research (Sannagy et al., 2023). ICT competence consists of three primary indicators: Technical Skills, Technology Knowledge, and Technology Adaptation, which influence performance through work productivity, quality, innovation, and creativity. Technical Skills refer to employees' abilities to effectively use relevant software and hardware. In MSMEs in Subang Regency, strong technical skills directly enhance productivity, enabling employees to complete tasks more quickly and accurately while minimizing errors (Poláková et al., 2023).

Technology Knowledge involves understanding various technologies relevant to employees' roles. In the context of MSMEs, possessing good technology knowledge fosters innovation and creativity, allowing employees to identify and apply new tools that enhance efficiency. This knowledge empowers them to devise innovative solutions to work-related challenges (Rasool et al., 2022). Technology Adaptation describes employees' ability to adjust to and utilize new technologies. In Subang Regency's MSMEs, effective adaptation to technological changes greatly influences ICT competence. Employees who swiftly adapt to new technologies can leverage the latest tools more efficiently, which not only boosts productivity but also improves work quality by ensuring processes are up to date. This adaptability encourages experimentation with new technologies, leading to innovative methods and solutions (Rubel et al., 2023).

Overall, ICT competence significantly enhances employee performance in MSMEs in Subang Regency. Employees can increase their productivity, work quality, innovation, and creativity by improving Technical Skills, Technology Knowledge, and Technology Adaptation, ultimately contributing to the overall success of these organizations.

The Significant Mediation Relationship between Transformational Leadership with Employee Performance through ICT Competence

The fourth hypothesis in Table 5 posits that ICT competence mediates the positive and significant impact of transformational leadership on employee performance in MSMEs in Subang Regency. Transformational leadership encompasses indicators such as Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration, which collectively enhance employee performance through the mediating role of ICT competence, including Technical Skills, Technology Knowledge, and Technology Adaptation. Transformational leadership inspires and motivates employees to realize their full potential through innovative approaches. This type of leadership enhances employee performance, with ICT competence serving as an intermediary that strengthens this effect.

Idealized Influence encourages employees to emulate leaders' positive behaviors and high standards. Leaders who exhibit exemplary behaviors motivate employees to improve productivity and quality. ICT competence is crucial here, as employees inspired to uphold high standards are more likely to enhance their technical skills and technology knowledge, leading to improved performance (Ahmed & Alsaqqaf, 2022). Inspirational Motivation creates an engaging vision, motivating employees to pursue challenging goals and innovate. Leaders who inspire creativity encourage employees to leverage their ICT competencies to explore new technologies, enhancing their innovative capacity (Matsunaga, 2024). Strong technical skills and technology knowledge enable effective implementation of creative ideas.

Intellectual Stimulation from leaders prompts critical thinking and exploration of new solutions. In Subang Regency's MSMEs, this stimulation boosts innovation, with ICT competence facilitating the innovation process through enhanced technology knowledge and skills. Employees influenced by intellectual stimulation can better implement new ideas and integrate cutting-edge technology into their work (Farahdiba et al., 2022). Individualized Consideration involves leaders addressing employees' specific needs, which improves work quality and ICT competence. Leaders who offer personal support help develop employees' ICT skills (Hickman & Akdere, 2018). In MSMEs, this attention fosters the growth of technical skills, technology knowledge, and adaptability, strengthening the relationship between individualized consideration and job quality.

ICT competence is a vital mediating factor in the positive impact of transformational leadership on employee performance in MSMEs in Subang Regency. ICT competence amplifies the effects of Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration on productivity, quality, innovation, and ICT use by enhancing Technical Skills, Technology Knowledge, and Technology Adaptation. This mediation allows employees to fully leverage transformational leadership, significantly improving overall performance in MSMEs.

The Significant Mediation Relationship between Psychological Safety with Employee Performance through ICT Competence

The fifth hypothesis in Table 5 asserts that ICT competence mediates the positive and significant impact of psychological safety on employee performance in MSMEs in Subang Regency. Psychological safety, characterized by indicators such as Safe Environment, Social Support, and Innovation and Learning, influences employee performance through the mediating role of ICT competence, which includes Technical Skills, Technology Knowledge, and Technology Adaptation.

Psychological safety fosters an environment where employees feel secure in sharing ideas and making mistakes without fear of negative repercussions, which is essential for enhancing employee performance. ICT competence significantly amplifies this effect.

Safe Environment allows employees to share ideas freely, enhancing work productivity and quality. In MSMEs, the presence of a safe environment encourages employees to explore their technical skills without fear, leading to improved outcomes (Radu, 2023). Strong technical skills enable effective use of

tools, while adequate technology knowledge and adaptation ensure optimal technology utilization.

Social Support encompasses assistance from colleagues and supervisors, which enhances innovation and creativity in MSMEs. ICT competence plays a mediating role by providing the necessary technical foundation for realizing innovative ideas. Employees who feel supported are more willing to explore new technologies and utilize their ICT skills (O'Driscoll et al., 2010). Adequate technology knowledge and adaptation skills empower employees to implement creative ideas effectively, fostering greater workplace innovation.

Innovation and Learning reflect the organization's encouragement for continuous learning and skill development. In MSMEs, psychological safety that promotes innovation directly impacts creativity. ICT competence strengthens this impact by facilitating learning and the adoption of new technologies. Employees with robust technical skills, deep technology knowledge, and adaptability can integrate new learning into their practices (Li, 2022), enabling them to innovate effectively.

ICT competence serves as a crucial mediating factor in the relationship between psychological safety and employee performance in MSMEs. ICT competence amplifies the effects of Safe Environment, Social Support, and Innovation and Learning on work productivity, quality, innovation, and ICT utilization by enhancing Technical Skills, Technology Knowledge, and Technology Adaptation. This enables employees to fully benefit from a safe environment and social support, improving their innovation capacity and contributing to enhanced performance and overall success in MSMEs.

CONCLUSIONS

This study highlights the significant role of ICT competence as a mediating factor between transformational leadership and psychological safety in influencing employee performance in MSMEs in Subang Regency. The analysis indicates that both transformational leadership and psychological safety positively impact employee performance, with ICT competence enhancing this relationship. Transformational leadership improves performance through dimensions like Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration, which develop technical skills, technology knowledge, and adaptability to new technologies. Similarly, psychological safety, defined by Safe Environment, Social Support, and Innovation and Learning, fosters employee performance by boosting ICT competence, thus enhancing productivity, work quality, and innovation.

The findings imply that MSME owners and managers should prioritize ICT competence development as part of their strategies to improve employee performance. Investing in ICT training and creating a supportive technological environment can strengthen the effectiveness of transformational leadership and psychological safety. Leaders should also emphasize transformational practices, such as inspirational motivation and intellectual stimulation, to further enhance employee performance through ICT skills reinforcement. Additionally, fostering a safe environment with adequate social support will enable employees to optimally develop their technological skills, boosting innovation and creativity.

Recommendations include implementing comprehensive ICT training programs to enhance employees' technical skills, technology knowledge, and adaptability. Companies should promote a culture of psychological safety by creating judgment-free environments, offering strong social support, and encouraging innovation and learning. Furthermore, MSME leaders should adopt transformational leadership styles that inspire and motivate employees to maximize their potential and effectively use technology. Future research should explore the effects of different technology types and leadership strategies on employee performance across various MSME sectors.

However, the study has limitations, including its narrow focus on MSMEs in Subang Regency, which may limit the generalizability of results. Data collection via online surveys may introduce selection bias, as only those with technology access could participate. The small sample size of 55 respondents may also restrict the statistical power of the findings, and reliance on self-reported measures could lead to subjective biases. Future research should address these limitations by broadening geographic scope, utilizing diverse data collection methods, and increasing sample size for more representative and valid results.

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