

The Effect of Competency Certification on Performance Mediated by Innovation

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Abstract

Purpose: This study aimed to analyze the effect of competency certification on employee performance and examine the mediating role of innovation in strengthening this relationship. In the era of globalization and rapid technological advancement, organizations must continuously improve the quality of their human resources to remain competitive. Competency certification provides formal recognition of employees' knowledge, skills, and professionalism. However, its impact on performance may be limited if not accompanied by innovative practices. Therefore, this study investigates whether innovation can function as a mechanism that enhances the effect of competency certification on employee performance.

Methodology: This study used a quantitative approach with an explanatory research design. Data were collected through questionnaires distributed to 20 respondents with experience in competency certification. The data were analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS software to examine both direct and indirect relationships among variables.

Results: The results indicate that competency certification positively and significantly affects employee performance, with a path coefficient of 0.662. Competency certification also positively affects innovation, with a coefficient of 0.416, and innovation influences performance, with a coefficient of 0.381. The mediation analysis shows that competency certification indirectly improves performance through innovation, with a value of 0.159, although the direct effect remains stronger.

Conclusions: Innovation partially mediates the relationship between competency certification and employee performance.

Limitations: This study was limited by its small sample size. Nevertheless.

Contributions: This study contributes to the human resource management literature by highlighting the importance of integrating competency certification with innovation-oriented organizational practices.

Keywords: *Competency Certification, Innovation, Performance, SmartPLS*

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1. Introduction

In an era of globalization and rapid technological development, organizations face high demands to remain competitive. Performance is a crucial aspect that determines an organization's sustainability and

progress. Organizations are required not only to produce substantial output but also to produce output that is high-quality, innovative, and responsive to change. To this end, various Human Resource (HR) strategies are being pursued, including competency development, training, certification, and encouraging innovation in the workplace. An increasingly adopted HR strategy is competency certification, which is the formal recognition that an individual possesses specific abilities, knowledge, and skills according to professional or industry standards. Competency certification is considered important because it provides legitimacy, boosts self-confidence, and ensures that employees possess the minimum standards of technical skills. Furthermore, certification can differentiate them in the job market and enhance their career opportunities.

However, on-the-job experience shows that competency certification does not always translate directly into improved performance. Some certified employees still face challenges in applying recognized competencies to daily work practices, especially when workplace innovation is not encouraged. Innovation, whether in the form of new ideas, work methods, or process improvements, is often a key variable influencing how effectively competency certification can improve performance. Competence has a positive effect on performance, both directly and through innovation behavior ([Suhartini et al., 2024](#)). This suggests that innovation as a mediator strengthens the relationship between competence and performance; however, the context is limited to a single large industrial company. Furthermore, in the government sector, staff competence and organizational culture influence service performance, mediated by the organization's innovative capabilities ([Imaniyati, Ramdhany, Santoso, Hadijah, & Nurjanah, 2024](#)).

However, several gaps remain in the literature. Most previous studies have focused on competency certification or competency in general to improve technical skills and professionalism. However, few studies have examined how such certification fosters innovation as a mediator of performance improvement. Innovation encompasses innovative behavior or organizational innovative capabilities, as well as how these mechanisms operate empirically between competency certification and performance. In addition, many organizations conduct competency certification simply as a formality or to comply with regulations, without a clear system for evaluating whether the certification actually triggers innovation in work processes or an innovative culture that supports increased productivity.

Consequently, certification can become an administrative burden with no real impact on performance if innovation or creative use of competencies is not enabled. Research linking competency certification, innovation, and performance is still limited to certain sectors, such as manufacturing industries, local government, and education. Based on this background, this study aims to examine the effect of competency certification on performance, with innovation as a mediating variable. This study will use quantitative methods with data collection through questionnaires and analysis using SEM or PLS-SEM. Thus, it is hoped that an empirical understanding of the working mechanism of competency certification through innovation in improving performance will be obtained, while also providing practical implications for organizations in designing certification policies that are not merely formalities but also effective in improving innovation and work performance.

2. Literature Review and Hypotheses Development

2.1 Human Capital Theory

Human Capital Theory views human resource development through education, training, and certification as an investment that increases the stock of skills, knowledge, and productive capacity of individuals, thus leading to improved organizational performance ([A. S. Arifin, 2023](#)). In the context of competency certification, this formal investment serves as a mechanism to formalize and verify worker capabilities so that organizations have reliable assurance of competency quality in carrying out technical and non-technical tasks. Recent empirical evidence shows that investments in skills development and training are positively correlated with an organization's ability to innovate because a more competent workforce is better able to adopt, adapt, and generate new ideas or processes that subsequently contribute to improved performance ([Cammeraat, Samek, & Squicciarini, 2021](#); [Sheehan, Garavan, & Morley, 2025](#)). Specifically, continuing education and professional development strengthen competency retention and the adaptive capacity of the workforce, which are essential for implementing

operational innovation ([Shiri et al., 2023](#)). Furthermore, the correlation between human capital structure and innovation performance confirms that skill mismatch hinders innovative performance; conversely, increased investment in human capital, as demonstrated in this study through competency certification, has the potential to improve organizational innovation outcomes ([Huang, Balezentis, Shen, & Streimikiene, 2023](#)).

2.2 Innovation Diffusion Theory

Innovation Diffusion Theory explains how innovations (ideas, practices, and technologies) spread within a social system through several stages: knowledge, persuasion, decision, implementation and confirmation. Key factors such as Relative Advantage, Compatibility, Complexity, Trialability, and Observability influence the speed and extent of innovation adoption by individuals or organizations ([García-Avilés, 2020](#)). In relation to this research, competency certification improves employee knowledge and readiness, thereby strengthening the knowledge and persuasion stages in the innovation diffusion model. Thus, certified employees are better able to adopt and develop innovations, which contributes to improved performance.

Training and learning development strategies designed with elements of innovation diffusion theory (including compatibility and trialability) help organizations accelerate the adoption of new technologies and facilitate innovation ([Handrian & Novita, 2025](#)). Diffusion theory also implies that organizations must pay attention to how innovations are recognized, socialized, tested, and observed in the workplace. This is relevant if competency certifications are designed to ensure that employees see tangible benefits and innovative outcomes from the certification (observability) and if there are opportunities to try innovative implementations (trialability) as part of training or actual work assignments.

2.3 Competency Certification (X)

Competency certification is the official recognition that an individual has met certain standards of expertise, knowledge, and skills in a particular profession or field based on an objective assessment by an authorized institution. This certification serves not only as formal validation but also as a strategic tool within an organization to ensure that the workforce possesses the minimum competencies required by job and industry standards. Through competency certification, organizations can increase their credibility, job security, and trust from external stakeholders, such as clients, regulators, and business partners. For example, research in the Lampung hospitality industry found that competency certification had a significant influence in mediating knowledge and skills on employee performance ([Raras, Finorina, Kanti, Defrizal, & Habiburahman, 2023](#)).

2.3.1 Completeness of Knowledge

This indicator measures the extent to which a person possesses the theoretical knowledge required in their professional field, encompassing the latest theoretical standards, regulations, methods, and relevant concepts ([Ji, Wang, & Ye, 2025](#)). Knowledge Completeness is part of the teacher competency indicator system in the digital era, demonstrating the importance of structured and comprehensive knowledge.

2.3.2 Technical and Practical Skills

Competency certification typically involves an assessment of practical skills rather than a theoretical test. This indicator measures how well the certification measures actual skills in the field using tools, on-the-job training, simulations, or real-life tasks relevant to the job ([Fu, Zhao, Shan, & Zeng, 2023](#)). Technical and practical skills, including actual clinical skills, are an important part of the competency evaluation system.

2.3.3 Professional Ethics and Commitment

In addition to technical abilities, competency certification often evaluates aspects of professional personality qualities, such as ethics, integrity, dedication to the profession, and adherence to behavioral standards ([Fu et al., 2023](#)).

2.3.4 Cooperation, Communication, and Soft Skills (Interpersonal Skills)

Good competency certification also considers non-technical skills, such as communication, teamwork, collaboration, and adaptability. These indicators are important because collaboration between units or individuals significantly impacts the effectiveness of competency utilization in many jobs.

2.3.5 Self-Development and Lifelong Learning Skills

Competency certification is not static; technological advances and industry changes require the workforce to learn continuously and update their competencies. These indicators include motivation to learn, ability to participate in new training, adaptability to change, and continuous skill development ([Fu et al., 2023](#)).

2.4 Innovation (Z)

Innovation is the process of developing and implementing new ideas, methods, products, or services that improve an organization's efficiency, effectiveness, or competitiveness ([Kusumawati & Hana, 2025](#)). Innovation in organizations triggers change and adapts to technological developments and dynamic market demands. The benefits of innovation include improved product or service quality, optimized work processes, and the development of creative solutions that impact organizational growth. The goal of implementing innovation is for organizations to not only survive but also excel in facing competitive challenges and create sustainable advantages ([Saputro, 2023](#)). According to [Lo and Kam \(2021\)](#), there are three main indicators of innovation that are often used in organizational research.

2.4.1 Creativity of Employees

It is the mother of employees' new ideas for solving work problems and their ability to propose innovations or improvements to work processes. Creativity encompasses the ability to think outside the box and the willingness to explore new solutions within the work context.

2.4.2 Innovation Process Support System

Internal organizational systems that support innovation include mechanisms for idea generation, implementation, and the path from idea to implementation or commercialization. Support can be achieved through innovative culture, reward systems, resource facilitation, and proactive change management.

2.4.3 Employee Engagement in Innovation (Employee Engagement in Innovation)

The extent to which employees are involved in the innovation process, from idea to implementation to evaluation. This indicator measures employee participation, enthusiasm for improving work methods, and collaboration with colleagues and organizational management on innovation.

2.5 Performance

Performance is the work results achieved by an employee in carrying out the tasks and responsibilities assigned by an organization ([Miami, Saputro, & Mubarak, 2024](#)). Performance measurement evaluates employee work effectiveness and determines further development needs. The benefits include increased productivity, identification of training needs, and better decision-making in human resource management. The primary purpose of performance appraisal is to ensure that employees perform according to established standards and contribute to achieving organizational goals. According to [Yolanda, Widiana, and Sari \(2022\)](#), the six performance indicators are quality of work, quantity of work, punctuality, effectiveness, independence, and responsibility.

2.6 Relationship between Variables

This study examines the relationship between competency certification (X), innovation (Z) and performance (Y). Based on the theoretical framework and empirical findings, competency certification is viewed as a human resource investment that directly increases innovation and performance. Investment in education, training, and certification improves individual skills, knowledge, and productive capacity, leading to improved organizational performance ([A. S. Arifin, 2023](#)). Competency

certification serves not only as formal validation but also as a strategic mechanism to formalize employee expertise, allowing organizations to ensure competency quality. Recent research findings support this, as skill development through continuing education and training has been shown to enhance an organization's ability to innovate and improve performance ([Cammeraat et al., 2021](#); [Sheehan et al., 2025](#); [Shiri et al., 2023](#)). Thus, there is a positive relationship between competency certification and innovation and performance, as certified employees tend to be more adaptable to technological and operational changes ([Huang et al., 2023](#)).

Furthermore, Innovation Diffusion Theory explains that innovation adoption is influenced by factors such as relative advantage, suitability, complexity, trialability, and observability. Competency certification plays a role in strengthening the initial stages of the innovation diffusion process, namely knowledge and persuasion, so that employees are better prepared to adopt innovations ([García-Avilés, 2020](#)). With increased knowledge, technical skills, and professional ethics verified through certification, employees can more easily participate in the development and implementation of innovations that support organizational performance. This is supported by studies showing that training and development strategies based on innovation diffusion principles accelerate technology adoption and foster an innovative culture ([Handrian & Novita, 2025](#)).

Within this framework, innovation is a mediating variable that links competency certification to performance. Innovation enables a certified workforce to demonstrate not only technical skills but also creativity, engagement, and tangible contributions to organizational excellence ([Kusumawati & Hana, 2025](#); [Saputro, 2023](#)). In other words, competency certification strengthens human capital, which facilitates innovation, ultimately driving improved employee and overall organizational performance ([Lo & Kam, 2021](#); [Miami et al., 2024](#); [Yolanda et al., 2022](#)).

2.7 Framework of Thinking

This study examines the relationship between competency certification (X), innovation (Z) and performance (Y). Based on the theoretical framework and empirical findings, competency certification is viewed as a human resource investment that directly increases innovation and performance. Human Capital Theory states that investment in education, training, and certification will improve individual skills, knowledge, and productive capacity, leading to improved organizational performance ([A. S. Arifin, 2023](#)). Competency certification serves not only as formal validation but also as a strategic mechanism to formalize employee expertise, allowing organizations to ensure competency quality. Recent research findings support this, as skill development through continuing education and training has been shown to enhance an organization's ability to innovate and improve performance ([Cammeraat et al., 2021](#); [Sheehan et al., 2025](#); [Shiri et al., 2023](#)). Thus, there is a positive relationship between competency certification and innovation and performance, as certified employees tend to be more adaptable to technological and operational changes ([Huang et al., 2023](#)).

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regarding the relationship between variables, as explained in the formulation of the hypothesis, the research model is shown in Figure 1.

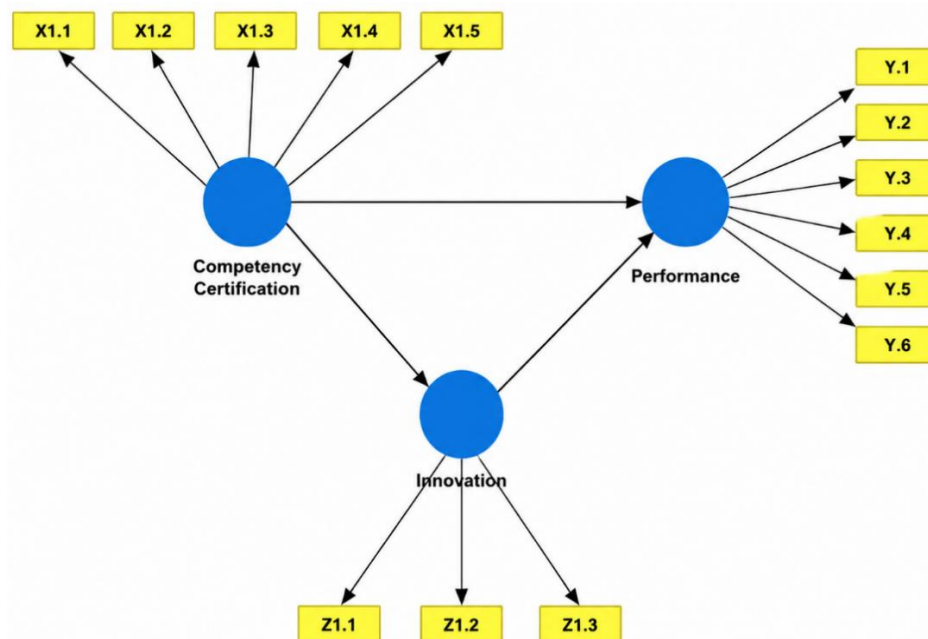


Figure 1 Research framework

Based on Figure 1, the proposed hypotheses of this study can be formulated as follows:

- H_1 : Competency certification has a positive and significant effect on performance
- H_2 : Competency certification has a positive and significant effect on innovation
- H_3 : Innovation has a positive and significant effect on performance
- H_4 : Competency certification has a positive and significant effect on Performance through innovation as a mediating variable

3 Methodology

This study uses a quantitative approach with an explanatory research type, which aims to analyze the effect of competency certification (X_1) on performance (Y), with innovation (Z) as a mediating variable. The explanatory approach was chosen because this study aimed not only to describe the phenomenon but also to test the causal relationship between variables by involving mediating mechanisms. The number of samples in this study was 20 respondents. This approach was chosen because PLS-SEM is very suitable for research with relatively small sample sizes but has a complex structural model (Ghozali & Latan, 2015). Data were collected using a structured questionnaire with a five-level Likert scale ranging from "strongly disagree" to "strongly agree." The research instrument was compiled based on indicators that were formulated in the literature review, namely:

1. Competency Certification (X_1): measured through five indicators, namely, completeness of knowledge, technical and practical skills, professional ethics, cooperation and communication, and self-development and continuous learning abilities (Ji et al., 2025).
2. Innovation (Z): a mediating variable measured using three indicators: employee creativity, innovation process support system, and employee engagement in innovation (Lo & Kam, 2021; Saputro, 2023).
3. Performance (Y): measured using six indicators: work quality, work quantity, timeliness, effectiveness, independence, and responsibility (Yolanda et al., 2022).

Data analysis was carried out using SmartPLS software, which was used to test the relationship between variables, indicator validity, construct reliability, and measure the direct and indirect effects of Competency Certification and motivation on performance in the research model. With this approach, it

is hoped that the research will provide an in-depth understanding of the relationship between variables and provide practical contributions to the development of human resource management strategies in related organizations.

4. Results and Discussions

4.1 Result

4.1.1 Inferential Statistical Analysis Results

In this study, the innovation variable (Z) as a mediating variable is measured through three indicators: employee creativity, innovation process support system, and employee engagement in innovation. Furthermore, the Competency Certification variable (X_I) is measured through five indicators: completeness of knowledge, technical and practical skills, professional ethics, cooperation and communication, and self-development and continuous learning capabilities. Meanwhile, the Employee Performance variable (Y) is measured through six indicators: work quality, work quantity, timeliness, effectiveness, independence, and responsibility.

4.1.2 Measurement Model Results (Outer Model/Indicator Testing)

The following shows the results of the model calculations using the SmartPLS software.

Table 1 Outer loadings

	Outer Loadings
$X_{1.1} \leftarrow$ Competency Certification	0.803
$X_{1.2} \leftarrow$ Competency Certification	0.81
$X_{1.3} \leftarrow$ Competency Certification	0.874
$X_{1.4} \leftarrow$ Competency Certification	0.876
$X_{1.5} \leftarrow$ Competency Certification	0.822
$Z_{1.1} \leftarrow$ Innovation	0.897
$Z_{1.2} \leftarrow$ Innovation	0.903
$Z_{1.3} \leftarrow$ Innovation	0.686
$Y_{1.1} \leftarrow$ Performance	0.885
$Y_{1.2} \leftarrow$ Performance	0.845
$Y_{1.3} \leftarrow$ Performance	0.832
$Y_{1.4} \leftarrow$ Performance	0.871
$Y_{1.5} \leftarrow$ Performance	0.861
$Y_{1.6} \leftarrow$ Performance	0.869

Based on Table 1, it can be seen that all indicators have outer loadings above 0.70 and are considered valid. In the given data, indicator $Z_{1.3}$ (Innovation) has a loading value of 0.686, which is lower than the threshold; therefore, this indicator is considered invalid. However, other indicators such as $X_{1.1}$, $X_{1.2}$, $X_{1.3}$, $X_{1.4}$, $X_{1.5}$, $Z_{1.1}$, $Z_{1.2}$, $Y_{1.1}$, $Y_{1.2}$, $Y_{1.3}$, $Y_{1.4}$, $Y_{1.5}$, and $Y_{1.6}$ have loading values ≥ 0.70 , which indicates that the convergent validity of this model is excellent. Thus, although one indicator is invalid, most of the other indicators indicate a valid model. The convergent validity of the indicator test (measurement model) can be seen not only from the loading factor value but also from the calculation results of the second model in the form of Average Variance Extracted and Composite Reliability results. The following table shows the Average Variance Extracted and Composite Reliability:

Table 2 Composite reliability and Cronbach's Alpha

	Cronbach's Alpha	Composite Reliability
Performance	0.93	0.936
Competency Certification	0.894	0.908
Innovation	0.782	0.844

Table 2 shows that construct reliability was tested using Cronbach's Alpha and Composite Reliability (CR). All Cronbach's Alpha and CR values were greater than 0.60, indicating that the constructs in this model were reliable. For example, performance had a Cronbach's alpha of 0.93 and a CR of 0.936,

indicating very high reliability. This indicates that the indicators of each variable are reliable and valid, reflecting their respective variables.

4.1.3 Structural Model Test Results (Inner Model)

The structural model (inner model) testing stage considers the R-squared value, which is the result of the model's goodness-of-fit test. The R-squared value can be seen in the R-squared table from the results of running the calculated model. The R-squared from this study as shown in Table 3.

Table 3R-square

	R-square	R-square Adjusted
Performance	0.793	0.769
Innovation	0.173	0.127

Based on the R-squared value obtained from each variable; calculations were carried out to determine the predictive relevance value (Q^2) using the following formula:

$$\begin{aligned}
 Q^2 &= 1 - (1 - R^2)(1 - R^2) \\
 Q^2 &= 1 - (1 - 0,793)(1 - 0,173) \\
 Q^2 &= 1 - (0,207)(0,827) \\
 Q^2 &= 1 - 0,171 \\
 Q^2 &= 0,829
 \end{aligned}
 \tag{1}$$

The calculation results show a Q^2 value of 0.829, or 82.9%, meaning that 82.9% of the data diversity can be explained by the research model. The remaining 17.1% is explained by other variables not included in the model and the error factors.

4.1.4 Hypothesis Testing Results (Variables)

Figure 2 shows the path coefficient results from the research model:

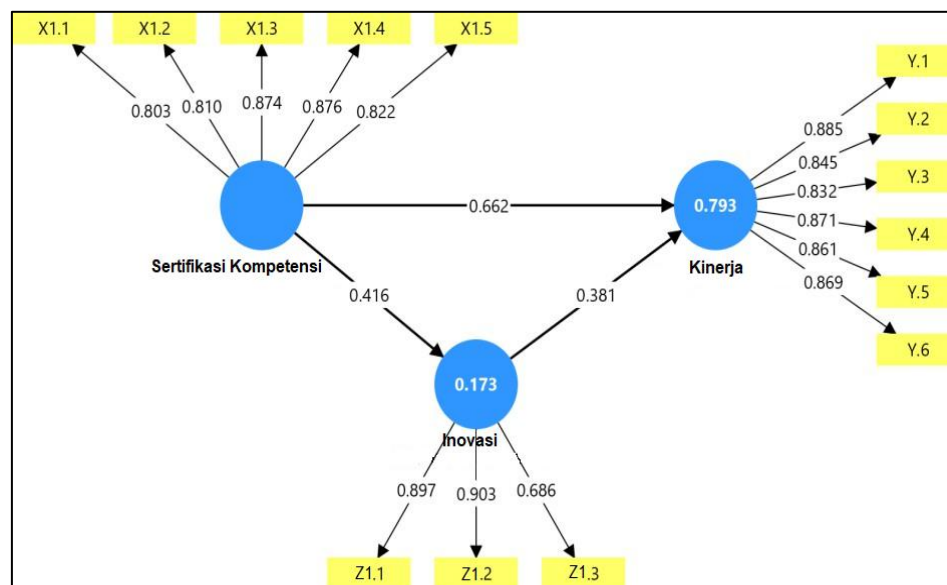


Figure 2 Bootstrapping values

The second research model can be explained by the results of the testing between variables or hypotheses. In this study, this was obtained from the results of bootstrapping. Running bootstrapping also produces a table of results for outer loadings. The following are the path coefficient results for the research model:

Table 4 Path coefficients

	Path Coefficients
Competency Certification → Performance	0.662
Competency Certification → Innovation	0.416
Innovation → Performance	0.381

Table 4 shows the results of the path coefficient test show that Competency Certification on Performance has a coefficient value of 0.662, indicating a strong and significant direct relationship. Furthermore, the coefficient value of Competency Certification on Innovation is 0.416, indicating a positive influence with moderate strength. Meanwhile, Innovation on Performance obtained a coefficient value of 0.381, indicating a positive influence but relatively weaker than the other paths. Following displayed test too No direct:

Table 5. Indirect effects

	Specific indirect effects
Competency Certification → Innovation → Performance	0.159

Table 5 shows the results of the Specific Indirect Effects test indicate that the indirect effect of Competency Certification on Performance through Innovation is 0.159. This value indicates a positive effect, although it is relatively small compared to the direct effect of Competency Certification on Performance. This finding confirms that innovation acts as a partial mediating variable, where Competency Certification still provides a major direct contribution to performance but is also able to improve performance indirectly by increasing employees' innovative capacity. Thus, the implementation of competency certification not only guarantees standards of knowledge and skills but also encourages the emergence of innovation, which ultimately strengthens organizational performance.

4.1.4.1 Hypothesis Testing 1

The first hypothesis in this study is "Competency Certification has a positive and significant effect on performance." The path coefficient test results showed a path coefficient of 0.662 (positive), indicating a strong direct relationship. This means that there is sufficient empirical evidence to accept the first hypothesis. In other words, the higher the competency certification an employee possesses, the better their performance.

4.1.4.2 Hypothesis Testing 2

The second hypothesis is "Competency Certification has a positive and significant effect on Innovation." Based on the calculation results, a path coefficient of 0.416 (positive) was obtained, indicating a moderate effect size. This provides empirical evidence that competency certification not only improves employees' ability to perform their duties but also encourages innovative capacity, both in developing ideas and processes and in improving work systems.

4.1.4.3 Hypothesis Testing 3

The third hypothesis is "Innovation has a positive and significant effect on performance." The test results showed a path coefficient of 0.381 (positive). This indicates that innovation plays a role in improving performance, although its contribution is relatively smaller than the direct effect of competency certification. This means that the higher the level of innovation within an organization, the better the employees' performance.

4.1.4.4 Hypothesis Testing 4

The fourth hypothesis is "Competency Certification has a positive and significant effect on Performance through Innovation mediation." Based on the results of the indirect effects test, a value of 0.159 (positive) was obtained. This result indicates that innovation plays a partial mediating role, where competency certification still has a primary influence on performance directly, but also improves performance indirectly by encouraging innovation. Thus, the implementation of competency certification not only ensures technical and ethical standards but also strengthens innovation capacity, which ultimately improves overall organizational performance.

4.2 Discussion

4.2.1 Competency Certification has a Significant Influence on Performance

The results of the study indicate that the path coefficient between Competency Certification and Performance is 0.662 and is statistically significant, indicating that competency certification has a strong direct influence on employee performance. This finding is consistent with previous empirical studies that state that competency certification can improve work quality, professionalism, and trust in employee performance ([Hamidiyah et al., 2022](#)). In other words, when employees have valid competency certifications recognized by a competent institution, it strengthens their capabilities to carry out their duties optimally, increases internal and external credibility, and encourages seriousness in work.

These positive effects can be theoretically explained from the perspective of Human Capital Theory: competency certification is an organizational investment in human capital development, ultimately increasing productivity and work output. Certified employees are considered to have a higher minimum skill standard and are able to perform tasks according to the best practices in the industry. Competency certification also contributes to creating a foundation for innovation and has an additional impact on employee performance. These results also align with those of [Franky and Savira \(2021\)](#), who found that teacher certification and competency programs positively impact teacher performance. Although the context is education, the relationship mechanisms are similar: certification increases professional legitimacy and triggers more standardized work behavior, resulting in better performance. [Tariq and Zehir \(2023\)](#) showed that competency and innovation positively impact organizational performance directly and through innovation.

Although the direct effect of Competency Certification on Performance is greater than the mediation pathway through innovation (indirect coefficient 0.159), the certification entity remains an important variable that must be placed as a foundation for policy. In practice, organizations should not only focus on the certification process as an administrative formality but also ensure that certification runs with high-quality standards, is relevant to real work, and is accompanied by a supportive work environment that encourages the use of these competencies in innovation and performance improvement. However, it should be noted that despite the strong and significant effect, there is still a portion of performance variance (approximately 17.1%) that the model does not explain (based on a Q^2 of 0.829). This suggests that other variables, such as motivation, leadership, organizational culture, or compensation, may also influence performance and can be used as additional variables in future research.

4.2.2 The influence of Competency Certification has a Significant Influence on Innovation

The results of the study show that the path coefficient between Competency Certification and Innovation is 0.416 and is positively significant, indicating that the higher the competency certification an employee has, the greater the potential for innovation within the organization. This finding strengthens the argument that competency certification not only serves as formal proof of technical skills but also encourages employees to think creatively, initiate new processes, and strengthen internal innovative systems.

Theoretically, these findings align with the Innovation Diffusion Theory framework, which states that the adoption and development of innovation are influenced by individual knowledge capacity and readiness ([Kekeocha, Oliseh, Anagwu, & Nwanya, 2026](#)). In the context of this research, competency certification provides a knowledge base and professional legitimacy that facilitates employees' adoption of new innovative practices. Certification helps reduce uncertainty about competency quality, giving employees greater confidence in exploring new ideas and methods ([Campanilla & Medrano, 2026](#)).

This finding also aligns with empirical studies that have found a positive relationship between competency development and work creativity as part of innovation. Employee competency development and work creativity simultaneously contribute significantly to performance, and creativity (as part of innovation) is a crucial variable that complements competency in generating positive results ([A. Arifin, Mujahid, & Suyuthi, 2023](#)). Furthermore, these findings are in line with [Kihlander, Magnusson, and Karlsson \(2022\)](#) that certification in the innovation domain encourages professionals

to internalize innovative practice standards, strengthens the legitimacy of their innovative roles, and expands the space for exploring new ideas in daily work.

These findings support the idea that competency certification can be a catalyst for organizational innovation if the certification is not merely symbolic but is based on competency design content that is relevant to innovative initiatives. However, despite its positive and significant effect, the coefficient of 0.416 indicates that certification's role in driving innovation is moderate. This means that other factors (innovative organizational culture, managerial support, innovation incentives, or technological infrastructure) also influence the extent to which certified competencies translate into innovative behavior ([Nosike, Ojobor, & Nosike, 2024](#)). Therefore, future research could add moderating or control variables to explain variations in the effect of certified competencies on innovation. In practice, organizations that want to encourage innovation should not only implement competency certification as a formality but also ensure that the certification contains innovative elements (creativity modules, innovation case studies, and evaluation of new ideas) and is accompanied by structural support such as time allocation for experiments, reward systems for new ideas, and implementation facilities so that the certification truly triggers innovation at the operational level.

4.2.3 The Influence of Innovation has a Positive and Significant Effect on Performance

The results of the study indicate that the path coefficient between Innovation and Performance is 0.381, indicating a significant positive effect. In other words, improving the quality of innovation within an organization through employee creativity, innovation system support, and employee involvement in innovation significantly improves employee performance. This finding supports the argument that innovation is not merely an additional accessory but a crucial mechanism for transforming competencies into higher-performance output. From a theoretical perspective, this relationship is consistent with the innovation and performance literature, which states that organizations that can effectively develop innovation will gain a competitive advantage through increased efficiency, quality, and responsiveness to market changes. Research on manufacturing companies in Peru, for example, shows that the implementation of innovation in products and processes is positively associated with firm performance, including increased productivity and profitability ([Seclen-Luna, Moya-Fernandez, & Cancino, 2023](#)). This reinforces the idea that innovation positively affects performance across organizational contexts.

Furthermore, other innovation research emphasizes that appropriate innovation strategies, such as a combination of product, process, organizational, and marketing innovations, are more effective in driving organizational performance than single innovations ([Bogetoft, Kroman, Smilgins, & Sørensen, 2024](#)). In the context of this research, innovation indicators measured through creativity, process support, and employee engagement indicate that holistic innovation integrated with the organizational structure can strengthen its contribution to performance. However, the coefficient value of 0.381 is considered moderate, indicating that although innovation has a positive effect, the magnitude of its impact is limited by other factors not modeled in this study. For example, managerial support, an innovative organizational culture, financial resources, innovative incentives, and structural barriers to innovation implementation can limit the innovation's effect on performance. Therefore, future research should consider adding moderating or control variables, such as organizational culture, innovative leadership, or technological capacity, to explore the conditions under which innovation is more effective in improving performance. Practically, these results imply that organizations need to not only encourage innovation in the form of new ideas but also build innovation support systems and increase employees' active involvement in the innovation process. This will make innovation easier to implement consistently and positively impact the achievement of higher quality, efficiency, and output.

4.2.4 Competency Certification has a Positive and Significant Effect on Performance through Innovation Mediation

The findings of this study indicate that competency certification not only has a strong direct effect on employee performance (coefficient = 0.662) but also an indirect effect through innovation (indirect effect = 0.159). This indicates that innovation partially mediates the relationship between certified competencies and performance. In other words, competency certification encourages innovation

(coefficient 0.416), which contributes to improved performance (coefficient 0.381). Although the indirect effect is relatively smaller than the direct effect, the presence of this mediating pathway confirms that the transformation of competency into performance occurs not only through a linear mechanism but also through the generation of innovative capacity.

This interpretation aligns with [Waruwu and Rizky \(2024\)](#), who found that innovation acts as a bridge between competence and organizational performance. Similarly, research by [Abdilah, Priadana, and Juniarti \(2025\)](#) found that lecturer competence correlates with innovation capability, and that innovation capability significantly improves lecturer performance. Theoretically, this mediation reflects that competency certification not only results in increased technical knowledge and skills but also provides individuals with the foundation for creative thinking, experimentation, and the application of innovation in work contexts. Thus, certified competency becomes an enabler of innovation, which, in turn, strengthens performance output. This model emphasizes the position of innovation as a crucial mechanism to ensure that competency certification is not merely symbolic but actually drives real changes in work behavior.

However, it is important to recognize that this mediation pathway is partial, meaning that competency certification still contributes significantly to performance directly without going through innovation. This suggests that other dimensions besides innovation (motivation, organizational culture, and managerial support) may contribute to mediating or moderating the relationship between competency and performance. Therefore, future research should add moderating or control variables to explore when and how innovation exerts a stronger mediating effect. Practically, these findings imply that organizations should not stop at the certification process alone but also design work environments that support innovation, such as innovative reward systems, facilities for experimenting with new ideas, and time allocation for creative development. Thus, competency certification will be more effective in driving the transformation of knowledge and skills into superior performance.

5. Conclusions

5.1 Conclusion

The results indicate that competency certification has a positive and significant impact on performance, both directly and through the mediating role of innovation. The analysis shows that competency certification not only ensures technical capability standards but also increases employee creativity, engagement and readiness to innovate. Innovation itself has been shown to contribute to strengthening performance, although its effect is smaller than that of competency certification. The role of innovation as a partial mediator confirms that competency certification is an important foundation for driving performance improvement by strengthening innovative capacity. As a recommendation, competency certification should not be implemented merely as an administrative formality but rather integrated with an innovative organizational culture, supportive reward systems, and a work environment that encourages continuous learning. Furthermore, further research is recommended to include other variables, such as motivation, leadership, and organizational culture, to provide a more comprehensive picture of the factors influencing performance.

5.2 Research Limitations

This study has several limitations that should be acknowledged. First, the research was conducted with a relatively small sample size of 20 respondents, which may limit the generalizability of the findings to broader populations and different organizational contexts. Although PLS-SEM is suitable for analyzing complex models with limited samples, future studies should involve larger samples to improve the robustness and reliability of the results. Second, this study only examined competency certification, innovation, and performance variables. Although the research model explains a substantial proportion of performance variation, other organizational and individual factors, such as leadership style, motivation, organizational culture, compensation, and work environment, may also influence employee performance but were not included in this model. Third, this study used a cross-sectional quantitative approach, which captures relationships between variables at a single point in time. Therefore, the findings cannot fully explain long-term changes in how competency certification influences innovation

and performance development. Longitudinal research is needed to examine how the benefits of competency certification evolve over time.

5.3 Suggestions and Directions for Future Research

Future research is recommended to expand the sample size and include respondents from various organizations, industries, and geographical areas to increase the generalizability of findings. A broader sample would provide deeper insights into how competency certification contributes to employee performance across different organizational environments. Furthermore, future studies should consider incorporating additional variables, such as organizational culture, leadership support, employee motivation, technological readiness, and innovation climate, to provide a more comprehensive understanding of the mechanisms through which competency certification improves performance. These variables may function as mediators, moderators, or control variables that explain variations in the relationship between competency certification, innovation, and performance. Future research may also adopt longitudinal or mixed-method approaches to explore the dynamic process of competency development and innovation implementation. Qualitative approaches, such as interviews or case studies, can complement quantitative findings by explaining how certified employees apply their competencies to generate innovative practices in real workplace settings.

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Author Contribution

PNR contributed to the conceptualization, methodology, data collection, formal analysis, and writing of the original draft. ETO contributed to the investigation, validation, data curation, and manuscript review and editing. IAA contributed to the software application, formal analysis, data visualization, and interpretation of the results. ARPB contributed to the supervision, methodological review, and manuscript review and editing. HH contributed to project administration, resource provision, supervision, and the final manuscript approval. All authors have read and approved the final version of the manuscript and have agreed to its publication.

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