

Strategic Innovation Quality and Technological Capabilities: Pathways to Sustainable Competitive Advantage in Tourism Industry

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Abstract

This study aims to analyze the influence of Strategic Innovation Quality (SIQ) on Competitive Advantage (CA) and Human Resource Performance (HRP), with Technological Innovation Capability (TIC) as a mediating variable. The research was conducted among employees of Lawu Group Tourist Attractions in Central Java, using a saturated sampling technique with a total of 255 respondents. A quantitative research approach was employed, utilizing Structural Equation Modeling with Partial Least Squares (SEM-PLS). The findings reveal that SIQ positively influences both TIC and HRP. Furthermore, TIC has a significant positive impact on CA and HRP, and mediates the relationship between SIQ and CA. However, the direct effect of SIQ on CA is not statistically significant, indicating that TIC plays a more pivotal role in establishing competitive advantage compared to SIQ alone. These results underscore the importance of strengthening technological innovation capabilities in the tourism industry, particularly for enhancing competitive advantage and improving human resource performance. The study recommends that the management of Lawu Group Tourist Attractions prioritize the development of technological innovation strategies to boost organizational competitiveness and optimize employee outcomes. Additionally, organizations should view technology development as a crucial link between strategic innovation and sustainable competitive advantage. This research contributes to the theoretical development of strategic innovation in the tourism sector and offers practical insights for tourism destination managers aiming to enhance long-term organizational performance.

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INTRODUCTION

The tourism industry is one of the sectors that has a strategic role in driving economic growth and creating jobs (Firmansyah et al., 2022) ; (Putri, 2023) ; (Naini et al., 2022) . In facing increasingly fierce competition, every tourist destination is required to continue to innovate in order to improve competitiveness and service quality (Chayanan, 2019) . One of the key factors in achieving competitive advantage is the implementation of Strategic Innovation Quality (SIQ), which includes strategic innovation management to improve operational effectiveness and tourist experience (Saura et al., 2022) . However, the effectiveness of SIQ in increasing Competitive Advantage (CA) is still a matter of debate, especially when faced with the challenges of digitalization and dynamic changes in customer preferences (Arsawan et al., 2022) .

One of the important elements in strategic innovation is Technological Innovation Capability (TIC), which is the ability of an organization to adopt and develop technology to increase productivity and efficiency (Agit & Muharram, 2024) . TIC acts as a link between innovation strategy and achieving competitive advantage, especially in the tourism sector which is increasingly dependent on digital technology in marketing, service, and operational management (Nurcahyo et al., 2025) . Therefore, understanding the role of TIC in strengthening the relationship between SIQ and CA is a crucial aspect in managing modern tourist destinations (Ingvaldsen & Engesbak, 2020) .

Lawu Group Tourism Object, as one of the leading destinations in Central Java, faces challenges in increasing competitiveness amidst the increasingly tight competition in the tourism industry. With the diversity of tourist attractions offered, an innovation strategy is needed that is not only oriented towards improving services, but also strengthening technological capabilities (López-Nicolás & Meroño-Cerdán, 2011) . In this context, research on the effect of SIQ on CA and Human Resource Performance (HRP) with TIC as a mediating variable is relevant to explore strategies for increasing competitiveness. Human resource performance (HRP) is also a major factor in the success of strategic innovation in the tourism sector (Ahmad et al., 2023) . A workforce that is adaptive to technological changes and has high competence in tourism services will increase visitor satisfaction and operational efficiency. Therefore, strategic innovation management needs to be directed not only at increasing organizational competitiveness, but also at developing sustainable human resource quality (Primadasa et al., 2025) . The development of the tourism industry in Central Java demands strategic innovation that focuses on increasing the competitiveness and performance of human resources (HR). The urgency of this research lies in the need for tourism objects to utilize technological innovation capabilities to face the challenges of increasingly tight competition in the digital era (Vu, 2020) ; (Akim et al., 2024) ; (Wikaningrum & Kartikasari, 2023) . Innovation in technology not only increases operational efficiency but also plays a key role in strengthening competitive advantage and HR performance. Lawu Group Tourism Object is one of the tourism destinations that has great potential to attract local and foreign tourists (Chahal & Bakshi, 2014) . Strategically located in an area rich in natural and cultural beauty, Lawu Group includes a number of leading tourist attractions such as Tawangmangu, Grojogan Sewu, and Cemorowatu. Based on data from the local Tourism Office, the number of tourist visits in this area shows an increasing trend of 8% per year in the last five years. However, Lawu Group's contribution to regional tourism competitiveness is still relatively low compared to similar destinations in Central Java, especially in terms of technological innovation and digital-based services.

Table 1. Performance Problems of Lawu Group Tourism Object Employees

No	Performance Factors	Problems Encountered	Impact on Organization	Employee Productivity (%)
1	Quality of Service	Lack of skills in providing excellent service to tourists	Declining levels of customer satisfaction and tourist loyalty	75%
2	Technology Adaptation	Low employee skills in operating digital systems and information technology	Operational efficiency is disrupted and digitalization services are less than optimal	60%

3	HR Competence	Lack of employee training and development in tourism and technology	Low productivity and innovation in tourism services	65%
4	Internal Communication	Coordination between divisions is less effective, resulting in miscommunication.	Errors in service operations that impact the traveler experience	70%
5	Motivation and Job Satisfaction	Lack of appreciation and incentives for high-performing employees	Decreased work enthusiasm and increased employee turnover rates	68%
6	Effectiveness of Innovation Strategy	Strategic innovation has not been implemented comprehensively across all operational lines	The competitiveness of tourist attractions is reduced compared to competitors	55%
7	Utilization of Technology in Operations	Lack of integrated technology-based management systems	Business operations are less efficient and it is difficult to compete in the digital era	58%
8	Team Performance and Collaboration	Low collaboration between operational and managerial teams	Implementation of innovation policies often experiences delays	72%
9	Competitive Advantage	There is no unique and innovation-based service differentiation	Lack of attraction for tourists compared to other destinations	62%
10	Performance Evaluation and Monitoring	The absence of an effective data-based performance evaluation system	Decision making regarding performance improvement becomes less accurate	65%

Source: Lawu Group Tourist Attraction Personnel Data, 2025

Employee productivity at the Lawu Group Tourism Object is influenced by various factors, ranging from service quality to the use of technology in operations. Based on the data presented, several aspects such as technology adaptation and the effectiveness of innovation strategies show lower levels of productivity compared to other factors. This shows that there are still challenges in integrating strategic innovation and technology into work systems that can increase competitiveness and operational efficiency. The low competence of human resources in the field of technology also has an impact on service performance, so that increased training and development of digital-based skills are needed.

In addition, motivation and job satisfaction factors also have a significant influence on employee productivity. With a productivity level of 68%, the lack of appreciation and incentives for high-performing employees is one of the main causes of low work enthusiasm. Employees who do not feel appreciated tend to experience decreased loyalty and involvement in their work, which ultimately affects the quality of service provided to tourists. Therefore, management needs to implement a more effective reward strategy, both in the form of financial incentives and non-material appreciation to increase employee job satisfaction and enthusiasm.

Furthermore, the effectiveness of internal communication and team collaboration are also important aspects in increasing productivity. Despite having a productivity level of around 70%, the lack of coordination between divisions is still an obstacle in implementing innovation policies. Ineffective communication can lead to miscommunication in implementing strategies, which results in delays in decision making and operational inefficiencies. Therefore, it is necessary to improve the technology-based communication system and strengthen a more collaborative teamwork culture to ensure that every policy and innovation can be implemented optimally.

Strategic Innovation Quality (SIQ) is a concept that refers to the strategic application of innovation in an organization to improve the quality of products, services, and overall business operations (Głodek et al., 2016). SIQ not only focuses on the development of new technologies or products, but also includes innovative strategies in management, work processes, and human resources to be more adaptive to changes in the business environment (Alamsyah et al., 2022). By implementing SIQ, organizations can create sustainable competitive advantages through a systematic and data-driven approach to improving operational effectiveness and efficiency. In a business context, SIQ plays an important role in encouraging companies to always adapt to market trends and customer needs (López-Nicolás & Meroño-Cerdán, 2011). Strategic innovation is not only carried out in product and service development but also in organizational management, internal policies, and improving employee capabilities (Nadeak et al., 2021). With this approach, companies can optimize the use of technology, increase competitiveness, and create greater added value for customers. SIQ also ensures that every innovation implemented is aligned with the company's long-term vision and goals, so that it can provide a sustainable positive impact.

Implementing Strategic Innovation Quality requires synergy between leadership, organizational culture, and technology utilization. Visionary and innovative leadership will encourage the creation of a work environment that supports creativity and change (Kaleka & Morgan, 2017). An organizational culture that is open to innovation allows every employee to contribute to the quality improvement process. Meanwhile, the use of technology acts as an enabler in optimizing business operations and increasing work efficiency and effectiveness. The combination of these three aspects is the main key to building a successful innovation ecosystem in an organization.

In an increasingly competitive world, organizations that implement SIQ have a greater chance of surviving and growing. By focusing on quality innovation, companies can face business challenges more flexibly and responsively (Yudhawijaya, 2022). The competitive advantage resulting from SIQ also not only has an impact on improving organizational performance but also strengthens customer loyalty and brand image in the market. Therefore, SIQ is a very important strategy in driving sustainable business growth and increasing competitiveness in the digital and globalization era.

Technological Innovation Capability (TIC) is the ability of an organization to develop, adopt, and implement innovative technologies to improve operational efficiency, create new products or services, and strengthen competitive advantage (Agit & Muharram, 2024). TIC reflects the extent to which a company can integrate technology into its business processes, either through research and development (R&D), improving production systems, or optimizing digital-based services (Veile et al., 2020). This capability is a key factor in ensuring that organizations can adapt to increasingly dynamic technological changes and market needs.

TIC consists of several main aspects, including research and development capacity, application of new technologies, and the organization's ability to absorb and manage technological knowledge (Afraz et al., 2021). R&D capacity enables companies to create sustainable innovations, while the application of new technologies helps improve operational efficiency and effectiveness (Singh et al., 2019). In addition, technological knowledge management plays a role in ensuring that adopted innovations can be optimally used by all parts of the organization, both in terms of human resources, business strategy, and supporting infrastructure.

Effective TIC implementation requires support from visionary leadership, an organizational culture that is open to innovation, and continuous investment in technology. Leadership that supports innovation will encourage technology-based decision making, while an adaptive organizational culture will facilitate the change process (Solehudin et al., 2023). In addition, investment in technology, such as digital systems, automation, and artificial intelligence (AI), can increase organizational competitiveness and create significant operational advantages. In the digital era and intense global competition, TIC is a key element in a business strategy that is oriented towards growth and sustainability (Saura et al., 2022). Companies that have high technological innovation capabilities are not only able to survive in a rapidly changing business environment but can also become industry

leaders through technology-based innovation. By maximizing TIC, organizations can increase competitiveness, create added value, and provide a better experience for customers and other stakeholders.

Competitive Advantage is a company's ability to create higher value than its competitors, either through product differentiation, operational efficiency, or superior innovation strategies (Al Taweel & Al-Hawary, 2021). This advantage allows the company to maintain its position in the market, increase profitability, and create customer loyalty (Kusumawati, 2018). In a competitive business environment, having a competitive advantage is a key factor for the sustainability and growth of a company in the long term. Competitive Advantage can be obtained through various strategies, such as cost leadership, differentiation, and focus strategy (focus on a particular market segment) (Youn Kue, 2019). The cost leadership strategy aims to produce products or services at a lower price than competitors, while differentiation emphasizes the uniqueness of products or services that are difficult for competitors to imitate. On the other hand, a focus strategy allows companies to optimize resources in a particular market segment so that they can provide more specific value to customers (Kristiani & Dharmayanti, 2017).

Effective implementation of competitive advantage requires a combination of various factors, including continuous innovation, utilization of technology, efficient resource management, and the right marketing strategy (Mubarak et al., 2024). Innovation in products, business processes, or service models can create added value that differentiates a company from competitors. In addition, the adoption of technologies such as artificial intelligence (AI), digitalization, and big data can improve operational efficiency and accelerate data-based decision making (Mauludin et al., 2013). In the era of globalization and digital competition, companies that have a strong competitive advantage will be easier to adapt to market changes and maintain their position as industry leaders. Competitive advantage not only plays a role in improving business performance, but also in building reputation and customer trust (Midhat Ali et al., 2021). Therefore, competitive advantage management strategies must be continuously updated to remain relevant to industry dynamics and evolving market needs.

Human Resource Performance is the level of effectiveness and efficiency of individuals in carrying out their duties and responsibilities in an organization to achieve predetermined business goals (Nurcahyo, Widagdo, & Rachmawati, 2024). HR performance reflects the extent to which employees can meet work standards, productivity, and their contribution to the success of the company (Becker, 1999). Optimal performance can be achieved through a combination of competence, motivation, a conducive work environment, and support from company management. The main factors that influence Human Resource Performance include employee skills and knowledge, work culture, reward systems, and leadership in the organization (Ahmad et al., 2023). Employees who have good skills and understanding of their jobs tend to be more productive and innovative in completing tasks (Setyaningrum & Muafi, 2023). In addition, a positive work culture and support from management contribute to increased employee engagement and loyalty to the company. A fair and performance-based reward system is also an important factor in encouraging employee motivation (Abdul Ghani, 2015).

Improving HR performance can be done through various strategies, such as training and skills development, the use of technology in HR management, and the implementation of an evaluation system based on Key Performance Indicators (KPIs). Continuous training programs help employees to always update their skills according to industry developments (Nart et al., 2024). Meanwhile, the use of technology in HR management, such as HR analytics applications, can help in real-time performance monitoring and provide data-based recommendations for employee development.

In a competitive business environment, Human Resource Performance is a key element in a company's success (Chen & Huang, 2009). High-performing employees not only contribute to increased productivity, but also help create a culture of innovation and organizational competitiveness (Faeni, 2024). Therefore, companies need to consistently develop HR management strategies that focus on improving employee competence, welfare, and engagement in order to achieve sustainable competitive advantage.

Strategic Innovation Quality is a key factor in increasing a company's competitiveness in an increasingly competitive business era (de Abreu Costa & Moreira-Almeida, 2022). Quality strategic innovation includes not only product and service development, but also technology implementation, operational efficiency, and increased managerial capabilities (Soeherman & Panjaitan, 2022). By implementing quality strategic innovation, companies can create unique advantages that are difficult for competitors to imitate, thereby strengthening their position in the market. Competitive advantage

is obtained when a company is able to offer higher added value than its competitors (Rezaei et al., 2020). Strategic Innovation Quality plays a role in creating this value by encouraging product differentiation, increasing cost efficiency, and adapting to market dynamics. In addition, quality strategic innovation allows companies to proactively anticipate changes in industry trends and customer needs, so that they can survive in the long term.

The relationship between Strategic Innovation Quality and Competitive Advantage is also strengthened by the organization's capability in managing change. (Sehen Issa et al., 2022); (Lin et al., 2020); (Haque et al., 2024). Companies that are able to develop a culture of innovation, optimize the use of technology, and improve human resource skills will have a greater chance of achieving sustainable competitive advantage (Herman et al., 2018). Therefore, investment in strategic innovation quality is not only a necessity, but also a key strategy in winning business competition.

H1: Strategic Innovation Quality has a significant influence on Competitive Advantage

Strategic Innovation Quality plays an important role in improving human resource performance (HR Performance) in an organization (Nurchahyo, 2024). Quality strategic innovation not only focuses on the development of technology and operational systems, but also on optimizing the human resource management process (Nadir & Hasyim, 2017). With innovation in HR management strategies, companies can create a more adaptive, efficient, and productive work environment. This allows employees to work more effectively and increase their motivation and involvement in achieving organizational goals.

Human resource performance is influenced by the extent to which the company implements strategic innovation in training systems, competency development, and flexible work policies (Anggraeni et al., 2017). Strategic Innovation Quality allows companies to design technology-based learning methods, create more dynamic work models, and improve data-based performance appraisal systems (Nadia, 2021). Thus, employees have access to skills development that is more relevant to industry demands, thereby increasing productivity and work quality sustainably. Furthermore, strategic innovation in HR management also has an impact on improving employee welfare and loyalty. The application of technology in employee management, such as the use of artificial intelligence in recruitment or a flexible hybrid work system, can improve work-life balance (Subbarayalu & Al Kuwaiti, 2019); (Albaity & Rahman, 2019); (Emmanuel, 2020). With a work environment that supports innovation, employees will feel more appreciated and motivated to make the best contribution to the organization, which will ultimately have a positive impact on overall HR Performance.

H2: Strategic Innovation Quality has a significant effect on HR Performance

Technological Innovation Capability is a key factor in creating competitive advantage in the digital era. A company's ability to adopt and develop innovative technologies enables them to improve operational efficiency, create superior products, and provide services that are more responsive to market needs (Nadir & Hasyim, 2017). Companies that have high technological innovation capabilities can adapt more quickly to industry changes, thus maintaining sustainable competitiveness (Kumar, 2018).

Competitive advantage can be obtained through various aspects of Technological Innovation Capability, such as the use of data-based technology, automation of business processes, and the application of artificial intelligence (AI) in decision making (Farooq et al., 2021). By integrating technology into business strategy, companies can not only reduce production costs but also increase added value for customers. In addition, continuous technological innovation allows companies to build strong differentiation, making it difficult for competitors to imitate (López-Nicolás & Meroño-Cerdán, 2011); (Ummah, 2019). The success of Technological Innovation Capability in increasing competitive advantage depends on the organization's readiness to manage change. Companies that are able to develop a culture of innovation, invest in research and development (R&D), and improve the digital capabilities of human resources will have a greater chance of winning the competition (Hermawati & Mas, 2017).

H3: Technological Innovation Capability has a significant effect on Competitive Advantage

Technological Innovation Capability plays an important role in improving human resource performance (HR Performance) by creating efficiency, productivity, and better work experience (Agit & Muharram, 2024). The company's ability to adopt and develop innovative technology enables more effective HR management, such as through artificial intelligence (AI)-based recruitment systems, digital

training, and automated performance evaluations (Suratno & Roosna, 2023) . With technology, work processes become faster and more accurate, so employees can focus more on high-value strategic tasks (Wong, 2017) .

The application of technology in HR management also has an impact on improving employee skills and adaptation to changes in the work environment (Nugroho, 2018) . Digital-based learning platforms and data-based training systems enable employees to continuously improve their competencies flexibly. In addition, the use of technology in performance management systems, such as HR analytics-based data analysis, helps companies identify employee development needs more accurately, thereby increasing the effectiveness of HR management strategies (Herder, 2024) ; (Nadeak et al., 2021) ; (Manzoor et al., 2019) . Technological Innovation Capability also contributes to improving employee well-being and job satisfaction (Veile et al., 2020) . Technology enables the implementation of more flexible work models, such as hybrid work systems and automation of routine tasks, which can improve the balance between work and personal life.

H4: Technological Innovation Capability has a significant effect on HR Performance

Competitive advantage contributes significantly to improving human resource performance (HR Performance) in an organization. Companies that have a competitive advantage tend to have better HR management strategies, including in terms of compensation, training, and career development (Mauludin et al., 2013) ; (Yang et al., 2018) ; (Hanaysha, 2017) . With a competitive and innovative work environment, employees are more motivated to improve their performance, so that company productivity increases. In addition, competitive advantage also creates an attraction for the best talent, which ultimately strengthens HR capacity in the company (Herman et al., 2018) . Competitive advantage allows companies to provide better support for employee development through the provision of advanced technology, industry-based training programs, and more flexible and efficient work systems (Kumar et al., 2011) . With a competitive advantage, companies can offer more attractive incentives, thereby increasing employee retention and reducing turnover rates. In addition, companies that have a strong position in the market tend to provide more innovation space for employees, allowing them to develop and contribute optimally (Herman et al., 2018) .

H5: Competitive Advantage has a significant effect on HR Performance

METHOD

This study uses a quantitative approach with the aim of analyzing the influence of Strategic Innovation Quality (SIQ) and Technological Innovation Capability (TIC) on Competitive Advantage (CA) and Human Resource Performance (HRP) on employees of the Lawu Group Tourism Object in Central Java. The quantitative method was chosen because it is able to provide an objective picture and test the causal relationship between variables with numerical data. The sampling technique used is saturated sampling, where the entire population of 255 employees were used as respondents in this study.

Data collection was conducted through a closed questionnaire containing statements related to research variables with a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The collected data were then analyzed using the Structural Equation Modeling (SEM) method with Partial Least Squares (PLS). SEM-PLS was chosen because it is able to analyze the relationship between latent variables, both directly and through mediating variables, and remains optimal even though the research data is not perfectly normally distributed.

In this study, a series of validity and reliability tests were conducted to ensure that the research instrument could measure the variables accurately (Hair, 2017) . The validity test consists of convergent validity (seen from the outer loading value and Average Variance Extracted/AVE) and discriminant validity (seen from the Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio/HTMT). Meanwhile, the reliability test was conducted by looking at the Composite Reliability (CR) and Cronbach's Alpha values, where values above 0.7 indicate a reliable instrument (Syaiful, 2018) . The results of this analysis will be used to test the research hypothesis and provide strategic recommendations for human resource management and innovation in the tourism sector.

RESULTS AND DISCUSSION

Outer Model

The outer model in this study is used to test the validity and reliability of indicators on each latent variable, so that it can ensure that the research instrument is able to measure the intended

construct accurately. Validity testing is carried out by looking at the outer loading value , where indicators that have a value above 0.7 are considered valid, while those between 0.5 and 0.7 are still acceptable with theoretical considerations. In addition, convergent validity is tested through the Average Variance Extracted (AVE) with a minimum value of 0.5 , and discriminant validity is tested using the Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio (HTMT) . Meanwhile, the reliability of the instrument is tested using Composite Reliability (CR) and Cronbach's Alpha , with values above 0.7 indicating that the indicators have good internal consistency. With this outer model analysis, it can be ascertained that the indicators used in the study meet the validity and reliability requirements so that they can be used in further testing on the structural model.

Table 2. Measurement Evaluation Models

Latent Variables	Convergent Validity		Internal Composite Reliability			Discriminant Validity
	Indicators	Loading > 0.70	AVE >0.50	CR >0.70	CA >0.70	HTML < 1
Strategic Innovation Quality	X1 .1	0.747				
	X1 .2	0.767				
	X1 .3	0.856	0.754	0.885	0.741	
	X1 .4	0.814				YES
	X1 .5	0.764				
Technological Innovation Capability	X2 .1	0.846				
	X2 .2	0.766	0.812	0.832	0.876	
	X2 .3	0.883				
	X2 .4	0.937				YES
Competitive Advantage	Y1 .1	0.854				
	Y1 .2	0.778	0.802	0.712	0.833	
	Y1 .3	0.880				YES
	Y1 .4	0.746				
HR Performance	Y2 .2	0.823	0.718	0.886	0.830	YES
	Y2 .3	0.763				
	Y2 .4	0.755				
	Y2 .5	0.888				
	Y2 .6	0.767				

Source: Processed Data, 2025

The results of the outer model analysis in this study indicate that all indicators used have an outer loading value above 0.7, so they can be said to be valid in measuring each latent variable. In addition, the Average Variance Extracted (AVE) value for each variable is more than 0.5 , which indicates that the research variables have good convergent validity. The discriminant validity test with the Fornell-Larcker Criterion and HTMT Ratio also shows that each latent variable has a clear difference from other variables. In terms of reliability, Composite Reliability (CR) and Cronbach's Alpha show values above 0.7 , which means that the research instrument has good internal consistency. Thus, the results of the outer model analysis confirm that the instruments used in this study meet the validity and reliability standards, so they can be used for further testing of the structural model (inner model).

Inner Model

The inner model in this study explains the structural relationship between latent variables analyzed in the research framework. This model describes how latent variables interact and influence

each other and identifies causal pathways in the research model. Using the SEM PLS method, the inner model analysis was conducted to test the strength and direction of the relationship between variables and measure the direct and indirect effects of these variables.

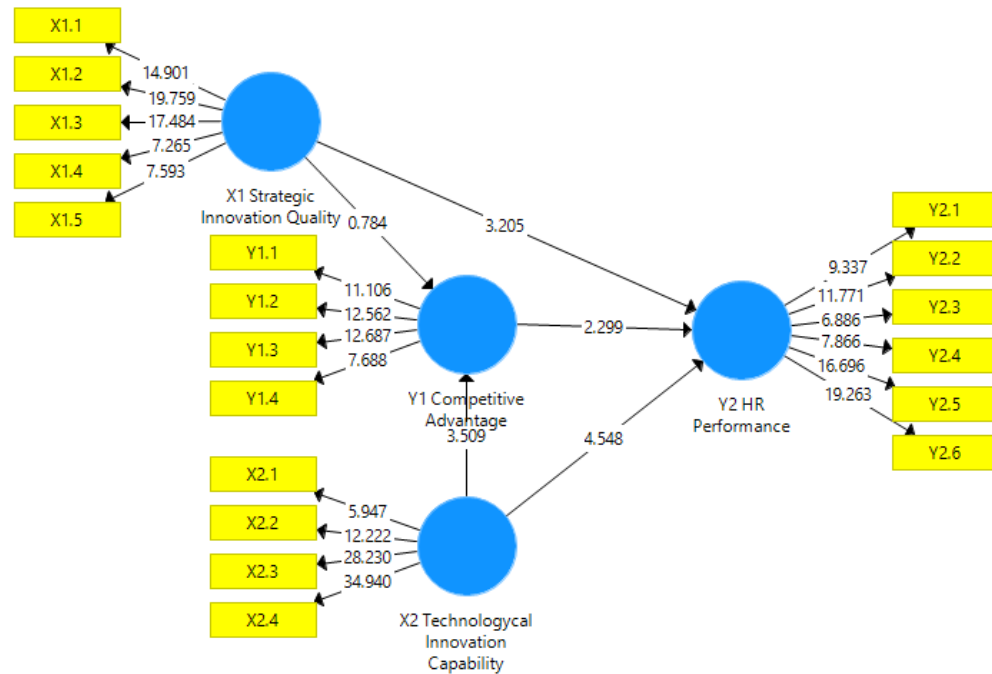


Figure 1. SEM Model Test
Source: Processed Data, 2025

Table 3. Hypothesis Testing

	Original Sample	Sample Mean	Standard Deviation	T-Statistic	P-Value
1. Strategic Innovation Quality > Competitive Advantage	0.124	0.427	0.105	0.784	0.217
2. Strategic Innovation Quality > HR Performance	0.632	0.639	0.071	3.205	0.000
3. Technological Innovation Capability > Competitive Advantage	0.443	0.439	0.102	3.509	0.000
4. Technological Innovation Capability > HR Performance	0.406	0.519	0.119	4.548	0.000
5. Competitive Advantage > HR Performance	0.185	0.194	0.055	2.229	0.011

Source: Processed Data, 2025

Based on the results of hypothesis testing using the SEM PLS method, this study examines five main relationships between the variables Strategic Innovation Quality (SIQ), Technological Innovation Capability (TIC), Competitive Advantage (CA), and Human Resource Performance (HR Performance) in the context of Lawu Group employees. The results of the study indicate that most hypotheses have a significant relationship, except for the relationship between Strategic Innovation Quality (SIQ) and Competitive Advantage (CA) which is not significant. The following is an explanation of each relationship based on the results of the hypothesis test and the facts found in the field.

Strategic Innovation Quality towards Competitive Advantage

The results of the study showed that Strategic Innovation Quality (SIQ) did not have a significant effect on Competitive Advantage (CA) with a T-Statistic value of 0.784 and a P-Value of 0.217 (> 0.05). This indicates that although the company has implemented strategic innovation in managing tourist destinations, these efforts are not strong enough to create a significant competitive advantage. Facts on the ground show that Lawu Group has developed various innovative strategies, such as improving facilities, diversifying tourism products, and optimizing digital promotions (Niazi et al., 2023). However, this strategy has not been fully able to increase competitiveness directly because several external factors are still obstacles, such as tight competition with other tourist destinations in Central Java, suboptimal supporting infrastructure, and changing tourism trends (Nabi et al., 2023). In addition, the challenges in maintaining customer loyalty and increasing tourism product differentiation are also factors that influence the effectiveness of strategic innovation on competitive advantage (Ingvaldsen & Engesbak, 2020).

Strategic Innovation Quality on HR Performance

In contrast to its influence on Competitive Advantage, Strategic Innovation Quality has a significant influence on HR Performance with a T-Statistic of 3.205 and a P-Value of 0.000 (< 0.05). These results indicate that the innovation strategy implemented by Lawu Group is able to have a positive impact on human resource performance. In the field, it was found that Lawu Group has implemented various strategic initiatives to improve the quality of employee work, such as technology-based training, an evaluation system based on Key Performance Indicators (KPI), and providing incentives for high-performing employees (Nurcahyo, Widagdo, & Ali, 2024). Training programs that focus on improving skills in providing services to tourists have also helped improve employee efficiency and professionalism (Glodek et al., 2016). In addition, the culture of innovation implemented at Lawu Group makes employees more proactive in conveying new ideas to improve visitors' tourism experiences.

Technological Innovation Capability for Competitive Advantage

The relationship between Technological Innovation Capability (TIC) and Competitive Advantage (CA) is proven to be significant, with a T-Statistic of 3.509 and a P-Value of 0.000 (< 0.05). This shows that technological innovation capability plays an important role in increasing a company's competitive advantage. Lawu Group has adopted various technologies to increase its competitiveness, such as an online ticket booking system, integration of digital payment systems, and the use of social media and e-commerce platforms for tourism marketing (Sayadi; & Farzan, 2015). With this innovation, Lawu Group is able to reach more tourists, increase operational efficiency, and provide a better experience for visitors. In addition, the implementation of technology in operational systems, such as reservation management and tourist visit data analysis, helps companies make more accurate and data-based decisions (Fawehinmi et al., 2020). However, there are still several challenges that need to be faced by the Lawu Group, such as the lack of adequate technological infrastructure in several tourist locations, as well as the limited ability of employees to operate new technologies (Ahmad et al., 2023). Therefore, more intensive training and investment in technology development are needed so that its impact on competitive advantage is increasingly optimal.

Technological Innovation Capability on HR Performance

The results of the study show that Technological Innovation Capability has a significant effect on HR Performance, with a T-Statistic of 4.548 and a P-Value of 0.000 (< 0.05). This indicates that the application of technological innovation in tourism operations not only increases business efficiency but also has a positive impact on human resource performance. At Lawu Group, the use of technology in operations has helped increase employee productivity. For example, a digital attendance system allows real-time attendance monitoring, while a work management application helps in scheduling employee

tasks (Alma et al., 2024) . In addition, the e-learning platform used for internal training provides flexibility for employees to improve their skills without having to leave their main job (Awan et al., 2023) . However, although technological innovation has a positive impact, there are several challenges faced, such as resistance from some employees who are less familiar with new technology, as well as infrastructure limitations in some areas that hinder the optimization of the use of digital systems (Schulers, 2011) . Therefore, companies need to implement a more comprehensive strategy in managing technological change so that employees can adapt more quickly.

Competitive Advantage on HR Performance

The relationship between Competitive Advantage and HR Performance is also proven to be significant with a T-Statistic of 2.229 and a P-Value of 0.011 (<0.05). These results indicate that the competitive advantage possessed by Lawu Group also contributes to improving employee performance. In the field, the increase in the number of visitors and the exposure of Lawu Group as a leading tourist destination have created a more dynamic and competitive work environment (Fawehinmi et al., 2020) . This motivates employees to work better in providing services to tourists, increasing the effectiveness of communication within the team, and innovating in creating more interesting tourism experiences (Susilo & Mayowan, 2024) . In addition, increasing Lawu Group's competitive advantage also contributes to employee welfare. With the increase in company revenue due to the increasing number of visitors, Lawu Group is able to provide better incentives and work facilities for employees, thus creating a more productive and comfortable work environment (Rusydiana, 2024) . However, to maintain this advantage in the long term, companies need to continue to innovate in tourism services and maintain tourist satisfaction so that competitiveness is maintained.

Table 4. Mediation Testing

	Original Sample	Sample Mean	Standard Deviation	T-Statistic	P-Value
1. Strategic Innovation Quality > Competitive Advantage > HR Performance	0.004	0.014	0.061	0.083	0.467
2. Technological Innovation Capability > Competitive Advantage > HR Performance	0.732	0.539	0.041	3,225	0.000

Source: Processed Data, 2025

Table 4 presents the results of the mediation test analysis aimed at determining whether Competitive Advantage can be a mediator variable in the relationship between Strategic Innovation Quality and Technological Innovation Capability on HR Performance. The results of the statistical test show that there is a significant difference between the two paths tested, as explained below.

Strategic Innovation Quality → Competitive Advantage → HR Performance

The results of the statistical test show that this mediation path has an Original Sample of 0.004, Sample Mean of 0.014, with a Standard Deviation of 0.061, T-Statistic of 0.083, and P-Value of 0.467. The P-Value is greater than 0.05, which indicates that this relationship is not significant. In other words, Competitive Advantage does not significantly mediate the relationship between Strategic Innovation Quality and HR Performance. Conceptually, Strategic Innovation Quality refers to a company's ability to create quality strategic innovations to increase its competitiveness. However, based on the results of the statistical test, the strategic innovation carried out is not strong enough to provide a competitive advantage which ultimately has an impact on improving HR performance (Herder , 2024) . Strategic innovation is often designed at the managerial level, but its implementation at the operational level still faces various obstacles (Haryadi et al., 2024) . In the context of Lawu Group, innovation in business and operational strategies has been implemented, but not all business lines are able to adopt it effectively. Some business units still use traditional methods that do not support the strategic innovation implemented (Agit & Muharram, 2024).

Technological Innovation Capability → Competitive Advantage → HR Performance

In contrast to the first path, the statistical test results for the Technological Innovation Capability → Competitive Advantage → HR Performance path show significant results. The Original Sample value is 0.732, with a Sample Mean of 0.539, Standard Deviation of 0.041, T-Statistic of 3.225, and P-Value of 0.000. Since the P-Value is less than 0.05, it can be concluded that Competitive Advantage acts as a significant mediator in this relationship. Technological Innovation Capability refers to a company's ability to adopt and develop technology to increase its competitiveness. The significant statistical test results indicate that technological innovation capability plays an important role in creating competitive advantage, which ultimately has a positive impact on improving HR performance (Alma et al., 2024). Companies that are able to adopt technology well tend to be superior in operational efficiency (Nadeak et al., 2021). At Lawu Group, the implementation of digital-based technology systems has helped improve the efficiency of various business processes, such as inventory management, digital marketing, and customer service systems (Darmadi et al., 2021). This provides a significant competitive advantage over competitors who still use manual methods.

CONCLUSION AND RECOMMENDATION

Based on the results of testing all hypotheses, it was found that Strategic Innovation Quality has a positive effect on HR Performance, but is not significantly mediated by Competitive Advantage. This shows that the strategic innovation implemented by the company has not been fully able to create a competitive advantage that has a direct impact on improving HR performance. On the other hand, Technological Innovation Capability has been shown to play a significant role in improving HR Performance through Competitive Advantage, which means that the higher the technological innovation capability owned by the company, the greater the competitive advantage that can be obtained, thus having an impact on improving HR performance. Thus, it can be concluded that in improving HR Performance, companies should focus more on strengthening technological innovation capabilities rather than relying solely on strategic innovation. The competitive advantage obtained from the application of technology plays a key factor in increasing employee productivity and work effectiveness. Therefore, companies are advised to continue investing in technology, increasing the adoption of digital systems, and ensuring that the innovations implemented can be well integrated into the HR management system in order to improve competitiveness sustainably.

The results of this study have several important implications, both theoretically and practically. Theoretically, this study enriches the literature on the relationship between Strategic Innovation Quality, Technological Innovation Capability, Competitive Advantage, and HR Performance. The finding that Competitive Advantage does not mediate the effect of Strategic Innovation Quality on HR Performance indicates that strategic innovation alone is not enough to improve HR performance, but must be combined with other factors, such as technology adoption and effective human resource management. On the other hand, Technological Innovation Capability which is able to improve Competitive Advantage and has a significant impact on HR Performance confirms that technology-based innovation capabilities play a crucial role in creating sustainable competitive advantage. In practice, the results of this study provide insight for company management to focus more on improving technological innovation capabilities in order to create sustainable competitive advantages. Companies need to allocate greater resources for technology investment, digital system development, and employee training to be able to adopt and optimize technology in their work processes. In addition, management needs to design an innovation strategy that is not only oriented towards changing business strategies, but also ensures that these innovations can be implemented with adequate technological support. Thus, companies can increase competitiveness in the industry and encourage more effective improvement in HR performance.

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