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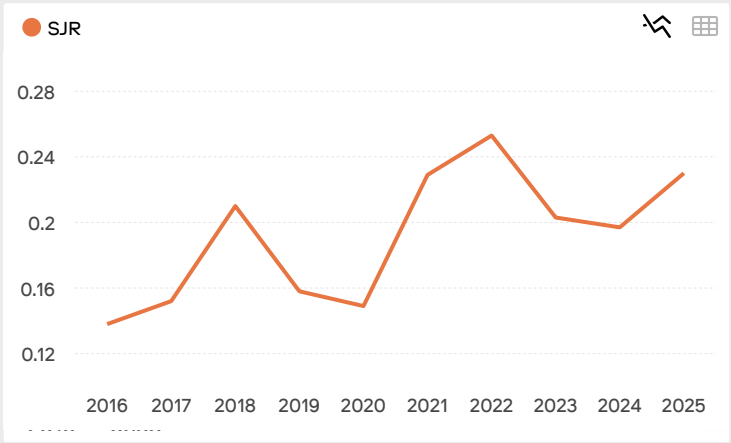

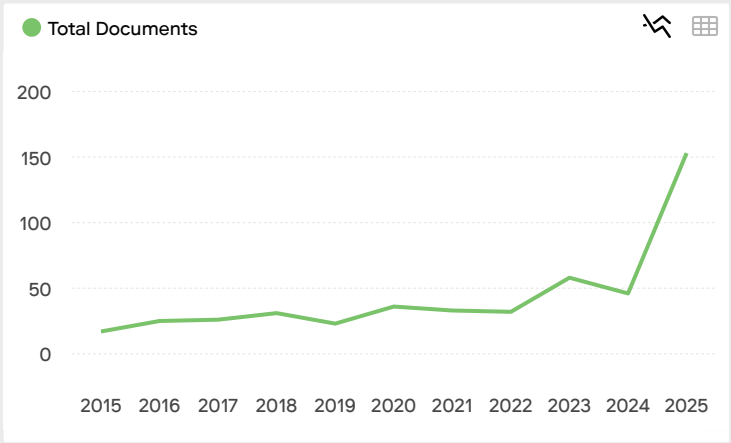

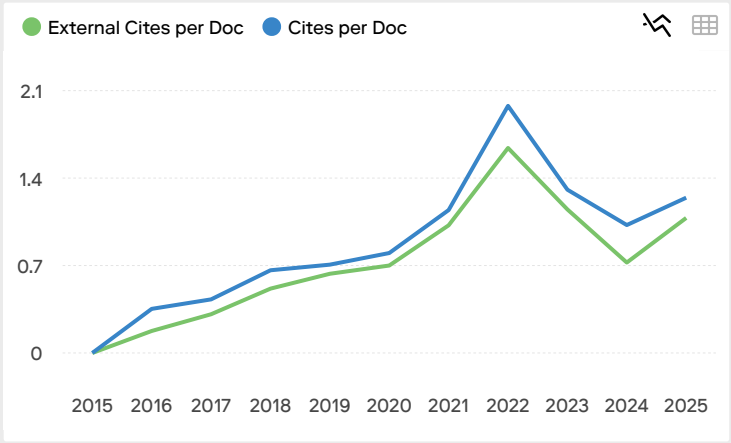

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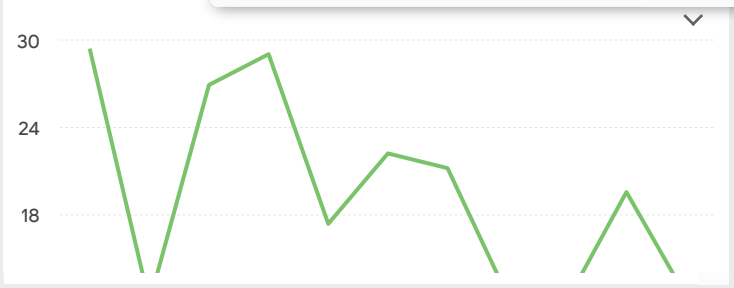

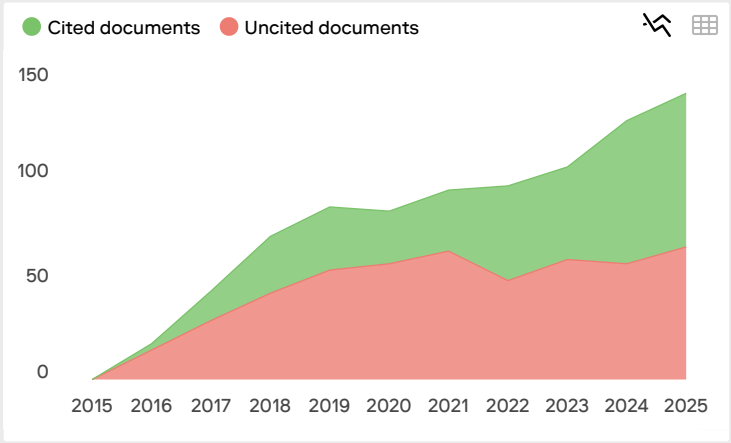

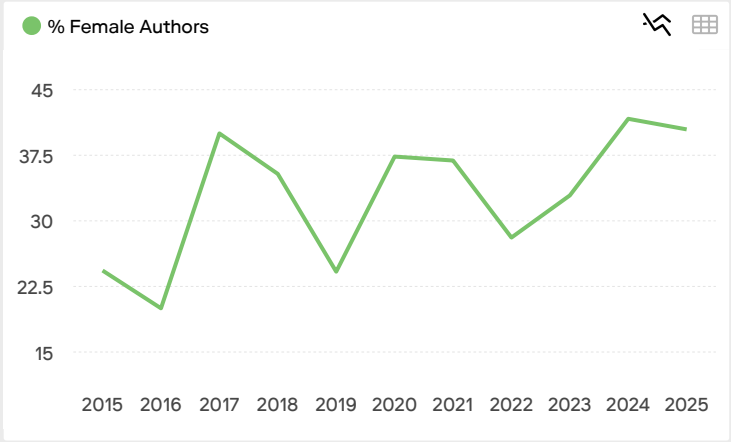

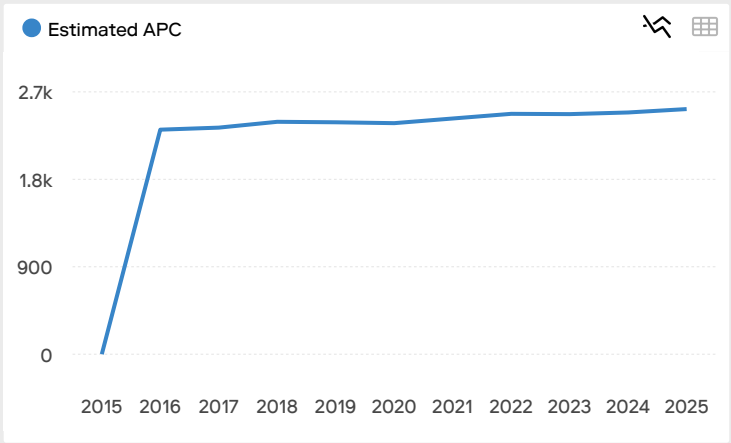

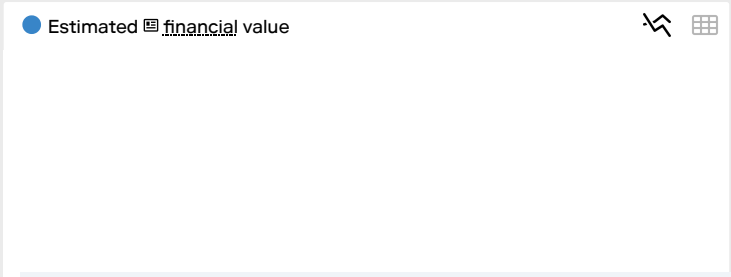

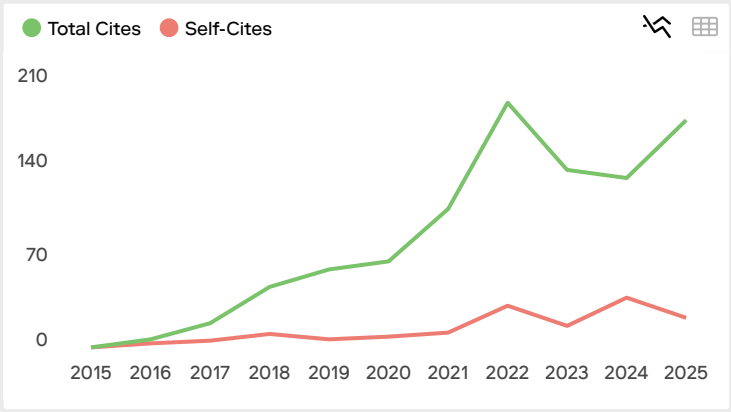

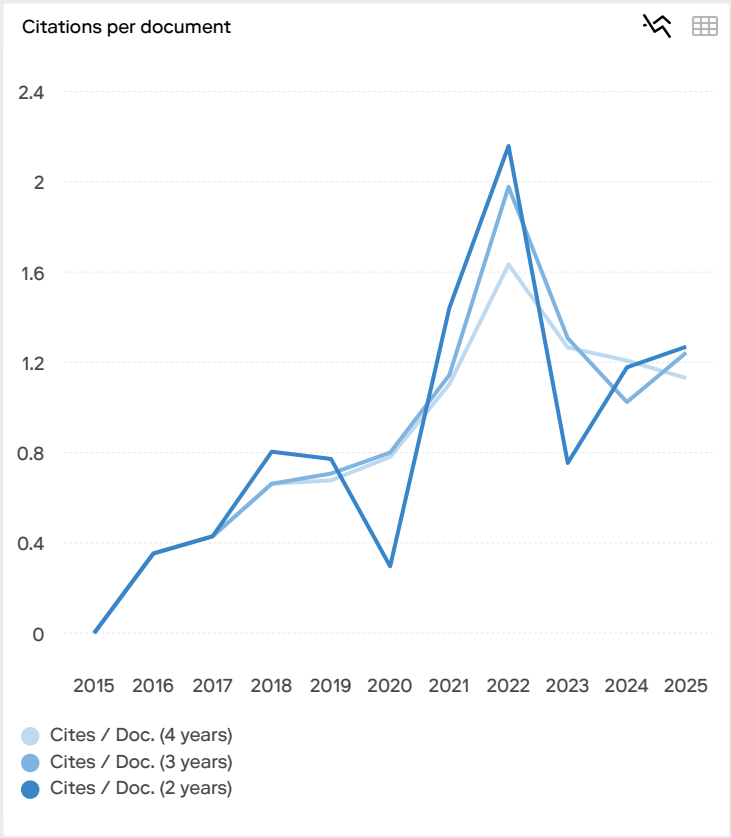

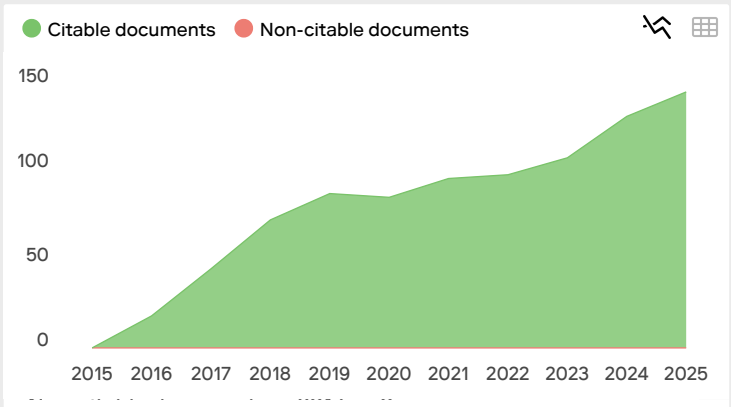

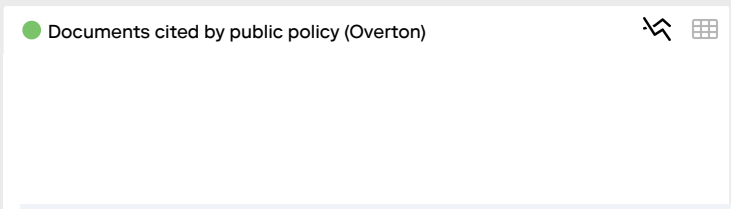

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Article

THE EFFECT OF ARTIFICIAL INTELLIGENCE ON PRIVATE HOSPITAL PERFORMANCE: THE MEDIATING ROLE OF SERIAL ORGANIZATIONAL RESILIENCE, STRATEGIC FORESIGHT, AND COMPETITIVE ADVANTAGE

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Abstract: Digital transformation has encouraged hospitals to adopt artificial intelligence (AI) as a strategic capability in improving service quality and organizational performance. However, the implementation of AI does not necessarily result in direct performance improvements, so an understanding of the strategic mechanisms that bridge these relationships is needed. This study aims to analyze the influence of artificial intelligence on hospital performance through the mediating role of organizational resilience, strategic foresight, and competitive advantage in private hospitals in the form of public companies in Jakarta. The study used a quantitative approach with a survey method of 281 respondents consisting of directors, senior managers, managers, and supervisors. Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results of the study show that artificial intelligence has a positive and significant effect on organizational resilience, strategic foresight, and competitive advantage. Organizational resilience and strategic foresight have also been proven to increase competitive advantage and hospital performance, while competitive advantage is the strongest determinant of hospital performance. The research model has high predictive ability with a determination coefficient value (R^2) of 0.835 in the hospital performance variable. In addition, the research proves the existence of two significant serial mediation pathways, namely through organizational resilience–competitive advantage and through strategic foresight–competitive advantage. These findings confirm that the strategic value of artificial intelligence is not directly realized in improving organizational performance, but through strengthening adaptive and anticipatory organizational capabilities so that it is able to create a sustainable competitive advantage. This research contributes to the development of the literature on strategic management and hospital management by offering an artificial intelligence-based value conversion model as a mechanism for creating sustainable hospital performance in the midst of the dynamics of the health industry.
Keywords: artificial intelligence; organizational resilience; strategic foresight; competitive advantage; hospital performance; PLS-SEM

1. Introduction

Digital transformation has become one of the strategic agendas in increasing the effectiveness and sustainability of health services in various countries. The development of information technology, data analytics, the Internet of Things (IoT), *cloud computing*, and especially *Artificial Intelligence* (AI) has changed the way healthcare organizations manage business processes, improve the quality of services, and support faster and more accurate decision-making (Davenport & Kalakota, 2019; Topol, 2019). In the hospital sector, AI is no longer seen as just a technological innovation, but has developed into a strategic resource that is able to create operational efficiencies, improve patient safety, optimize resource utilization, and support organizational sustainability in the face of an increasingly dynamic business environment (Dwivedi et al., 2021).

These changes are increasingly important when the health industry faces pressures stemming from increasing health service needs, regulatory changes, limited medical personnel, and increasing public expectations for service quality. Hospital organizations are required not only to be able to provide quality medical services, but also to maintain operational efficiency, profitability, and long-term sustainability of the organization. Thus, the success of hospitals is no longer measured only by the increase in the number of patients, but also by the organization's ability to create added value through innovation, adaptation, and strengthening strategic capabilities (Porter & Lee, 2013).

Indonesia faces the same challenges in transforming the national health system. The government continues to encourage the digitalization of health services through the implementation of SATUSEHAT, electronic medical records, interoperability of health data, and the use of artificial intelligence-based technology to improve the quality of health services. This condition causes hospitals to increase technological readiness while strengthening the organization's ability to manage change effectively. The use of AI is seen as one of the strategies that can support increased operational efficiency, decision-making accuracy, service quality, and better patient experience. However, the implementation of AI also requires adequate human resource readiness, organizational governance, and technology integration so that its benefits can be realized optimally. On the other hand, empirical phenomena show that the increase in hospital operational activities has not always been followed by an improvement in organizational performance on a sustainable basis. Some private hospitals in Indonesia have seen an increase in the number of patient visits and operating income, but still face fluctuations in profitability and financial performance. This phenomenon indicates a *growth paradox*, which is a condition when the growth of service volume has not been able to be converted into competitive advantage and sustainable organizational performance. This shows that successful technology implementation cannot be explained simply through increased operational activities, but also requires the organization's ability to manage strategic resources effectively.

In the perspective of *the Resource-Based View* (RBV), AI is a strategic resource that has the potential to generate a competitive advantage if it is able to be integrated with organizational capabilities that are valuable, rare, difficult to replicate, and not easily replaced (Barney, 1991). Therefore, the benefits of AI do not arise automatically through technology investments, but depend on the organization's ability to build internal capabilities that support the process of adaptation to environmental changes. One of the capabilities that is getting more and more attention in the management literature is *organizational resilience*, which is the ability of organizations to anticipate, adapt, and recover from various changes and environmental disturbances (Lengnick-Hall et al., 2011). A resilient organization has the ability to maintain operational stability while developing new strategies in the face of uncertainty.

In addition to organizational resilience, the concept *of strategic foresight* is also developing as a strategic capability that allows organizations to anticipate environmental changes through trend identification, analysis of future scenarios, and more proactive decision-making (Rohrbeck & Kum, 2018). In the health industry that faces changes in regulations, technological developments, and the dynamics of community needs, the ability to read changes is an important factor in maintaining organizational competitiveness. With the support of AI, organizations have better ability to process data in real time so that the strategic planning process becomes more accurate and adaptive. The capabilities of these organizations further play a role in creating a competitive advantage. According to Porter (1985), competitive advantage is the ability of an organization to generate higher value than competitors through cost efficiency, service differentiation, and continuous innovation. In the context of hospitals, competitive advantage is reflected in the ability to provide quality, responsive, innovative health services, and be able to meet the needs of

patients more effectively than other organizations. Thus, AI is expected to not only have a direct effect on organizational performance, but also through strengthening organizational resilience and *strategic foresight* which then forms a competitive advantage.

Various previous studies have confirmed that AI contributes to increased innovation, data-driven decision-making, and organizational efficiency (Mikalef & Gupta, 2021; Mishra et al., 2022). Other research shows that the implementation of AI is able to improve organizational capabilities through strengthening organizational learning, digital transformation, and data analytics capabilities (Wamba et al., 2017; Akter et al., 2016). However, several studies have also found that the influence of AI on organizational performance is not always direct, but is mediated by various organizational capabilities such as innovation, technology governance, and dynamic capabilities (Chen et al., 2022; Haftor et al., 2021). The results of the study show that there are still inconsistencies regarding the mechanism of the relationship between AI and organizational performance.

In the context of the healthcare industry, research on AI still focuses more on clinical aspects, such as disease diagnosis, medical image processing, and medical decision-making. Research examining AI from a strategic management perspective, particularly on how AI shapes organizational capabilities that then generate competitive advantage and improve hospital performance, is still relatively limited. In addition, most previous studies have tested single mediating relationships so they have not been able to comprehensively explain the mechanism of AI value conversion. Based on these conditions, there are three main *research gaps*. First, most studies still view AI as a direct determinant of an organization's performance without explaining the process of transforming its strategic value. Second, research on the simultaneous relationship between *organizational resilience*, *strategic foresight*, and competitive advantage in explaining hospital performance is still very limited. Third, there have not been many studies that have developed *serial mediation* models to explain how AI is converted into a competitive advantage through strengthening organizational capabilities.

This research offers conceptual novelty by developing a serial mediation model that integrates AI, *organizational resilience*, *strategic foresight*, *competitive advantage*, and *hospital performance* in one empirical framework. The model explains that AI does not directly create organizational performance, but first strengthens the organization's adaptive and anticipatory capabilities so that it is able to generate a sustainable competitive advantage. This approach expands the *Resource-Based View perspective* through an explanation of the process of converting digital resources into organizational strategic capabilities that have an impact on improving hospital performance. Based on this description, this study aims to analyze the influence of artificial intelligence on hospital performance through the mediation of serial *organizational resilience*, *strategic foresight*, and *competitive advantage* in private hospitals in the form of public companies in Jakarta. The results of the research are expected to contribute to the development of strategic management literature and hospital management and become the basis for hospital management in designing digital transformation strategies that are able to produce competitive advantages and sustainable organizational performance.

2. Literature Review

2.1. Resource-Based View (RBV)

Resource-Based View (RBV) is one of the main theories in strategic management that explains that an organization's competitive advantage comes from the ability to manage resources that are valuable, rare, inimitable, and non-substitutable) (Barney, 1991). In the perspective of RBV, the success of an organization is not only determined by the ownership of physical assets, but also by the organization's ability to integrate tangible and intangible resources into strategic competencies that are able to produce superior performance. The development of digital transformation has broadened RBV's perspective by placing digital technologies, including Artificial Intelligence (AI), as strategic resources that can enhance an organization's ability to create value. Nevertheless, AI does not automatically generate a competitive advantage. The strategic value of AI depends on the organization's ability to integrate the technology into business processes, organizational culture, and decision-making so that it can create capabilities that are difficult for competitors to replicate (Mikalef & Gupta, 2021). Therefore, AI is seen as a

strategic resource that needs to be combined with organizational capabilities to be able to improve the competitiveness and performance of hospitals.

2.2. Artificial Intelligence

Artificial Intelligence (AI) is a technology that allows computer systems to carry out processes that generally require human intelligence, such as machine learning, reasoning, pattern recognition, predictive analysis, and decision-making (Russell & Norvig, 2021). In the health sector, AI has been used to support disease diagnosis, patient risk prediction, hospital management, medical personnel scheduling optimization, and health service supply chain management (Topol, 2019). The use of AI in hospital organizations provides various strategic benefits, including increasing operational efficiency, accelerating service processes, improving decision accuracy, and supporting a better patient experience (Davenport & Kalakota, 2019). Furthermore, AI allows organizations to leverage large amounts of data to generate information that supports the formulation of business strategies more accurately. Thus, AI is not only seen as a technological innovation, but as a strategic capability that has the potential to strengthen the competitiveness of organizations.

2.3. Organizational Resilience

Organizational resilience is the ability of organizations to anticipate, respond, adapt, and recover from changes or environmental disturbances without losing their main function (Lengnick-Hall et al., 2011). A resilient organization has high flexibility in the face of uncertainty, is able to maintain operational sustainability, and turns change into an opportunity to create innovation. In the context of hospitals, organizational resilience is becoming increasingly important as the health sector faces regulatory pressures, technological developments, changing patient needs, and various crises that can affect the quality of services. The use of AI is able to strengthen organizational resilience through improving data analysis capabilities, early risk detection, and faster and more accurate information-based decision-making. Therefore, AI is seen as a factor that supports the ability of hospital organizations to survive while also thriving in a dynamic environment.

2.4. Strategic Foresight

Strategic foresight is an organization's ability to identify environmental changes, analyze possible futures, and prepare strategies that are adaptive to various scenarios (Rohrbeck & Kum, 2018). This concept developed as part of strategic management that emphasizes the importance of long-term orientation in the face of the uncertainties of the business environment. In modern organizations, strategic foresight is not only related to strategic planning, but also includes the ability to read technology trends, changes in consumer behavior, regulatory dynamics, and innovation opportunities. AI strengthens strategic foresight through predictive analysis capabilities, big data processing, and simulation of various alternative decisions. Thus, organizations have better ability to formulate adaptive and proactive strategies.

2.5. Competitive Advantage

Competitive advantage is the ability of an organization to create higher value than competitors through differentiation, cost efficiency, innovation, and service quality (Porter, 1985). In the hospital industry, competitive advantage is not only measured through financial aspects, but also through service quality, patient safety, speed of service, technological innovation, and organizational reputation. According to RBV, a competitive advantage is formed when an organization is able to effectively integrate strategic resources with internal capabilities (Barney, 1991). Therefore, AI, organizational resilience, and strategic foresight are seen as complementary capabilities in building a sustainable competitive advantage. Hospitals that are able to utilize AI effectively tend to be more adaptive to change, have more efficient service processes, and are able to provide added value that is difficult for competitors to replicate.

2.6. Hospital Performance

Hospital performance is the level of success of an organization in achieving strategic goals through increasing operational effectiveness, service quality, financial efficiency, patient satisfaction, and organizational sustainability. Kaplan and Norton (1996) explained that organizational performance measurement should be done multidimensional through the perspective of finance, customers, internal business processes, and learning and growth. In the healthcare industry, performance measurement is not only profitability-oriented, but also includes quality of service, patient safety, operational efficiency, innovation, and the organization's ability to maintain service sustainability. Therefore, the improvement of hospital performance is greatly influenced by the organization's ability to develop strategic capabilities that support adaptation to environmental changes.

3. Framework of Thought and Hypothesis

Here is the framework of thought in this study:

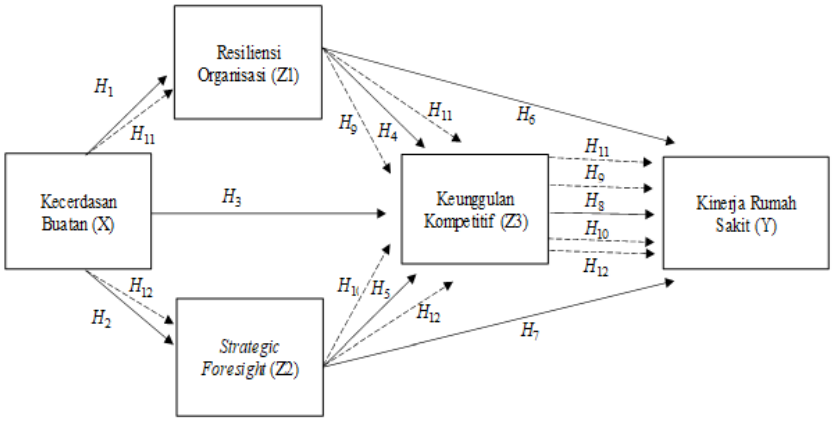

Figure 2.1. Frame of Mind Chart

Research hypothesis:

H1: Artificial Intelligence has a positive effect on Organizational Resilience.

H2: Artificial Intelligence has a positive effect on *Strategic Foresight*.

H3: Artificial Intelligence has a positive effect on Competitive Advantage.

H4: Organizational Resilience has a positive effect on Competitive Advantage.

H5: *Strategic Foresight* has a positive effect on Competitive Advantage.

H6: Organizational Resilience has a positive effect on Hospital Performance.

H7: *Strategic Foresight* has a positive effect on Hospital Performance.

H8: Competitive Advantage has a positive effect on Hospital Performance.

H9: Organizational Resilience has an indirect effect on Hospital Performance through Competitive Advantage.

H10: *Strategic Foresight* has an indirect effect on Hospital Performance through Competitive Advantage.

H11: Artificial Intelligence indirectly affects Hospital Performance through Organizational Resilience and Competitive Advantage.

H12: Artificial Intelligence has an indirect effect on Hospital Performance through *Strategic Foresight* and Competitive Advantage.

3.1. The Influence of Artificial Intelligence on Organizational Resilience

In the perspective of Resource-Based View (RBV), Artificial Intelligence (AI) is a strategic resource that is able to improve organizational capabilities if it is effectively integrated with business processes and decision-making (Barney, 1991). AI enables organizations to quickly process large amounts of data, identify risks early, and generate information that supports the organization's response to environmental changes. This ability is an important factor in building organizational resilience, which is the ability of organizations to anticipate, adapt, and recover from disruptions and changes that occur (Lengnick-Hall et al., 2011). Research by Mikalef and Gupta (2021) shows that AI capabilities improve organizational ability to deal with change through strengthening organizational learning and data-driven decision-making. Similar findings were put forward by Mishra et al. (2022), who stated that the implementation of AI increases organizational flexibility in the face of the uncertainty of the business environment. Thus, the higher the use of AI, the higher the organizational resilience of the hospital.

H1: Artificial Intelligence has a positive effect on Organizational Resilience.

3.2. The Influence of Artificial Intelligence on Strategic Foresight

Strategic foresight describes an organization's ability to identify trends, anticipate environmental changes, and develop an adaptive long-term strategy (Rohrbeck & Kum, 2018). AI supports these capabilities through predictive analysis, big data processing, and pattern identification that is difficult to do manually. AI-generated information enables organizations to formulate strategic decisions faster, more accurately, and evidence-based. Research by Rohrbeck and Kum (2018) explains that organizations that have higher foresight capabilities tend to produce better performance because they are able to anticipate environmental changes proactively. In addition, Mikalef and Gupta (2021) emphasized that AI strengthens an organization's ability to generate strategic insights that support organizational innovation and sustainability.

H2: Artificial Intelligence has a positive effect on strategic foresight.

3.3. The Influence of Artificial Intelligence on Competitive Advantage

According to RBV, organizations gain a competitive advantage when they are able to utilize strategic resources to create value that is difficult for competitors to replicate (Barney, 1991). AI enables hospitals to improve operational efficiency, quality of service, decision-making speed, and patient experience, resulting in continuous differentiation of services. Research by Akter et al. (2016) and Wamba et al. (2017) shows that the use of digital technology and data analytics is able to increase competitive advantage through increased innovation and organizational efficiency. In the health sector, Mohamad et al. (2023) found that the implementation of AI makes a positive contribution to improving hospital competitiveness.

H3: Artificial Intelligence has a positive effect on competitive advantage.

3.4. The Effect of Organizational Resilience on Competitive Advantage

Organizations that have a high level of resilience tend to be better able to maintain service quality, respond to environmental changes, and develop innovation in a sustainable manner. These capabilities allow organizations to build a stronger competitive position than competitors. Lengnick-Hall et al. (2011) explain that organizational resilience is the foundation for the creation of sustainable competitive advantage. Duchek's (2020) research also shows that resilient organizations have a better ability to maintain a competitive advantage when facing changing business environments.

H4: Organizational resilience has a positive effect on Competitive Advantage.

3.5. The Influence of Strategic Foresight on Competitive Advantage

The ability to anticipate changes in the environment allows organizations to develop strategies that are more innovative than competitors. Strategic foresight helps organizations identify business opportunities, understand changing customer needs, and design innovations that generate added value. Rohrbeck and Kum (2018) prove that

organizations that have strategic foresight skills tend to gain a higher competitive advantage because they are able to respond to market changes more quickly. Therefore, strategic foresight is seen as one of the strategic capabilities that strengthens the organization's competitive position.

H5: Strategic foresight has a positive effect on competitive advantage.

3.6. The Effect of Organizational Resilience on Hospital Performance

A resilient organization has the ability to maintain operational continuity, increase service effectiveness, and reduce negative impacts due to environmental changes. In the context of hospitals, these capabilities contribute to improving service quality, operational efficiency, and overall organizational performance. Duchek's research (2020) shows that organizational resilience contributes positively to improving organizational performance through better adaptability. Thus, hospitals that have a high level of resilience are expected to be able to achieve better performance.

H6: Organizational resilience has a positive effect on Hospital Performance.

3.7. The Influence of Strategic Foresight on Hospital Performance

Strategic foresight allows organizations to formulate more adaptive strategies so that they are able to deal effectively with environmental changes. These abilities contribute to improving organizational efficiency, the quality of decision-making, and the sustainability of organizational performance. Rohrbeck and Kum (2018) show that companies with a high level of strategic foresight have better growth and performance than organizations that are only oriented towards short-term planning.

H7: Strategic foresight has a positive effect on Hospital Performance.

3.8. The Effect of Competitive Advantage on Hospital Performance

Competitive advantage allows organizations to generate higher value than competitors through innovation, service quality, operational efficiency, and service differentiation. In the hospital industry, competitive advantage is an important factor in improving patient satisfaction, customer loyalty, and organizational sustainability. Porter (1985) stated that organizations that are able to build a competitive advantage will have a greater chance of achieving superior performance. Empirical research on the health sector also shows that competitive advantage is a major determinant of improving hospital performance.

H8: Competitive advantage has a positive effect on Hospital Performance.

3.9. The Role of Competitive Advantage Mediation

In the perspective of RBV, organizational capabilities do not necessarily improve performance directly, but often work through the formation of a competitive advantage. Organizations that are resilient and have strategic foresight capabilities will find it easier to create innovation, efficiency, and differentiation of services so as to produce competitive advantages that have an impact on improving performance. Thus the following hypothesis is proposed:

H9: Competitive advantage Mediating influence Organizational Resilience against Hospital Performance.

H10: Competitive advantage Mediating influence strategic foresight against Hospital Performance.

2.10 3.10 The Role of Serial Organizational Resilience, Strategic Foresight, and Competitive Advantage Mediation

This research develops a serial mediation model that explains the mechanism of converting AI value into organizational performance. AI as a strategic resource first increases organizational resilience and strategic foresight. These two capabilities further strengthen the competitive advantage, which ultimately improves hospital performance. This model expands the perspective of RBV by explaining that the strategic value of AI is realized through

strengthening organizational capabilities before producing superior performance. Based on these arguments, the following two hypotheses are proposed:

H11: Artificial Intelligence has a positive effect on Hospital Performance through serial mediation Organizational Resilience and Competitive Advantage.

H12: Artificial Intelligence has a positive effect on Hospital Performance through serial mediation strategic foresight and Competitive Advantage.

4. Research Methods

This study uses a quantitative approach with *an explanatory research design* to test the causal relationship between Artificial Intelligence (AI), organizational resilience, strategic foresight, competitive advantage, and hospital performance. The quantitative approach was chosen because it was able to test conceptual models empirically through statistical analysis, while explanatory design was used to explain the direct and indirect influences between variables built on the foundation of Resource-Based View (RBV) theory.

The research population includes all leaders and managerial officials in private hospitals in the form of public listed hospitals operating in DKI Jakarta Province. The research analysis unit is an individual who has involvement in strategic decision-making related to the implementation of digital technology and organizational management. Respondents consisted of directors, senior managers, managers, and supervisors who understood the application of artificial intelligence in hospital business processes. The sampling technique uses purposive sampling**,** which is the selection of respondents based on certain criteria, including occupying managerial positions, having a minimum working period of two years, and being involved in the planning process and implementation of organizational strategies. Based on these criteria, 281 respondents were obtained as a research sample.

Primary data was collected through the distribution of questionnaires using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The research instrument was developed from the measurement scale that has been tested in previous research. The Artificial Intelligence variable is adapted from Mikalef and Gupta (2021), organizational resilience refers to Lengnick-Hall et al. (2011), strategic foresight refers to Rohrbeck and Kum (2018), competitive advantage refers to Porter (1985), while hospital performance adapted from Kaplan and Norton (1996) as well as several studies on the measurement of organizational performance in the health sector. Before the distribution of the questionnaire, the instrument was evaluated through expert judgment and pilot tests to ensure the validity of the content and clarity of each indicator.

Data analysis was carried out using *Partial Least Squares–Structural Equation Modeling* (PLS-SEM) with the help of SmartPLS 4 software. The PLS-SEM method was chosen because it is able to analyze complex relationships between several latent variables simultaneously, accommodate mediation models, and has good predictive capabilities. In addition, PLS-SEM does not require strict normal data distribution, making it suitable for use in research oriented to theoretical model development (Hair et al., 2021).

The analysis was carried out in two stages. The first stage is the evaluation of the measurement model (*outer model*) which includes testing the convergent validity using the outer loading (>0.70) and Average Variance Extracted (AVE >0.50) values, discriminant validity using the Heterotrait–Monotrait Ratio (HTMT <0.90) criteria, and the reliability of the construct using the Composite Reliability and Cronbach's values Alpha (>0.70). The second stage is the evaluation of the structural model (*inner model*) which includes testing the determination coefficient (R^2), effect size (f^2), predictive relevance (Q^2), and collinearity through the value of the Variance Inflation Factor (VIF <3.3). Furthermore, hypothesis testing was carried out using a *bootstrapping* procedure of 5,000 subsamples. The hypothesis is stated to be supported if the t-statistical value > 1.96 and the p-value < 0.05 at a significance level of 5% (Hair et al., 2022).

In addition to examining the direct relationship between variables, this study also analyzed indirect influences through mediation mechanisms. Mediation testing was carried out using the bootstrapping procedure in PLS-SEM to

evaluate the role of organizational resilience, strategic foresight, and competitive advantage in explaining the mechanism of Artificial Intelligence's influence on hospital performance. This approach allows the simultaneous identification of mediation pathways so that it can provide a more comprehensive understanding of the process of creating strategic value AI in improving hospital performance.

5. Research Results

5.1. Evaluation of Measurement Models (Outer Model)

This stage aims to ensure that each latent construct is constructed by valid, reliable, and empirically separate indicators.

a. Convergent Validity

All indicators in the construct of artificial intelligence (AI), competitive advantage (KK), hospital performance (KRS), and *strategic foresight* (SF) show *an outer loading* value above 0.700. In the organizational resilience construct (RO), some indicators are in the range of 0.674–0.685, because they are still above the minimum limit of 0.60 that is acceptable in model development research, and do not decrease the *value of the Average Variance Extracted* (AVE) and the overall reliability of the construct.

Table 5.1 *Outer Loading*

	Outer Loading		*Outer Loading*		*Outer Loading*
RO.01	0.674	AI.01	0.861	KK.01	0.819
RO.02	0.680	AI.02	0.770	KK.02	0.854
RO.03	0.740	AI.03	0.855	KK.03	0.859
RO.04	0.723	AI.04	0.843	KK.04	0.843
RO.05	0.748	AI.05	0.817	KK.05	0.857
RO.06	0.741	AI.06	0.821		
RO.07	0.781			KRS.01	0.789
RO.08	0.685	SF.01	0.748	KRS.02	0.785
RO.09	0.711	SF.02	0.766	KRS.03	0.816
RO.10	0.777	SF.03	0.812	KRS.04	0.743
RO.11	0.792	SF.04	0.811	KRS.05	0.846
RO.12	0.781	SF.05	0.794	KRS.06	0.808
RO.13	0.703	SF.06	0.822	KRS.07	0.819
RO.14	0.738			KRS.08	0.739
RO.15	0.760			KRS.09	0.780
RO.16	0.741				
RO.17	0.729				
RO.18	0.763				

The AVE value of the whole construct is above the threshold of 0.500 (AI = 0.686; KK = 0.716; KRS = 0.628; SF = 0.628; RO = 0.545), which indicates that each construct is able to explain more than half of the variance of its indicators. These findings confirm that the measurement structure has an adequate degree of convergence and is statistically stable.

Table 5.2 AVE

Variable	Average variance extracted (AVE)
Organizational Resilience (RO)	0.545
Artificial Intelligence (AI)	0.686
Strategic Foresight (SF)	0.628
Competitive Advantage (KK)	0.716
Hospital Performance (KRS)	0.628

b. Discriminatory Validity

The evaluation of discriminant validity in this study was carried out by placing *cross loading* analysis as the main criterion, and supported by the Fornell–Larcker and *Heterotrait–Monotrait Ratio* (HTMT) criteria as additional examinations.

Table 5.3 *Cross Loading*

	AI	CD	KRS	SF	RO
AI.01	0.861	0.582	0.609	0.563	0.569
AI.02	0.770	0.536	0.566	0.619	0.602
AI.03	0.855	0.581	0.610	0.593	0.582
AI.04	0.843	0.559	0.546	0.528	0.522
AI.05	0.817	0.590	0.620	0.540	0.536
AI.06	0.821	0.551	0.578	0.546	0.584
KK.01	0.649	0.819	0.737	0.664	0.678
KK.02	0.570	0.854	0.743	0.619	0.619
KK.03	0.608	0.859	0.788	0.682	0.655
KK.04	0.510	0.843	0.745	0.632	0.638
KK.05	0.557	0.857	0.731	0.639	0.616
KRS.01	0.644	0.724	0.789	0.623	0.639
KRS.02	0.653	0.738	0.785	0.594	0.603
KRS.03	0.532	0.729	0.816	0.594	0.596
KRS.04	0.472	0.615	0.743	0.607	0.562
KRS.05	0.523	0.727	0.846	0.686	0.700
KRS.06	0.550	0.728	0.808	0.681	0.665
KRS.07	0.540	0.729	0.819	0.688	0.683
KRS.08	0.549	0.595	0.739	0.639	0.671
KRS.09	0.601	0.711	0.780	0.601	0.652
SF.01	0.494	0.557	0.613	0.748	0.615
SF.02	0.531	0.627	0.602	0.766	0.611
SF.03	0.532	0.609	0.646	0.812	0.699

SF.04	0.565	0.620	0.664	0.811	0.667
SF.05	0.526	0.589	0.615	0.794	0.655
SF.06	0.590	0.634	0.667	0.822	0.717
RO.01	0.446	0.510	0.606	0.511	0.674
RO.02	0.426	0.457	0.461	0.465	0.680
RO.03	0.509	0.609	0.648	0.678	0.740
RO.04	0.513	0.611	0.652	0.541	0.723
RO.05	0.508	0.593	0.618	0.601	0.748
RO.06	0.574	0.579	0.649	0.655	0.741
RO.07	0.543	0.564	0.651	0.635	0.781
RO.08	0.415	0.479	0.529	0.617	0.685
RO.09	0.419	0.486	0.519	0.590	0.711
RO.10	0.535	0.554	0.602	0.666	0.777
RO.11	0.576	0.640	0.652	0.676	0.792
RO.12	0.584	0.649	0.653	0.699	0.781
RO.13	0.414	0.414	0.466	0.561	0.703
RO.14	0.464	0.531	0.525	0.630	0.738
RO.15	0.489	0.576	0.641	0.642	0.760
RO.16	0.476	0.483	0.542	0.642	0.741
RO.17	0.535	0.558	0.591	0.618	0.729
RO.18	0.569	0.671	0.651	0.616	0.763

Based on Table 5.3, all indicators show the highest *loading* value in the construct it measured compared to other constructs. These findings indicate that there is an adequate empirical separation between constructs, so that the discriminant validity at the indicator level can be declared fulfilled.

As an additional form of verification, the results of the evaluation using the Fornell–Larcker criteria in Table 5.4 show that most of the constructs have met the required criteria. Although there is a relatively high correlation between constructs, particularly between competitive advantage and hospital performance, this is still acceptable given the close conceptual linkages within the framework of the research model.

Furthermore, the HTMT results in Table 5.5 show that most construct pairs are within the acceptable range. Some construct pairs show relatively high HTMT values, especially between competitive advantage and hospital performance. This condition indicates a strong conceptual relationship between constructs, but does not indicate an overlap of indicators because all indicators still have the highest load on the construct they measure as shown by *the cross loading* results.

Table 5.4 Fornell-Larcker

	AI	CD	KRS	RO	SF
AI	0.828				
CD	0.685	0.846			
KRS	0.710	0.885	0.793		

RO	0.685	0.758	0.809	0.738	
SF	0.684	0.765	0.801	0.834	0.793

Table 5.5 HTMT

	AI	CD	KRS	RO	SF
AI					
CD	0.756				
KRS	0.774	0.967			
RO	0.730	0.810	0.856		
SF	0.762	0.858	0.887	0.908	

By considering the consistency of *cross loading results* as the main criterion as well as the support of additional analysis, the validity of the discriminator in this research model can be stated adequately.

c. Multicollinearity Test Indicator

Table 5.6 *Outer* VIVID

	VIVID		VIVID		VIVID
RO.01	1.996	AI.01	2.786	KK.01	2.016
RO.02	2.052	AI.02	1.833	KK.02	2.440
RO.03	2.176	AI.03	2.690	KK.03	2.480
RO.04	2.110	AI.04	2.558	KK.04	2.352
RO.05	2.409	AI.05	2.242	KK.05	2.543
RO.06	2.308	AI.06	2.286		
RO.07	2.606			KRS.01	2.417
RO.08	2.137	SF.01	1.782	KRS.02	2.352
RO.09	2.213	SF.02	1.834	KRS.03	2.508
RO.10	2.613	SF.03	2.274	KRS.04	1.949
RO.11	2.715	SF.04	2.197	KRS.05	3.009
RO.12	2.728	SF.05	1.977	KRS.06	2.361
RO.13	2.239	SF.06	2.161	KRS.07	2.654
RO.14	2.332			KRS.08	1.878
RO.15	2.519			KRS.09	2.104
RO.16	2.428				
RO.17	2.661				
RO.18	3.100				

Value *outer* The VIF of all indicators is in the range of 1.7–3.1 and none exceed 5. This shows that there is no excessive correlation between indicators in the same construct, so that parameter estimation is not distorted by collinearity problems. With the fulfillment of all measurement criteria, the analysis continues to the evaluation of the structural model.

5.2. Structural Model Evaluation (Inner Model)

Structural model evaluation was carried out to assess the strength of the relationship between constructs and the relative contribution of each variable in explaining endogenous constructs.

a. Coefficient of Determination (R^2)

Table 5.7 R^2

	R-square	R-square adjusted
CD	0.661	0.657
KRS	0.835	0.833
RO	0.469	0.467
SF	0.467	0.465

The R^2 values for organizational resilience and *strategic foresight* are 0.469 and 0.467, respectively, which means that 46.9% of the variation in organizational resilience and 46.7% of the variation *in strategic foresight* can be explained by artificial intelligence. Meanwhile, the R^2 value for competitive advantage of 0.661 indicates that 66.1% of the variation in competitive advantage can be explained together by artificial intelligence, organizational resilience, and *strategic foresight*.

Furthermore, the R^2 value for Hospital Performance (KRS) of 0.835 indicates that 83.5% variation in hospital performance can be explained by organizational resilience, *strategic foresight*, and competitive advantage. This value indicates that the research model has a high explanatory ability in explaining the variation in the performance of private hospitals in the form of public companies (Tbk) in Jakarta.

b. Effect Size (f^2)

Table 5.8 f^2

	F-Square
AI -> KK	0.082
AI -> RO	0.883
AI -> SF	0.877
KK -> KRS	0.771
RO -> KK	0.076
RO -> KRS	0.088
SF -> KK	0.101
SF -> KRS	0.039

The test results showed that the influence of competitive advantage on hospital performance had a large effect size ($f^2 = 0.771$), thus placing competitive advantage as a central variable in the research model. The effect of artificial intelligence on organizational resilience ($f^2 = 0.883$) and *strategic foresight* ($f^2 = 0.877$) also indicates a large effect size. In contrast, the other relationship is in a small category, which indicates that the influence of organizational capabilities on hospital performance works more through competitive advantage as a mediation mechanism.

5.3. Hypothesis Testing

Hypothesis testing was carried out using *a bootstrapping* procedure with 5,000 *subsamples* on SmartPLS 4.0. The hypothesis acceptance decision was based on a t-statistical value of > 1.96 and a p-value < 0.05 at a significance level of 5%.

Table 5.9 *Path Coefficients*

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AI -> KK	0.238	0.235	0.059	4.019	0.000
AI -> RO	0.685	0.687	0.039	17.601	0.000
AI -> SF	0.684	0.686	0.042	16.353	0.000
KK -> KRS	0.589	0.585	0.061	9.680	0.000
RO -> KK	0.304	0.309	0.077	3.920	0.000
RO -> KRS	0.232	0.237	0.079	2.922	0.003
SF -> KK	0.349	0.349	0.097	3.595	0.000
SF -> KRS	0.157	0.155	0.078	2.019	0.044

Based on Table 4.13, all hypothesized direct relationships show p-values below 0.05 so that all direct hypotheses (H1–H8) are declared supported.

Artificial intelligence had a positive and significant effect on competitive advantage ($\gamma = 0.238$; $p < 0.001$), organizational resilience ($\gamma = 0.685$; $p < 0.001$), and *strategic foresight* ($\gamma = 0.684$; $p < 0.001$). These findings show that the use of artificial intelligence contributes to improving organizational capabilities while strengthening the hospital's competitive advantage. Organizational resilience had a positive and significant effect on competitive advantage ($\gamma = 0.304$; $p < 0.001$) and hospital performance ($\gamma = 0.232$; $p = 0.003$). Similarly, *strategic foresight* had a positive and significant effect on competitive advantage ($\gamma = 0.349$; $p < 0.001$) and hospital performance ($\gamma = 0.157$; $p = 0.044$). These results show that the organization's ability to adapt to changes and anticipate future developments contributes to improving the competitiveness and performance of hospitals. Furthermore, competitive advantage had a positive and significant effect on hospital performance ($\beta = 0.589$; $p < 0.001$). This coefficient value is the largest in the structural model, which shows that competitive advantage has a dominant role in explaining variations in hospital performance compared to other variables.

5.4. Mediation Effect Testing

Competitive advantage in this study is positioned as a mechanism that bridges the influence of organizational capabilities on hospital performance. In addition, this study also examines the role of organizational resilience and *strategic foresight* in continuing the influence of artificial intelligence on competitive advantage and hospital performance.

Table 5.10 *Indirect Effect*

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
RO -> KK -> KRS	0.179	0.181	0.052	3.449	0.001
SF -> KK -> KRS	0.206	0.202	0.054	3.776	0.000
AI -> SF -> KK -> KRS	0.141	0.139	0.039	3.653	0.000

AI -> RO -> KK -> KRS	0.122	0.125	0.037	3.344	0.001

Based on Table 5.10, the indirect influence of organizational resilience on hospital performance through competitive advantage was proven to be positive and significant (β = 0.179; p = 0.001). Similar results were also found in the relationship *of strategic foresight* to hospital performance through competitive advantage (β = 0.206; p < 0.001). These findings show that competitive advantage plays a mediator in continuing the influence of organizational resilience and *strategic foresight* on hospital performance. In the mediation series pathway, artificial intelligence was proven to have a positive and significant effect on hospital performance through organizational resilience and competitive advantage (β = 0.122; p = 0.001), as well as through *strategic foresight* and competitive advantage (β = 0.141; p < 0.001). These results indicate that the use of artificial intelligence not only has a direct impact on organizational capabilities, but also has an impact on improving hospital performance through the formation of competitive advantage. Overall, the results of the mediation test show that competitive advantage occupies a central position in the research model. Competitive advantage not only has a direct effect on hospital performance, but also acts as a strategic mechanism that connects organizational capabilities with the achievement of better performance.

6. Discussion

The results of the study show that Artificial Intelligence (AI) has a strategic role in improving the capabilities of hospital organizations through strengthening organizational resilience, strategic foresight, and competitive advantage. These findings indicate that AI not only serves as an operational support technology, but has evolved into a strategic resource capable of creating added value for organizations. From the perspective of the Resource-Based View (RBV), AI is a valuable resource, is inimitable, and is able to produce a competitive advantage when combined with organizational capabilities (Barney, 1991). Thus, investment in digital technology will provide optimal benefits if it is followed by the development of organizational capabilities to manage changes and utilize information effectively.

The findings of the study prove that AI has a positive effect on organizational resilience. These results show that the use of AI improves hospitals' ability to identify risks, respond to environmental changes, and maintain operational continuity. Real-time data analytics capabilities, early warning systems, and data-driven decision-making support enable organizations to be more adaptive to various challenges, including regulatory changes, technological developments, and the dynamics of patient needs. These findings support the research of Mikalef and Gupta (2021) who stated that AI capabilities strengthen organizations' ability to deal with uncertainty through improving information quality and decision-making. These results are also in line with Lengnick-Hall et al. (2011), who explain that organizational resilience is built through an organization's ability to learn, adapt, and utilize strategic resources to deal with environmental changes.

This study also shows that AI has a positive effect on strategic foresight. These results indicate that the implementation of AI helps hospital organizations improve their ability to identify trends, predict environmental changes, and formulate long-term strategies more accurately. AI's ability to process big data, perform predictive analysis, and generate strategic information allows management to make decisions more proactively than conventional approaches. These findings reinforce the research of Rohrbeck and Kum (2018), who stated that strategic foresight is an important capability in creating an organization that is adaptive to environmental changes. AI functions as an enabler that accelerates the process of forming strategic insights so that hospitals are able to anticipate opportunities and threats more effectively.

The results of the study further prove that AI has a positive influence on competitive advantage. These findings show that the use of artificial intelligence technology is able to improve operational efficiency, service quality, decision-making speed, and healthcare innovation. In a hospital industry that faces increasingly fierce competition, the ability to integrate AI into business processes results in service differentiation that is difficult for competitors to replicate. These findings support the research of Davenport and Kalakota (2019) which states that AI improves efficiency and quality of healthcare services through optimal use of data. The results of the study also strengthen

RBV's view that competitive advantage does not only come from technology ownership, but from the organization's ability to combine technology with its internal resources.

The findings of the study show that organizational resilience has a positive effect on competitive advantage. These results indicate that hospitals that have the ability to adapt to change will be better able to maintain service quality and create innovation than organizations that are less resilient. Resilience allows organizations to maintain operational continuity while developing new strategies when facing changing environments. These findings are consistent with Duchek (2020), who explains that organizational resilience is an important foundation in building a sustainable competitive advantage because it allows organizations to turn challenges into strategic opportunities.

In addition, strategic foresight has been proven to have a positive influence on competitive advantage. These findings show that the ability to anticipate environmental changes gives hospitals an advantage in developing more innovative strategies, improving service quality, and accelerating responses to patient needs. Hospitals that have a future orientation are better able to adapt their business strategies to technological developments and changes in health regulations. The results of this study are in line with Rohrbeck and Kum (2018), who found that organizations with high strategic foresight capabilities tend to have a stronger competitive position than organizations that are only oriented to current conditions. This study also proves that organizational resilience and strategic foresight have a positive effect on hospital performance. The findings show that improving organizational adaptability and the ability to anticipate environmental changes contribute to increased operational effectiveness, service quality, organizational efficiency, and the achievement of hospital strategic goals. In other words, the success of an organization is not only determined by the implementation of technology, but also by the ability to manage change through the development of organizational capabilities. These findings support the dynamic capabilities theory that organizations will achieve superior performance if they are able to integrate, build, and reconfigure their resources to respond effectively to environmental changes.

The results of the study show that competitive advantage is the strongest determinant in improving hospital performance. These findings indicate that hospitals that are able to create service differentiation, improve operational efficiency, and maintain an organization's reputation will perform higher than competitors. Competitive advantage is the main mechanism that connects various organizational capabilities with performance improvement. These findings support Porter's (1985), who stated that organizations with a sustained competitive advantage will have a greater chance of achieving superior performance in the long run.

The main contribution of this research lies in proving the existence of a serial mediation mechanism in the relationship between AI and hospital performance. The results show that the influence of AI on hospital performance does not occur directly, but through Artificial Intelligence → Organizational Resilience → Competitive Advantage → Hospital Performance and Artificial Intelligence → Strategic Foresight → Competitive Advantage → Hospital Performance. These findings provide a new perspective that AI is a strategic enabler, while improving organizational performance occurs through strengthening internal capabilities which further results in competitive advantage. Thus, this study expands the RBV theory by explaining the process of transforming digital resources into organizational performance through the formation of adaptive and anticipatory organizational capabilities.

From a practical perspective, the results of the study provide important implications for hospital management. Investment in AI technology should not only be focused on providing digital infrastructure, but also followed by the development of human resource competencies, an adaptive organizational culture, organizational learning systems, and future-oriented strategic planning mechanisms. By integrating AI, organizational resilience, strategic foresight, and competitive advantage simultaneously, hospitals will have better capabilities to improve service quality, strengthen competitiveness, and achieve sustainable organizational performance in the midst of increasingly complex health industry dynamics.

7. Conclusion

Based on the results of the research and discussion, it can be concluded that:

1. *Artificial Intelligence* (AI) has a positive and significant effect on *Organizational Resilience*, which shows that the application of AI is able to improve the ability of hospitals to effectively anticipate, adapt, and respond to environmental changes.
2. *Artificial Intelligence* (AI) has a positive and significant effect on *Strategic Foresight,* so the use of AI can strengthen the organization's ability to predict changes, identify opportunities, and formulate long-term strategies.
3. *Artificial Intelligence* (AI) has a positive and significant effect on *Competitive Advantage*, which indicates that the implementation of AI is able to increase operational efficiency, innovation, service quality, and competitiveness of hospitals.
4. *Organizational Resilience* has a positive and significant effect on *Competitive Advantage*, so that the organization's ability to deal with uncertainty is an important factor in building a sustainable competitive advantage.
5. *Strategic Foresight* has a positive and significant effect on *Competitive Advantage*, which shows that the ability to anticipate changes in the environment can strengthen the competitive position of hospitals.
6. *Organizational Resilience* has a positive and significant effect on *Hospital Performance*, so hospitals that are more adaptive to change tend to have better organizational performance.
7. *Strategic Foresight* has a positive and significant effect on *Hospital Performance*, which confirms that strategic orientation to the future contributes to increasing the effectiveness and sustainability of hospital performance.
8. *Competitive Advantage* has a positive and significant effect on *Hospital Performance*, and is the variable that contributes the most to improving hospital performance.
9. *Competitive Advantage* mediates the relationship between *Organizational Resilience* and *Hospital Performance*, so that increasing organizational resilience will have a greater impact on performance if it can be converted into a competitive advantage.
10. *Competitive Advantage* mediates the relationship between Strategic *Foresight* and *Hospital Performance*, which shows that an organization's anticipatory capabilities will improve performance through the creation of superior competitiveness.
11. *Artificial Intelligence* affects *Hospital Performance* through the mediation of *the Organizational Resilience* and *Competitive Advantage series*, which proves that AI improves hospital performance by strengthening the organization's adaptive capabilities before creating a competitive advantage.
12. *Artificial Intelligence* affects *hospital performance* through the mediation of *the Strategic Foresight* and *Competitive Advantage* series, which shows that AI's ability to support strategic planning and anticipation of the future will result in a competitive advantage that ultimately improves hospital performance.

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