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Balancing Strategic Paradoxes through Paradoxical Leadership: Empirical Evidence from Digitizing Hospitals in Indonesia

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Abstract

Background: Indonesian hospitals are under intensifying pressure to digitalize, yet digital transformation (DT) does not automatically yield organizational agility a paradox that challenges conventional technology adoption frameworks. Despite government mandates such as Ministry of Health Regulation No. 24/2022 requiring electronic medical records, many hospitals remain trapped in administrative digitization without achieving strategic renewal.
Objective: This study investigates the roles of Digital Transformation (DT) and Paradoxical Leadership (PL) in promoting Organizational Agility (OA) and Strategic Renewal (SR) in Indonesian hospitals, with OA as a mediator and PL as a moderator in the DT–OA relationship.
Methods: A quantitative explanatory approach was employed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Primary data were collected via structured questionnaire from 400 hospital managers and clinical administrators across Indonesian healthcare organizations, selected through purposive sampling.
Results: The analysis reveals that DT does not directly influence OA, indicating structural limitations that hinder organizational agility. However, PL plays a significant **moderating** role that amplifies DT's effect on OA, demonstrating that leadership capability is crucial in managing strategic contradictions and facilitating technology adoption. Furthermore, OA proves to be the primary determinant of SR, enabling adaptive business model reconfiguration in the *JKN* era.
Conclusion: The study confirms that the strategic success of healthcare institutions depends on the synergy between digital capabilities and managerial leadership capability in navigating organizational complexities. Paradoxical leadership is not merely a management style but a driving force that transforms digital investment into sustainable strategic renewal.

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INTRODUCTION

The Indonesian hospital industry has experienced profound transformation over the past decade. Driven by demographic shifts including an aging society and a rising middle class alongside the expansion of the national health insurance program and a growing healthcare technology roadmap, Indonesian hospitals are now at a critical turning point toward systemic transformation. From 2010 onward, the Indonesian government has expanded investments in digital transformation, most notably through the enhancement of the Ministry of Health's digital infrastructure and the mandatory implementation of electronic health record systems. These efforts are aimed at addressing access to and quality of healthcare services, particularly in underserved regions where infrastructure gaps remain pronounced. Although progress has been

substantial, Indonesia's healthcare outcomes still lag those of comparable upper-middle-income countries, underscoring the need for more coordinated and strategically driven digital adoption.

In fact, while Indonesia's digital-health landscape is expanding rapidly, fragmentation and uneven progress remain. A 2022 sector assessment by Transform Health Indonesia reported that although more than 400 medical apps have been developed, data interoperability and health information consolidation remain minimal. Similarly, a 2024 readiness assessment of information and communication technology (ICT) in medical care revealed that many facilities continue to operate at a low state of readiness, with less than 20% of hospitals adopting cutting-edge technologies or hospital information systems (Aisyah et al., 2024). These gaps hamper strategic pivots and expose hospitals to a twofold obstacle: catching up with technological advancement while sustaining patient care quality and service excellence.

The economic imperatives driving this transformation are equally compelling. Indonesia's digital economy expansion was projected to generate approximately USD 150 billion in annual economic value by 2025, representing close to 10% of GDP. The health sector accounts for a substantial portion of the productivity shortfall estimated at USD 11 billion in unrealized returns from digital optimization. Healthcare system inefficiencies, including suboptimal resource allocation, redundant administrative processes, and delayed care pathways, represent a significant drag on national productivity. These figures underscore that digital transformation in hospitals is not merely a technological imperative but a macroeconomic strategic priority.

Even with significant state funding and robust policy initiatives, many Indonesian hospitals still face substantial hurdles in converting digital investments into meaningful strategic transformation. Digital enablement remains fragmented, and governance practices often emphasize operational resilience over strategic realignment in adapting to new care delivery systems. For example, the adoption of electronic medical records (EMRs) continues to face significant barriers related to infrastructure readiness, interoperability standards, and change management capacity (Fita Rusdian Ikawati & M. Syauqi Haris, 2024). Leaders are called to navigate these contradictions: they must maintain operational stability while simultaneously pursuing transformative digital strategies a tension that defines the paradoxical nature of hospital management in the current era.

In terms of theoretical contribution, this research seeks to demonstrate that Paradoxical Leadership (PL) offers a robust framework for understanding and exploring the essential contradictions in hospital digital transformation. Effective leaders are those capable of managing conflicting priorities. When combined with Digital Transformation (DT), such leadership fosters Organizational Agility (OA), the dynamic capability that enables hospitals to sense, seize, and reconfigure resources rapidly in response to technological and institutional breakthroughs (Teece, 2007). The synergy of these forces enables Strategic Renewal (SR), the process of regenerating strategy, structure, and resources for sustainable organisational performance (Crossan & Berdrow, 2003).

Practically, this research is concerned with addressing some critical discrepancies. First, prior work in the healthcare sector has investigated digital deployment or organisational transformation in isolation; only limited research has investigated the cumulative effects of leadership style, digital transformation, and organisational agility on strategic renewal, especially within growth economy hospital systems. Second, despite Indonesia's digital-health action plan Ministry of Health of the Republic of Indonesia. (2021), actionable research remains sparse on how hospitals actualise these national strategies at the organisational level. Third, placing Paradoxical Leadership as a moderator within the Digital Transformation, Organizational Agility, and Strategic Renewal pathway, this research focuses leadership theory on healthcare reform contexts, offering applied knowledge for managers and policymakers in harmonizing innovation in the hospital industry with resilience.

To fill these gaps, this research aims to test a comprehensive framework that facilitates the linkage between digital transformation, paradoxical leadership, organizational agility, and strategic renewal in hospitals in Indonesia. Specifically, it strives to: (1) Describe the magnitude of digital transformation and paradoxical leadership in shaping organizational agility; (2) Discover the role that organizational agility intensity plays in mediating the relationship between the strategic determinants and strategic renewal; and (3) Offer practical knowledge that may foster leadership and agility capabilities in promoting Indonesia's future healthcare agenda.

Hypothesis Development

Hospitals that are committed to digitalization are expected to strategically self-tune and understand the interconnection of technology, leadership, and learning that further forms resilience and renewal. Furthermore, the supporting mechanisms of Dynamic Capabilities Theory, Paradox Theory, and Strategic Renewal Theory reveal how hospitals advance amidst disruption. Digital transformation promotes agility through the advancement of technological infrastructure; paradoxical leadership manages conflicting priorities, and organizational agility transforms adaptive capacity into more enduring strategic renewal. This synergy encourages hospitals to become self-renewing systems that are capable of balancing innovation with institutional stability. Below is the hypothesis development for this study.

A. Digital Transformation and Organizational Agility (H1)

Digital transformation (DT) represents an organizational realignment that fosters rapid resource reconfiguration in response to environmental change. When organizations digitize their processes, data infrastructures, and decision systems, they enable real-time data monitoring and knowledge synthesis that reinforces organizational agility (Warner & Wäger, 2019). Furthermore, digital tools such as e-health records, telemedicine, and AI-driven diagnostics generate transformative networks enabling hospitals to respond rapidly to care pathway demands and regulatory requirements (Verhoef et al., 2021).

Afterwards, digital transformation in organisations acts as a catalyst in fostering a climate of repetitive learning and experimentation (Bharadwaj et al., 2016). Hospitals that optimally strategize their digitalisation process, capable of reshaping governance structures, thus accelerate the decision-making process. This mechanism mirrors the capability dynamics logic, where technology plays the mechanism that drives organisational responsiveness and adaptability. Therefore, the digital transformation level in the hospital industry is expected to positively influence their ability to foresee changes and fine-tune their operations swiftly.

In summary, this study advances the following hypothesis:

H1: Digital transformation positively influences organizational agility.

B. Paradoxical Leadership and Organizational Agility (H2)

As digitalization complexity intensifies in the healthcare sector, hospital leaders are increasingly called to strategically address contradictions. Leaders with high levels of paradoxical leadership simultaneously enforce discipline and cultivate flexibility, pursue innovation while maintaining reliability, and empower teams while preserving accountability (Zhang et al., 2017). Recent studies highlight this leadership profile as a key enabler of organizational adaptability in an era of uncertainty (Madaan & Sharma, 2025). Perceiving tensions as a catalyst for growth rather than threats to be resolved, paradoxical leaders create the psychological safety and cognitive flexibility that underpin agile organizational behavior.

In a digitised hospital, leaders are the agents of change. They combine professional and systemic requirements, striking a balance that enables swift decision-making without destabilising operations (Förster et al., 2022). Recent works show that leaders in paradoxical environments display a higher level of responsiveness amidst digital transformation. This type of leadership encourages the healthcare sector to convey conflicting pressures into creative behaviour, thus promoting agility that can be rooted in organisational configuration.

In summary, this study advances the following hypothesis:

H2: Paradoxical leadership positively influences organizational agility.

C. Organizational Agility and Strategic Renewal (H3)

Organizational agility (OA) helps organizations convert short-term adaptability into long-term strategic renewal by continually realigning strategic direction. Prior research defines agility as a vital component of strategic renewal, particularly in innovation-driven industries (Christofi et al., 2023). In hospitals, agility is manifested through more rapid lead times in medical advancement and service reconfiguration (Cousins et al., 2023). This agility channels external pressures into learning and capability upgrading, serving as the catalyst for renewal.

Medical studies reveal that hospitals with a high level of agility tend to recreate service portfolios and experiment with new comprehensive care (Kludacz-Alessandri et al., 2025). Agility fosters exploration and exploitation, helping hospitals to maintain their resilience in core functions while innovating. This mixed capacity continues to outperform in the technological convergence era (Prashar, 2024). Thus, organisational agility works as a fluid connection that converts process versatility into strategic renewal.

In summary, this study advances the following hypothesis:

H3: Organizational agility positively influences strategic renewal.

D. Mediating Role of Organizational Agility (H4 & H5)

Organizational agility acts as the mechanism through which digital transformation and paradoxical leadership channel into sustained strategic renewal. From the perspective of dynamic capabilities, DT provides the technological infrastructure, while agility is the organizational mechanism that enables strategic response. Without agility, digital investment in healthcare may generate structural inertia rather than strategic renewal. In this sense, agility mediates the path from technology to strategy by translating digital capability into adaptive action (Jorfi & Winkler, 2025).

According to paradox theory, OT creates psychological and cultural conditions that foster agility. By validating contradiction as a creative drive, leaders support teams to continuously experiment and integrate rich perspectives (Koch et al., 2025). In hospitals, this relationship manifests digital initiatives and leadership paradigms into dynamic capabilities that reinvent strategies and service models. Hence, agility mediates technology and leadership that enable sustained digital transformation.

In summary, this study advances the following hypotheses:

H4: Organizational agility mediates the relationship between digital transformation and strategic renewal.

H5: Organizational agility mediates the relationship between paradoxical leadership and strategic renewal.

E. Moderating Role of Paradoxical Leadership (H6)

Digital transformation magnifies strategic paradoxes that can simultaneously reinforce and diminish organizational capability. Paradoxical leadership reframes these binary tensions by cultivating a 'both-and' mindset that drives agile teamwork and adaptive decision-making. Prior conceptual work reveals that PL triggers both challenge and adjustment mechanisms, encouraging conditions where digital capability leads to agility rather than inflexibility. Research also shows that PL unleashes creativity, resilience, and generative learning by enabling organizations to hold opposing demands in productive tension (Batool et al., 2023).

In digitised hospitals, PL's knowledge transfer results are vital, which can foster clinical accuracy and creative liberty, enabling synergy between rules of procedure and agile prototyping. Nursing studies show that PL encourages learning, thriving, and performance, indicating where workers try, iterate, and institutionalise better digital ways of working, which are the social elements that DT needs to generate agility. Furthermore, it is also said that paradox framing is a missing managerial aptitude in digital healthcare (Su et al., 2025).

In short, this study advances the following hypothesis:

H6: Paradoxical leadership positively moderates the linkage between digital transformation and organizational agility.

METHOD

Research Design

This study adopted a quantitative approach with an explanatory research design, aimed at testing the significance of causal relationships among hypothesized variables. The study specifically employs Partial Least Squares Structural Equation Modelling (PLS-SEM), a variance-based technique (Hair et al., 2021) which is particularly appropriate given the model's complexity, involving multiple mediation and moderation pathways. The unit of analysis comprises individuals occupying strategic and operational positions in healthcare organisations across Indonesia, including hospital directors, department heads, IT coordinators, and administrative

supervisors who are directly involved in digital transformation initiatives (Cresswell & Creswell, 2017).

Data Collection and Instrument

The data collection process was carried out through an independent survey with a validated questionnaire instrument. Variables are measured using the Likert scale to capture respondents' perceptions of specific indicators:

1. Paradoxical Leadership (PL): 10 indicator items, which were derived from the study by (Wu et al., 2025)
2. Organizational Agility (OA): 13 indicator items, which were derived from the study by (Somwethee et al., 2025)
3. Digital Transformation (DT): 12 indicator items, which were derived from the studies by (Dióssy et al., 2025; Wu et al., 2025).
4. Strategic Renewal (SR): 10 indicator items, which were derived from the studies by (Aidoo et al., 2021; Torp et al., 2025).

Before the path analysis, the data went through a descriptive statistical test to see the distribution pattern (mean, standard deviation) and a normality test (skewness & kurtosis). Although PLS-SEM is non-parametric and does not require data normality, this check is still carried out for the sake of transparency of data characteristics.

Data Analysis Procedure

The analysis was carried out through two main stages according to the protocol (Hair et al., 2021):

Phase I: Evaluation of Measurement Models (Outer Model): this stage ensures that the research instrument is valid and reliable before testing the relationship between variables:

1. Convergent Validity: Measured by Outer Loading (must > 0.4) and Average Variance Extracted (AVE) which must > 0.5. Your data shows the entire construct has an AVE above 0.67, which means it's very valid. It should be noted that while an outer loading threshold of > 0.4 is permissible in exploratory models (Hair et al., 2021), contemporary methodological standards recommend > 0.708 for optimal construct validity. Indicators with loadings between 0.4 and 0.708 were retained only where their removal did not improve AVE above 0.50, following established PLS-SEM protocol. Additionally, the moderation effect is operationalised as the interaction term PL × DT → OA.
2. Internal Consistency Reliability: Verified through Cronbach's Alpha and Composite Reliability (rho_c) values which must be > 0.7.
3. Discriminant Validity: Using (Fornell & Larcker, 1981) criterion, where the square root of AVE must be greater than the correlation between latent variables. In addition, the HTMT ratio is confirmed to be below the threshold of 0.85.

Phase II: Evaluation of Structural Models (Inner Model): this stage is done to test the hypothesis through a bootstrapping procedure:

1. Statistical Significance: Using the P-Values threshold < 0.05 and T-Statistics > 1.65.
2. Path Coefficient: To see the direction and strength of the relationship between variables.
3. Mediation & Moderation Analysis: Tested the role of Organizational Agility as a mediator and Paradoxical Leadership as a moderator through interaction effect testing (PL x DT → OA).

RESULTS AND DISCUSSION

Results

The respondent profile was significantly dominated by male respondents, who accounted for 87% of the total sample (348 individuals), while female respondents represented 13% (52 individuals). In terms of age, most respondents were in the middle-to-late career stage; approximately half (50%) were between 40–49 years old, followed by the 30–39 age group at 29%. Respondents under 30 and over 60 years each represented only 8% of total participants.

The education level of the respondents showed a highly educated professional profile, where the Master's (34%) and Doctoral (35%) education groups dominated the sample structure. Cumulatively, 93% of respondents had a minimum educational background at the undergraduate level. This was in line with the position held, where the largest portion of respondents served as IT or Digital Coordinators (43%), followed by Heads of Units or Departments at 29%, and Administrative Supervisors at 17%.

The professional experience profile reflects career maturity, with 65% of respondents having worked for more than seven years, and 28% reporting tenures exceeding ten years. An identical pattern emerged for managerial experience: 37% had four to six years and 31% had seven to ten years of managerial responsibility. These findings indicate that respondents possessed a thorough understanding of both the operational and strategic dynamics of their organizations.

From an organizational perspective, this study covers a wide range of health facilities, with the largest share drawn from private hospitals (42%) and public hospitals (36%). The size of these facilities is distributed relatively evenly across small (27%), medium (28%), and large (23%) categories. Approximately 37% of respondents worked in foundation-managed institutions and 30% in privately-owned organizations, while government ownership and public-private partnerships accounted for 14% and 21%, respectively.

The technology adoption profile reflects high digital engagement: 74% of respondents reported using digital tools in the 'often' to 'very often' categories in their daily work. The most widely utilized digital systems were hospital information systems (HIS) and electronic medical records (EMR), each representing 16% of usage, followed by digital appointment and queue management systems (11%). Approximately 45% of respondents reported using a diverse range of other digital systems, reflecting the breadth of digital adoption across the participating facilities.

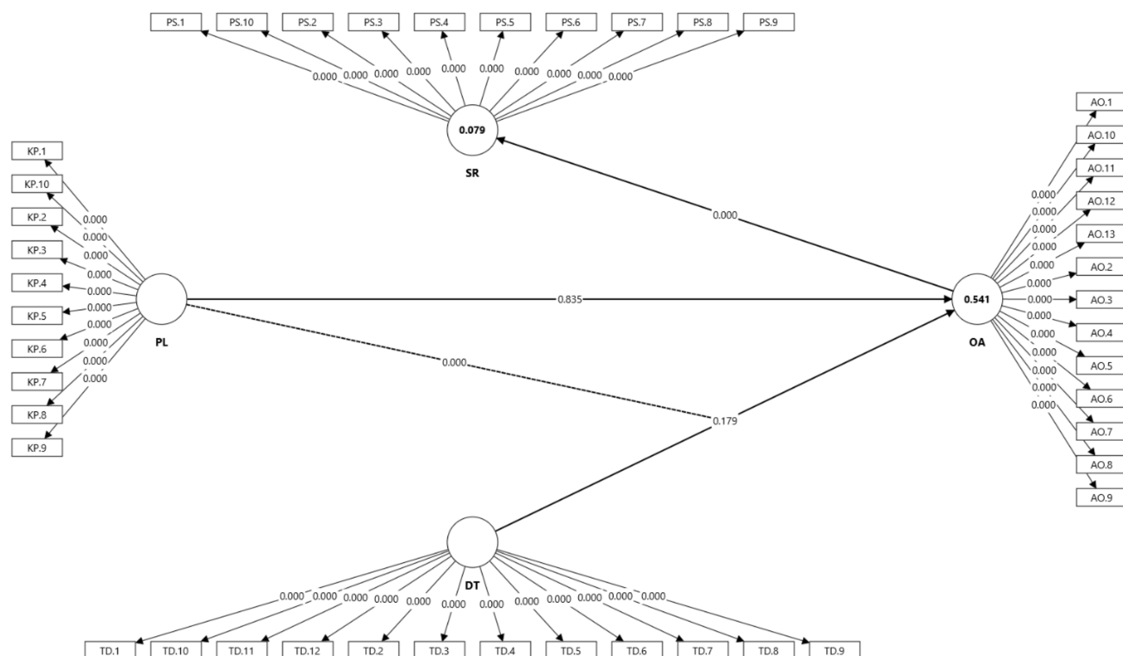

Figure 1. Structural Equation Modelling

Based on the data that has been processed, the research instrument has met the requirements for academic rigor:

1. Reliability: Cronbach's Alpha and Composite Reliability values for all constructs (PL, OA, DT, SR) exceeded 0.70, indicating excellent internal consistency (Hair et al., 2021).
2. Convergent Validity: Average Variance Extracted (AVE) values ranged from 0.685 to 0.718, exceeding the 0.50 threshold, confirming that each construct's indicators collectively explain the majority of construct variance (Fornell & Larcker, 1981).
3. Discriminant Validity: Using both HTMT (< 0.85) and Fornell–Larcker criteria, constructs are empirically distinct, confirming the absence of conceptual overlap between latent variables

(Fornell & Larcker, 1981).

Table 1. Descriptive Statistics and Normality Statistics

Construct	Item Code	Descriptive Statistics				Normality Statistics	
		Mean	Min	Max	Std. Deviation	Excess Kurtosis	Skewness
Paradoxical Leadership	KP.1	3.998	1.000	5.000	1.124	1.027	-1.279
	KP.2	4.027	1.000	5.000	1.066	1.123	-1.260
	KP.3	3.967	1.000	5.000	1.038	1.344	-1.270
	KP.4	3.438	1.000	5.000	0.949	0.492	-0.568
	KP.5	3.513	1.000	5.000	0.951	0.678	-0.762
	KP.6	3.525	1.000	5.000	0.946	0.684	-0.669
	KP.7	3.545	1.000	5.000	0.984	0.467	-0.695
	KP.8	3.283	1.000	5.000	0.950	0.016	-0.416
	KP.9	3.330	1.000	5.000	0.931	-0.034	-0.384
	KP.10	3.260	1.000	5.000	0.991	-0.090	-0.494
Organizational Agility	AO.1	3.618	1.000	5.000	0.889	1.856	-1.310
	AO.2	4.040	1.000	5.000	1.062	1.436	-1.349
	AO.3	3.987	1.000	5.000	1.087	1.186	-1.275
	AO.4	3.970	1.000	5.000	1.039	1.592	-1.323
	AO.5	4.008	1.000	5.000	1.052	1.297	-1.281
	AO.6	3.462	1.000	5.000	0.979	0.477	-0.665
	AO.7	3.467	1.000	5.000	0.974	0.592	-0.772
	AO.8	3.980	1.000	5.000	1.072	1.254	-1.279
	AO.9	4.048	1.000	5.000	1.054	1.190	-1.266
	AO.10	3.535	1.000	5.000	0.953	0.645	-0.709
	AO.11	3.535	1.000	5.000	0.961	0.649	-0.736
	AO.12	3.493	1.000	5.000	0.935	0.689	-0.778
	AO.13	3.462	1.000	5.000	0.948	0.499	-0.564
Digital Transformation	TD.1	3.505	1.000	5.000	0.957	0.529	-0.642
	TD.2	3.462	1.000	5.000	0.997	0.611	-0.770
	TD.3	3.490	1.000	5.000	0.954	0.726	-0.787
	TD.4	3.485	1.000	5.000	0.995	0.643	-0.754
	TD.5	3.515	1.000	5.000	0.980	0.487	-0.651
	TD.6	4.032	1.000	5.000	1.114	1.361	-1.381
	TD.7	4.000	1.000	5.000	1.065	1.265	-1.270
	TD.8	3.987	1.000	5.000	1.048	1.444	-1.298
	TD.9	4.020	1.000	5.000	1.058	1.472	-1.336
	TD.10	4.003	1.000	5.000	1.081	0.909	-1.210
	TD.11	4.008	1.000	5.000	1.067	1.356	-1.318
	TD.12	4.008	1.000	5.000	1.036	1.099	-1.194
Strategic Renewal	PS.1	3.470	1.000	5.000	0.946	0.534	-0.617
	PS.2	3.572	1.000	5.000	0.954	0.784	-0.859
	PS.3	3.515	1.000	5.000	0.969	0.582	-0.687
	PS.4	3.502	1.000	5.000	0.962	0.690	-0.760
	PS.5	3.235	1.000	5.000	0.977	-0.016	-0.453
	PS.6	3.263	1.000	5.000	0.910	0.228	-0.423
	PS.7	3.285	1.000	5.000	0.953	0.032	-0.458
	PS.8	3.272	1.000	5.000	0.961	0.045	-0.552
	PS.9	3.265	1.000	5.000	0.951	0.116	-0.394
	PS.10	3.312	1.000	5.000	0.946	0.126	-0.447

Descriptive statistics are used to describe the characteristics of respondent data, such as mean values, median, standard deviation, minimum, maximum, and distribution of answers, so

that the researcher can understand the general patterns of the data before further analysis. Meanwhile, normality tests aim to determine whether the data are normally distributed or not, which is important for selecting the appropriate statistical approach. However, in the context of SmartPLS (PLS-SEM), normality testing is not the primary requirement, as PLS-SEM is nonparametric and does not require normally distributed data. The descriptive statistics and normality results for this study are presented in the table above. Although PLS-SEM is a nonparametric technique and does not require data normality, descriptive normality screening was conducted for transparency. Skewness values for all constructs fall within the acceptable range of −1 to +1, and kurtosis values are below ±3, indicating a relatively symmetric distribution without extreme outliers. This further strengthens confidence in the data quality underpinning the structural model estimation.

Table 2. Convergent Validity and Internal Consistency Reliability

Construct	Item Code	Outer Loading	Cronbach's alpha	rho a	rho c	AVE
Paradoxical Leadership	KP.1	0,856	0,961	0,981	0,965	0,696
	KP.2	0,864				
	KP.3	0,861				
	KP.4	0,791				
	KP.5	0,802				
	KP.6	0,783				
	KP.7	0,795				
	KP.8	0,817				
	KP.9	0,805				
	KP.10	0,839				
Organizational Agility	AO.1	0,822	0,962	0,974	0,966	0,685
	AO.2	0,864				
	AO.3	0,870				
	AO.4	0,857				
	AO.5	0,859				
	AO.6	0,801				
	AO.7	0,789				
	AO.8	0,861				
	AO.9	0,866				
	AO.10	0,789				
	AO.11	0,787				
	AO.12	0,795				
	AO.13	0,788				
Digital Transformation	TD.1	0,772	0,947	0,964	0,954	0,675
	TD.2	0,762				
	TD.3	0,776				
	TD.4	0,778				
	TD.5	0,774				
	TD.6	0,890				
	TD.7	0,874				
	TD.8	0,873				
	TD.9	0,873				
	TD.10	0,878				

Construct	Item Code	Outer Loading	Cronbach's alpha	rho a	rho c	AVE
	TD.11	0,874				
	TD.12	0,866				
Strategic Renewal	PS.1	0,787	0,947	0,954	0,954	0,676
	PS.2	0,804				
	PS.3	0,798				
	PS.4	0,794				
	PS.5	0,834				
	PS.6	0,846				
	PS.7	0,846				
	PS.8	0,848				
	PS.9	0,828				
	PS.10	0,833				

To ensure validity and reliability, the researchers assessed convergent validity, internal consistency reliability, and discriminant validity following established PLS-SEM protocol. Outer loadings exceeded the 0.70 threshold for all retained indicators, confirming strong item-construct alignment. AVE values, assessed separately from outer loadings, ranged from 0.685 to 0.718 all above the 0.50 benchmark, which indicates the degree to which each construct's variance is captured by its indicators. Reliability coefficients (Cronbach's alpha and composite reliability) exceeded 0.70 across all constructs, confirming robust internal consistency.

Outer loadings were above the 0.40 threshold, and all constructs had AVE values above the 0.50 threshold. The researchers also found that Cronbach's alpha and composite reliability (CR) for all constructs were above 0.70, indicating internal consistency reliability.

Table 3. Discriminant Validity (HTMT)

	DT	OA	PL	SR
DT				
OA	0,296			
PL	0,298	0,288		
SR	0,277	0,281	0,276	

Since all these constructs are conceptually not similar, the maximum threshold value of HTMT of 0.85 is used.

Table 4. Discriminant Validity (Fornell-Larcker Criterion)

	DT	OA	PL	SR
DT	0,834			
OA	0,334	0,827		
PL	0,326	0,306	0,822	
SR	0,289	0,281	0,275	0,822

The square root of the obtained latent variable must be greater than the correlation between the latent variable and all other variables. It can be seen that the results of discriminant validity measured by the Fornell-Larcker criteria do not have a square root value lower than the correlation value. It can be ascertained that these findings prove that there is no problem in the validity of the discriminator (Fornell & Larcker, 1981).

The following is a summary of the results of the hypothesis test based on path analysis:

Table 5. Results of Hypothesis Testing Using Path Analysis

Hypothesis	Path Analysis	Coefficient	P-Values	Conclusion
H1	DT → OA	0,227	0,197	Rejected
H2	PL → OA	-0,034	0,835	Rejected
H3	OA → SR	0,195	0,000	Accepted
H4	DT → OA → SR	0,044	0,290	Rejected
H5	PL → OA → SR	-0,007	0,838	Rejected
H6	Moderation: DT x PL → OA	0,4111	0,000	Accepted

Discussion

The Digital Paradox in Indonesia serves as the primary theoretical anchor for understanding why digital transformation does not automatically trigger organizational agility (H1). In the Indonesian healthcare ecosystem, technology adoption such as Electronic Medical Records (EMR/RME) is often carried out primarily to fulfil regulatory mandates, such as Ministry of Health Regulation No. 24 of 2022, without being accompanied by radical business process re-engineering. In line with Vial (2019), compliance-driven digitization generates what is termed 'digital mimicry' the appearance of transformation without the organizational substance that produces agility. These findings reinforce the theoretical argument that technology adoption alone is insufficient; what matters is the depth of organizational reconfiguration that accompanies it.

This is complicated by the leadership structure in Indonesian hospitals, which historically has a high power distance, so that Paradox Leadership has not been able to encourage agility directly (H2). A still strong paternalistic culture often leads medical and administrative staff to expect linear, hierarchical instruction rather than a leadership style that balances the ambiguity between autonomy and control. Li & Yang (2025) note that Paradoxical leader behaviour requires the readiness of followers; in the Indonesian context, without a supporting mechanism capable of reducing bureaucratic rigidity, the paradoxical approach risks being considered managerial uncertainty that hinders the organisation’s systemic agility.

On the other hand, organisational agility is proving to be a vital driver for strategic renewal amid the volatility of the national healthcare industry (H3). In the era of National Health Insurance (JKN), which demands cost efficiency without sacrificing quality, the ability of hospitals to adapt quickly is the determinant of the survival of the organization. This is in supported by the study of Clauss et al., (2019) which emphasizes that strategic agility allows companies to reconfigure business models in an ongoing manner. Hospitals in Indonesia that are agile have proven to be better able to update their service strategies, for example, through the integration of telemedicine services or pharmaceutical supply chain optimisation, to maintain a competitive advantage (Tenggono et al., 2024).

However, the value chain from technology and leadership towards this strategy update is often interrupted due to the weak mediating role of organisational agility (H4 & H5). The insignificance of this mediation reflects the reality in many Indonesian hospitals, where there is often a gap between digital vision at the board level and operational execution at the clinical level. As explained by Verhoef et al., (2021), a fragmented transformation process results in digital capabilities not being able to flow into strategic capabilities. Structural barriers in hospital bureaucracy cause digital investment and leadership efforts to fail to translate into integrated agility, so the strategy renewal process is partially underway.

The real success is found in the role of Paradox Leadership as a positive moderator that activates the full potential of digital technology in Indonesia (H6). These findings prove that leaders who are able to manage the contradictions between the demands of BPJS efficiency and service quality standards, as well as between the discipline of digital systems and medical flexibility, are the catalysts that turn technology into agility. Schad et al., (2016) state that paradoxical management creates the dynamic balance necessary for sustainability transformation. In the local context, hospital leaders who are able to drive digital adoption while still embracing local wisdom will create a highly adaptive environment, making leadership the key to national health transformation in an era of disruption.

Managerial Implications

The finding that digital transformation has no direct impact on fostering organizational agility delivers a critical lesson for hospital executives and policymakers. Simply acquiring software or digitizing medical records will not inherently make hospitals more agile. Management must recognize that agility is the product of deliberate organizational design, and technology is only its enabler. The practical implication is that leaders must focus investments on the business process reengineering that accompanies technology adoption restructuring workflows, empowering cross-functional teams, and establishing adaptive governance mechanisms that allow digital tools to generate genuine organizational responsiveness.

Given the vital role of paradoxical leadership as a positive moderator that amplifies the impact of technology on agility, hospitals need to reform their leadership development programs. Medical and administrative managers must be trained to have a paradoxical mindset, the ability to manage two conflicting demands simultaneously. For example, how a leader maintains a rigid (standardized) digital system discipline while at the same time providing space for medical staff to perform flexible clinical improvisation. In Indonesia, where power distance tends to be high, paradoxical leaders must act as a bridge that is able to provide clear instructions while still empowering their subordinates to innovate.

Research results that show the strong influence of organizational agility on strategic renewal demand management to build structures that support agility. Hospitals can no longer operate in rigid departmental silos. The managerial implication is the formation of cross-functional teams that combine medical personnel, IT specialists, and operational managers to respond collectively to market dynamics. Strategic agility should be used as a key performance indicator (KPI) for managers, so that they are motivated to continuously reconfigure resources to ensure hospitals remain relevant and competitive amid rapid changes in healthcare regulations.

Finally, management must ensure that digital transformation does not erode the humanistic dimension of healthcare delivery. Paradoxical leadership acts as a counterbalance between machine efficiency and human empathy, and this balance must be embedded in strategic priorities. The implication for HR managers is the need to cultivate an organizational culture that values digital literacy without marginalizing patient-centred care values. Managerial policies should leverage technology to reduce routine administrative burdens on clinical staff, freeing capacity for meaningful patient interaction, thereby realizing the humanistic potential that digital transformation, properly led, can enable.

CONCLUSION

This study elucidates the complex dynamics within Indonesia's healthcare ecosystem, revealing that digital transformation does not inherently yield organizational agility without appropriate leadership intervention. The finding that direct digitization has no significant effect on agility confirms that technology in hospitals is frequently contained at the administrative layer and fails to become a dynamic capability due to bureaucratic constraints and fragmented governance. This represents a significant theoretical and practical impasse: investment in digital infrastructure, without a corresponding investment in paradoxical leadership capability, generates compliance rather than transformation.

Furthermore, this study confirms that organizational agility is a prerequisite for the success of strategic renewal amid the current volatility of the healthcare industry. The ability of hospitals to rapidly reconfigure resources enables continuous business model adaptation and strategic vision renewal to maintain relevance in the JKN era. Overall, this study makes a significant theoretical contribution by positioning paradoxical leadership not merely as a management style, but as a driving force that converts digital investment into enduring competitive positioning a finding with important implications for health system reform and leadership development policy.

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AUTHOR CONTRIBUTION STATEMENT

Mombang Sihite conceptualized the research framework, led the data collection, analysis, and manuscript writing. Aisyah Pia Asrunputri contributed to the design of the study, supported the data analysis process, and assisted in drafting and revising the manuscript. Both authors have read and approved the final version of the manuscript.

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