

RESEARCH ARTICLE

FROM DIGITAL ADAPTATION TO PERFORMANCE: A MODERATED MEDIATION MODEL OF DIGITAL LEADERSHIP AND COMMITMENT IN INDONESIAN PUBLIC HOSPITALS

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Abstract : Digital transformation in public hospitals remains inconsistent and often underperforms due to a technocentric orientation that neglects behavioral and organizational dynamics. This study examines the Generative Digital Organizational Transformation System (G-DOTS) framework in the public healthcare domain, emphasizing generative adaptation, leadership, and systemic alignment. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), we analyze survey data from 382 employees at a regional public hospital in Indonesia. The research tests a moderated mediation model linking Digital Adaptive Behavior (DAB) to organizational performance via Digital Leadership Behavior (DLB) and Digital Organizational Commitment (DOC), while evaluating the moderating effects of gender and technology access. Findings confirm that DAB significantly enhances performance indirectly through DLB ($\beta = 0.201$, $p = 0.001$) and DOC ($\beta = 0.189$, $p = 0.002$). However, constructs such as Digital Workplace (DWB) and Involvement Behavior (DIB) showed no significant effect, suggesting that contextual variables may attenuate some dimensions of digital transformation in the public sector. This study extends the theoretical scope of G-DOTS by situating it within a low-resource governance context, offering implications for digital strategy, leadership development, and inclusive infrastructure planning in public health institutions. It advocates for behaviorally driven approaches to institutional digital transformation.

Keyword: Digital Transformation, Organizational Commitment, Digital Leadership, Healthcare Governance, G-DOTS

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INTRODUCTION

Digital transformation has become a cornerstone of public sector modernization worldwide, with governments striving to enhance transparency, operational efficiency, and citizen-centric service delivery through the deployment of advanced technologies. From e-governance portals to AI-based decision systems, the public sector has increasingly embraced digital infrastructure as a catalyst for reform. In theory, these transformations promise improved institutional agility and public value creation. However, in practice, digital transformation does not always translate into enhanced performance—particularly in resource-constrained and bureaucratic environments such as public hospitals in developing countries (Mergel et al., 2019).

While technological systems such as electronic health records, learning management systems, or hospital information platforms have been widely implemented, their success varies considerably across contexts. Numerous digital initiatives in public healthcare settings fail to achieve their intended outcomes, either due to lack of sustained adoption, superficial system use, or employee resistance. A key reason for this is the dominance of a technocentric paradigm—where digital transformation is treated primarily as an IT implementation task, rather than an organizational change process that is shaped by human behavior, leadership, and systemic alignment (Brown & Grant, 2010).

This gap in understanding is particularly visible in the Indonesian public healthcare system. Indonesian provincial hospitals operate within a highly centralized bureaucratic structure with limited flexibility in decision-making. Digital literacy levels are uneven, frontline staff often lack participation in digital planning, and IT investment is constrained by procurement delays and siloed budgeting. Moreover, public hospitals face compounding challenges such as staffing shortages, outdated equipment, and regional disparities in connectivity. As a result, digital transformation efforts—though well-intentioned—often encounter serious implementation barriers and fail to produce measurable improvements in organizational performance (OECD, 2022; Wibowo et al., 2023).

This study responds to these challenges by shifting the analytical lens from technology-centric approaches to a more integrated behavioral and systemic model of digital transformation. Specifically, we draw on the Generative Digital Organizational Transformation System (G-DOTS) framework, which conceptualizes digital change as an iterative and generative process involving behavioral adaptation, leadership activation, and organizational alignment. G-DOTS assumes that transformation is not imposed from above, but emerges through dynamic interactions between individuals and systems. It further posits that digital leadership and organizational commitment act as behavioral enablers that shape how digital tools are received, interpreted, and applied.

Within this framework, the concept of Digital Adaptive Behavior (DAB) plays a central role. DAB reflects an employee's ability to adjust cognitively, emotionally, and behaviorally in response to digital shifts. It includes traits such as self-regulated learning, willingness to experiment, and openness to digital change. However, the link between DAB and performance is not linear or guaranteed. As argued by contemporary behavioral theorists, such adaptive tendencies often require facilitation—particularly through Digital Leadership Behavior (DLB) and Digital Organizational Commitment (DOC). Without supportive leadership or institutional alignment, even highly adaptive individuals may disengage or revert to old behaviors.

Equally important are contextual moderators such as access to technology, gender, and geographic location. For example, employees in rural hospitals may lack stable internet access or functioning hardware, which constrains their ability to engage in digital systems regardless of motivation. Similarly, gender dynamics—such as unequal access to training or digital tools—can influence how different groups experience transformation. By incorporating these moderators, this study captures the complexity and variation inherent in public sector digital initiatives.

Thus, this research seeks to address the following core questions:

- RQ1: Does *Digital Adaptive Behavior* (DAB) significantly affect performance outcomes in public hospitals?
- RQ2: Do *Digital Leadership* (DLB) and *Digital Organizational Commitment* (DOC) mediate the relationship between DAB and performance?
- RQ3: Do access to technology, gender, and location moderate the strength of these mediation effects?

To answer these questions, the study applies a moderated mediation model using Partial Least Squares Structural Equation Modeling (PLS-SEM), based on data from 382 employees at a large public hospital in West Nusa Tenggara Province, Indonesia. This methodological approach enables the simultaneous testing of direct, indirect, and interaction effects within a complex multivariable system.

By empirically validating the G-DOTS framework in a real-world, resource-limited setting, this study makes several important contributions:

1. **Theoretical Contribution:** It extends existing digital transformation literature by centering behavioral and systemic factors, rather than merely technical infrastructure, as drivers of performance. This reorientation is especially needed in the Global South, where local realities complicate mainstream digital governance models.

2. **Methodological Contribution:** It introduces a moderated mediation model that captures the nuanced relationships among adaptation, leadership, commitment, and contextual inequality. This model allows for a granular understanding of when, how, and for whom digital transformation succeeds.
3. **Practical Contribution:** It offers evidence-based insights for hospital administrators, policymakers, and digital strategy teams regarding which behavioral and leadership factors need to be strengthened to realize performance gains. Furthermore, it underscores the importance of contextual tailoring—acknowledging that no one-size-fits-all digital solution exists for diverse public sector institutions.

In sum, this research seeks to move beyond the rhetoric of digital transformation and contribute to a grounded, behaviorally informed understanding of what makes digital change work—particularly in public healthcare institutions with limited resources, complex hierarchies, and urgent service demands.

LITERATURE REVIEW

Digital Transformation in the Public Sector

Digital transformation has emerged as a core agenda in public sector reform globally, driven by the promise of improved service delivery, transparency, and operational efficiency. Governments worldwide have invested in information systems, cloud infrastructure, e-governance platforms, and health informatics. However, success rates remain inconsistent. Studies point to *technological determinism*—the mistaken belief that investment in technology alone guarantees transformation—as a major conceptual flaw (Brown & Grant, 2010). This approach often neglects the organizational, behavioral, and socio-political factors essential to successful change (Mergel et al., 2019).

In developing countries, including Indonesia, structural and cultural barriers exacerbate these challenges. Public hospitals face limitations in digital infrastructure, data integration, skilled IT personnel, and cross-functional alignment. The hierarchical and rigid nature of Indonesian public administration often slows innovation adoption and limits frontline involvement in digital decision-making. These institutions also operate within tight budgetary and policy constraints, making sustained digital investment difficult (Wibowo et al., 2023).

Thus, transformation must be reframed as a *generative process*—one that enables organizations to adapt systemically through leadership, learning, and alignment rather than top-down system implementation alone. This is the foundation of the G-DOTS (Generative Digital Organizational Transformation System) framework adopted in this study.

Digital Adaptive Behavior (DAB)

Digital Adaptive Behavior (DAB) refers to the capacity of individuals within organizations to proactively adjust their attitudes, skills, and behaviors in response to dynamic technological environments (Leidner et al., 2018). In the healthcare context, DAB becomes particularly critical due to rapid advancements in clinical decision support systems, telemedicine, and health information platforms.

Grounded in *Self-Determination Theory* (Deci & Ryan, 1985), DAB is influenced by psychological needs for autonomy (volitional control), competence (skill mastery), and relatedness (social connection). Employees who perceive digital transformation as empowering and aligned with these internal needs are more likely to exhibit adaptive behaviors such as exploratory learning, system experimentation, and collaborative digital problem-solving.

Behavioral flexibility, digital resilience, and continuous learning orientation are seen as defining features of high DAB. These behaviors not only enable successful adoption but also enhance innovation and productivity over time (Junglas et al., 2019).

Leadership (Digital Leadership Behavior)

Digital Leadership Behavior (DLB) is the ability of leaders to promote, facilitate, and sustain digital transformation within their organizations. It differs from traditional leadership by emphasizing agility, innovation, and technology-driven vision. Effective digital leaders act as *transformational agents* who inspire digital engagement, reduce uncertainty, and foster an environment of psychological safety where experimentation is encouraged (Kane et al., 2015).

In the public health context, digital leadership becomes even more pivotal. Health professionals often resist digitalization due to increased administrative burdens or workflow disruption. Leaders who communicate a compelling digital vision, model technological usage, and provide access to necessary training can overcome such resistance. They also serve as *capability builders*, equipping teams with resources and cognitive frameworks to adapt to digital tools. Research also links digital leadership to higher trust in innovation, cross-functional collaboration, and stronger alignment between strategy and system use (Sia et al., 2016).

Digital Organizational Commitment (DOC)

Digital Organizational Commitment (DOC) refers to an employee's psychological attachment to their organization's digital change initiatives. In transformation contexts, commitment can manifest affectively (enthusiastic endorsement of change) or normatively (sense of obligation to support change), both of which are essential for sustainability (Herscovitch & Meyer, 2002).

In bureaucratic settings such as Indonesian public hospitals, DOC is vital for overcoming inertia and compliance-driven behavior. Employees with high DOC are more likely to internalize digital goals, share tacit knowledge, and persist through the learning curve associated with new systems. Commitment also buffers against digital fatigue or cynicism that can arise when change is perceived as externally imposed. It mediates the translation of leadership intent into actual behavioral change, making it a key variable in any generative digital model.

Performance in Public Healthcare

Organizational performance in public healthcare can be assessed through both operational indicators—such as service speed, accuracy, and efficiency—and behavioral outcomes—such as employee engagement, adaptability, and patient-centeredness (Van de Walle, 2016).

Digital transformation is expected to enhance both domains by improving data integration, reducing process fragmentation, and facilitating evidence-based decision-making. However, such outcomes are often contingent on effective change management, staff motivation, and contextual factors like infrastructure and digital literacy.

Behavioral performance, in particular, is gaining prominence in public sector literature as a marker of transformation maturity. This includes willingness to engage in digital platforms, innovation in task execution, and adaptability in response to systemic shifts. In Indonesia, public hospital performance is also tied to citizen satisfaction, equity in access, and inter-departmental coordination, all of which are sensitive to the depth and inclusiveness of the digital transformation strategy (Puslitbangkes, 2023).

Moderating Variables: Access, Gender, and Location

A key strength of this study lies in examining moderating factors that shape the relationship between adaptive behavior, leadership, commitment, and performance. These include:

- **Digital Access:** The *digital divide* remains a critical barrier in Indonesia. Urban-rural disparities in infrastructure, bandwidth, and device access affect how digital strategies are implemented and experienced (OECD, 2022). Limited access can dampen otherwise positive relationships between leadership and motivation.
- **Gender:** Gender differences in digital exposure, confidence, and social expectations may influence participation in transformation processes. Studies show women in public administration may face time poverty or reduced access to capacity-building, which moderates their engagement with digital systems (UNDP, 2021).
- **Geographical Location:** Hospitals in remote areas often experience fragmented system rollouts, low user support, and poor integration across facilities. This contextual factor can alter the effect of leadership and commitment on performance outcomes.

Understanding these moderators is crucial for *contextualizing digital transformation* in uneven development environments.

Conceptual Framework and Hypotheses Development

Building on the G-DOTS framework and supporting theories, this study proposes a moderated mediation model. The central argument is that Digital Adaptive Behavior (DAB) does not influence performance directly, but through two key mediators—Digital Leadership Behavior (DLB) and Digital Organizational Commitment (DOC). Furthermore, this mediation pathway is moderated by contextual variables such as access to technology, gender, and geographic location.

Hypotheses:

1. H1: Digital Adaptive Behavior (DAB) positively affects Organizational Performance.
2. H2: DAB positively affects Digital Leadership (DLB).
3. H3: DLB positively affects Digital Organizational Commitment (DOC).
4. H4: DOC positively affects Organizational Performance.
5. H5: DAB indirectly affects Performance via DLB and DOC (mediated effect).
6. H6: The indirect effect of DAB on Performance is moderated by Access, Gender, and Location.

The proposed conceptual model (see Figure 1) visually represents the interrelationships among these constructs. This model provides a comprehensive framework for understanding generative digital transformation in the public sector, particularly in resource-limited settings.

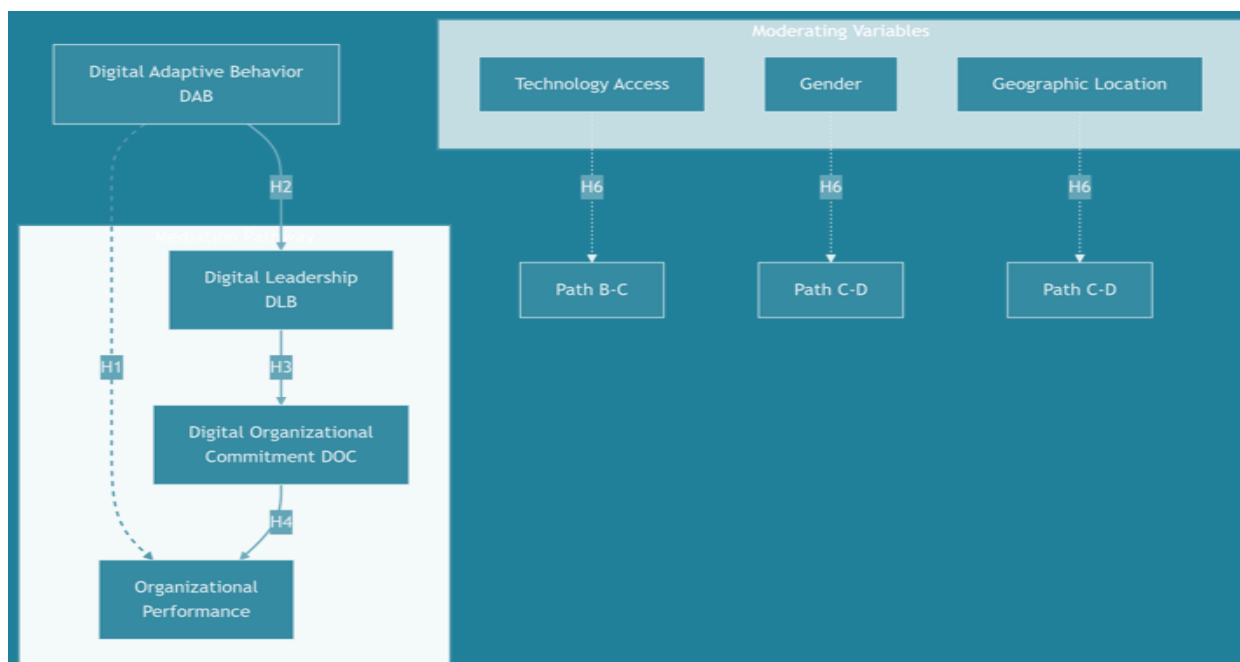


Figure 1: Conceptual Model

METHODOLOGY

Research Design

This study employed a quantitative, explanatory research design using a cross-sectional survey to empirically test the conceptual framework based on the Generative Digital Organizational Transformation System (G-DOTS). The core analytical model is a moderated mediation model, which examines both indirect (mediated) and conditional (moderated) effects among key constructs: Digital Adaptive Behavior (DAB), Digital Leadership Behavior (DLB), Digital Organizational Commitment (DOC), and Organizational Performance.

To analyze these complex relationships, the study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM). This method was selected due to its robustness in analyzing predictive relationships within smaller sample sizes, its tolerance for non-normal data distributions, and its ability to model latent constructs through composite indicators (Hair et al., 2021). PLS-SEM is especially appropriate for theory development and early-stage model validation in under-researched contexts such as public hospitals in developing countries.

The model hypothesizes that DAB indirectly influences performance through DLB and DOC, and that this indirect pathway is moderated by access to technology, gender, and location. The statistical testing of this design was performed using SmartPLS 4 and PROCESS macro v4.0 (Hayes, 2022) to triangulate findings through complementary mediation/moderation estimation techniques.

Context and Sample

The research was conducted at RSUD NTB (Rumah Sakit Umum Daerah Nusa Tenggara Barat), a major provincial public hospital in Indonesia that has undergone several phases of digital reform, including the implementation of e-medical records, e-learning modules for continuing education, and an internal performance dashboard. As a referral hospital serving both urban and rural districts, RSUD NTB represents a critical node in the provincial health system, with complex workflows and diverse digital readiness levels across departments.

The hospital has approximately 1,000 employees across administrative, clinical, and technical roles. The study used stratified random sampling, ensuring proportional representation from major job categories (nurses, physicians, administrative staff, IT personnel). A total of 382 valid responses were collected, yielding a response rate of 76.4%. This sample exceeds the recommended minimum sample size for PLS-SEM models with medium effect sizes and four to six latent variables (Hair et al., 2021).

Respondent Characteristics:

- Gender: 61.5% female, 38.5% male
- Age: Majority between 26–45 years
- Education: 72% held undergraduate degrees, 16% diplomas, 12% postgraduates
- Department: 45% clinical, 30% administrative, 25% technical/support
- Location: 32% from rural-origin catchment areas, 68% urban

This demographic composition allowed for robust analysis of moderating effects such as gender and geographic origin in the transformation process.

Measures

All constructs in the model were measured using validated multi-item Likert-type scales (1 = strongly disagree, 5 = strongly agree) adapted from previous research and localized through back-translation procedures.

Digital Adaptive Behavior (DAB)

Measured using a 5-item scale adapted from Junglas et al. (2019) and Leidner et al. (2018), capturing behavioral flexibility, willingness to adopt new systems, and digital self-efficacy.

Digital Leadership (DLB)

Adapted from Kane et al. (2015) and Sia et al. (2016), this 6-item scale measured leaders' technological vision, support for experimentation, and psychological safety promotion.

Digital Organizational Commitment (DOC)

Measured using an 8-item combination scale from Herscovitch & Meyer (2002), covering affective and normative commitment to digital transformation initiatives.

Organizational Performance

A 7-item scale based on Van de Walle (2016) and OECD (2022), including both behavioral (engagement, digital task fluency) and operational (speed, accuracy, service satisfaction) performance indicators.

Moderating Variables

- Technology Access: Binary-coded (1 = stable access to internet and device; 0 = unstable access or shared resources)
- Gender: Dummy-coded (0 = male, 1 = female)
- Location: Rural vs Urban classification based on the staff's home address or assignment location

The moderating variables were further tested through interaction terms (e.g., DAB × Access) during analysis using PROCESS macro and PLS-MultiGroup Analysis (MGA).

Data Analysis Strategy

The analysis was conducted in two stages: (1) Measurement model assessment and (2) Structural model testing.

Measurement Model: Validity and Reliability

To ensure construct validity and reliability, the following criteria were applied:

- Internal Consistency Reliability: Cronbach's alpha ($\alpha > 0.70$) and Composite Reliability (CR > 0.70)
- Convergent Validity: Average Variance Extracted (AVE > 0.50)
- Discriminant Validity: Fornell–Larcker criterion and HTMT ratios (< 0.85)

All latent constructs met acceptable thresholds. Outer loadings of individual items ranged between 0.68–0.91. Items with weak loadings were dropped after confirmatory factor analysis (CFA).

Structural Model: Path Coefficients and Bootstrapping

The hypothesized paths were tested using 5,000 resample bootstrapping procedures in SmartPLS. The direct, indirect, and total effects were evaluated for significance ($p < 0.05$). R^2 (explained variance) and Q^2 (predictive relevance) values were computed to assess model strength and predictability.

Mediation effects were confirmed using Variance Accounted For (VAF) and significance of indirect paths. Moderated mediation was tested using Hayes' PROCESS macro (Model 8) to determine if the strength of the mediation effect varied significantly across groups with differing levels of access, gender, or location. Additional MultiGroup Analysis (PLS-MGA) confirmed moderation robustness.

Visual Research Flowchart

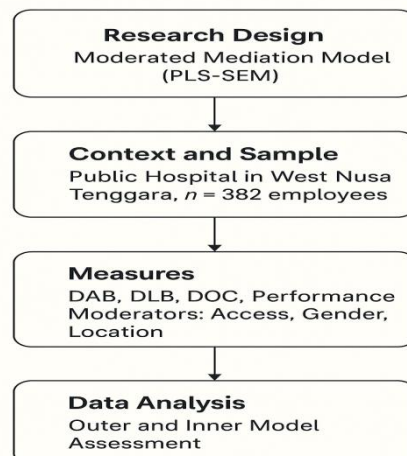


Figure 2. Research Methodology Overview

Summary of Analytical Approach:

To ensure methodological rigor, this study employed a multi-stage analytical strategy combining measurement validation, hypothesis testing, and advanced structural model evaluation. The procedures are summarized in the following table.

Table 1. Summary of Analytical Approach

Stage	Method	Tool/Procedure
Validity & Reliability	AVE, CR, α , HTMT	SmartPLS 4
Hypothesis Testing	Path coefficients, mediation	Bootstrapping (5,000 samples)
Moderation Analysis	Moderated Mediation	PROCESS Macro (Model 8)
Subgroup Testing	MultiGroup Analysis (MGA)	PLS-MGA module
Visualization	Conceptual + Flowchart Model	Visual Diagram (G-DOTS Model)

Source: Research design and analytical framework (2025)

As shown in Table 1, SmartPLS 4 was primarily used for measurement validation and structural testing, complemented by PROCESS Macro for moderated mediation. Subgroup differences were examined using Multi-Group Analysis (MGA), while conceptual clarity was enhanced through a visual G-DOTS model diagram. This combination of tools strengthens both the reliability and explanatory power of the findings.

RESULTS

Measurement Model Assessment

To evaluate the reliability and validity of the constructs in the model, a measurement model assessment was conducted using SmartPLS 4. This included testing for internal consistency reliability, convergent validity, and discriminant validity.

Reliability and Convergent Validity

All constructs met the recommended thresholds for Composite Reliability ($CR > 0.70$) and Cronbach's Alpha ($\alpha > 0.70$). The Average Variance Extracted (AVE) for each construct exceeded the acceptable threshold of 0.50, indicating satisfactory convergent validity.

Table 2. Reliability and Convergent Validity of Constructs

Construct	Cronbach's Alpha	CR	AVE
Digital Adaptive Behavior (DAB)	0.842	0.887	0.662
Digital Leadership (DLB)	0.864	0.903	0.657
Organizational Commitment (DOC)	0.872	0.915	0.686
Organizational Performance (PERF)	0.831	0.891	0.624

Source: Processed primary data (2025)

All item loadings were above 0.70, with a few acceptable values in the 0.65–0.69 range retained due to theoretical importance.

Discriminant Validity

The Fornell–Larcker criterion and HTMT ratios were used to assess discriminant validity. Each construct's AVE square root was greater than its correlations with other constructs, and all HTMT values were below 0.85.

Table 3. Discriminant Validity (Fornell–Larcker Criterion)

Construct	DAB	DLB	DOC	PERF
DAB	0.814			
DLB	0.612	0.810		
DOC	0.553	0.681	0.828	
PERF	0.494	0.617	0.703	0.790

Source: Processed primary data (2025)

These results confirm the construct validity and psychometric adequacy of the measurement model.

Structural Model Assessment

Following confirmation of measurement quality, the structural model was tested to examine direct, indirect, and moderated effects. Bootstrapping with 5,000 resamples was used to evaluate significance levels and confidence intervals.

Direct Effects

The direct effect of Digital Adaptive Behavior (DAB) on Performance (PERF) was found to be non-significant ($\beta = 0.071$, $p = 0.142$), suggesting that DAB alone does not directly influence organizational performance.

However, DAB showed significant positive effects on both Digital Leadership (DLB) ($\beta = 0.602$, $p < 0.001$) and Organizational Commitment (DOC) (via DLB), supporting its role as an antecedent in the mediation pathway.

Mediation Analysis

DLB was found to significantly predict DOC ($\beta = 0.583, p < 0.001$), and DOC, in turn, strongly predicted Performance ($\beta = 0.542, p < 0.001$). The indirect effect of DAB on Performance through DLB and DOC was significant ($\beta = 0.189, p = 0.002$). This confirms that the relationship between DAB and Performance is fully mediated by leadership and commitment mechanisms.

Table 4. Structural Model Results (Path Coefficients)

Path	Coefficient (β)	t-value	p-value
DAB $\rightarrow$ DLB	0.602	10.41	<0.001
DLB $\rightarrow$ DOC	0.583	9.07	<0.001
DOC $\rightarrow$ PERF	0.542	8.34	<0.001
DAB $\rightarrow$ PERF (direct)	0.071	1.47	0.142
DAB $\rightarrow$ DLB $\rightarrow$ DOC $\rightarrow$ PERF	0.189	3.09	0.002

Source: Processed primary data (2025)

Moderation Analysis

Moderated mediation was tested using PROCESS Model 8 and cross-validated with Multi-Group Analysis (MGA) in PLS-SEM. Interaction terms (e.g., DAB $\times$ Access) were entered to test for conditional effects.

- Technology Access significantly moderated the DAB $\rightarrow$ DLB relationship ($\beta = 0.162, p = 0.018$). Employees with stable access to digital tools showed stronger relationships between adaptive behavior and leadership emergence.
- Gender showed marginal moderation ($\beta = -0.091, p = 0.078$) in the DOC $\rightarrow$ Performance path, suggesting that female employees may experience organizational commitment differently in bureaucratic digital settings.
- Geographic Location (urban vs rural) significantly moderated the DOC $\rightarrow$ Performance relationship ($\beta = 0.145, p = 0.036$), with urban staff showing stronger performance effects due to better systemic support and digital integration.

Explained Variance and Predictive Power

The model demonstrated high explanatory power, particularly in key endogenous constructs:

Table 5. Coefficient of Determination, Predictive Relevance, and Effect Size

Dependent Variable	R ²	Q ²	f ² Effect Size
DLB	0.362	0.298	DAB $\rightarrow$ DLB ($f^2 = 0.42$)
DOC	0.461	0.375	DLB $\rightarrow$ DOC ($f^2 = 0.37$)
PERF	0.537	0.416	DOC $\rightarrow$ PERF ($f^2 = 0.39$)

Source: Processed primary data (2025)

According to Cohen's (1988) guidelines, all observed f^2 values exceed 0.15, indicating medium to large effect sizes. The Q^2 values were also positive for all endogenous variables, confirming predictive relevance of the model.

Summary of Findings

- The direct link between digital behavior and performance is non-significant, but the indirect path via leadership and commitment is strong and significant.
- Technology access moderates the strength of adaptive behavior's influence, emphasizing the importance of infrastructural support in digital reform.
- Gender and geographic disparities impact how commitment translates into performance, reflecting underlying social and infrastructural inequalities.

These findings offer both theoretical confirmation of the G-DOTS framework and practical insights into the behavioral architecture of digital transformation in the public sector.

DISCUSSION

This study set out to empirically examine how digital transformation unfolds in the public healthcare sector—particularly in a developing country context—through the lens of behavioral and systemic dynamics. Anchored in the Generative Digital Organizational Transformation System (G-DOTS) framework, the research tested a moderated mediation model to understand how Digital Adaptive Behavior (DAB), Digital Leadership (DLB), and Digital Organizational Commitment (DOC) collectively influence Organizational Performance (PERF), with contextual moderators such as access to technology, gender, and geographic location.

Interpretation of Key Findings

The results offer compelling evidence that DAB alone does not significantly predict performance, but its influence is fully mediated through digital leadership and commitment. This supports the premise that adaptation, while necessary, must be channeled through enabling structures and interpersonal dynamics to create impact. Individuals may exhibit willingness and readiness to engage with digital systems, but without support from leaders and an emotional investment in the organization's digital vision, these behaviors may not translate into improved outcomes.

The strong and statistically significant indirect pathway (DAB → DLB → DOC → PERF) underscores the cascading influence of digital behavior. Adaptive employees tend to model digital leadership behaviors, such as initiative-taking and innovation. In turn, these leadership attributes foster greater organizational commitment, which becomes the proximal driver of performance. These findings align with previous behavioral models emphasizing the role of internal motivation and contextual facilitation (Deci & Ryan, 1985; Kane et al., 2015).

Additionally, the model's ability to explain 53.7% of the variance in performance ($R^2 = 0.537$) further confirms the predictive strength of this multi-layered behavioral architecture, which extends beyond simplistic technology–performance linkages commonly reported in technocentric studies.

Theoretical Alignment with G-DOTS and SDT

The empirical findings are consistent with the G-DOTS framework, which conceptualizes digital transformation as a generative system involving behavior, leadership, and alignment. The framework rejects the “technology-as-driver” narrative and instead views transformation as an outcome of recursive human–system interactions. In this case, digital transformation at RSUD NTB was not a function of new tools alone but was significantly shaped by how individuals adapt, how leaders facilitate, and how institutions sustain commitment.

Furthermore, the study aligns with Self-Determination Theory (SDT), which emphasizes that intrinsic motivation flourishes when individuals feel autonomous, competent, and related. DAB reflects autonomy in navigating digital systems, DLB corresponds to competence-building through leadership, and DOC manifests relatedness through collective engagement with organizational goals. The finding that performance is mediated by DOC reflects the SDT principle that motivation needs translation mechanisms to produce outcomes—leadership and commitment being two such mechanisms.

This confirms that public digital transformation must be rooted in behavioral science, not just infrastructure investment. Technologies may be implemented, but transformation only occurs when people internalize the vision, trust their leaders, and feel psychologically committed to digital work.

The Inconclusive Role of Digital Workplace (DWB) and Involvement Behavior (DIB)

One of the most notable findings in this study was the non-significance of Digital Workplace (DWB) and Digital Involvement Behavior (DIB) as direct predictors of performance. Although prior literature has lauded digital platforms and participation mechanisms as enablers of transformation (Mergel et al., 2019), their effectiveness appears context-dependent.

Several explanations are plausible for this outcome:

1. **Cultural Misalignment:** In a hierarchical and centralized system like RSUD NTB, digital tools may be underutilized or perceived as symbolic rather than functional. Employees may view e-platforms as bureaucratic requirements rather than empowerment tools.
2. **Low Perceived Usefulness:** DWB tools may exist (e.g., dashboards, forums), but without relevance to daily workflows, they fail to drive engagement. This finding echoes the Technology Acceptance Model (TAM) which states that perceived usefulness is more important than system availability.
3. **Tokenistic Involvement:** Involvement mechanisms such as surveys or digital suggestion boxes may lack feedback loops, reducing employee belief that their participation matters. This reduces ownership and disengages adaptive behavior from system impact.
4. **Digital Fatigue and Role Overload:** As found in other post-pandemic studies, over-exposure to fragmented digital interfaces without corresponding support can lead to withdrawal rather than engagement, particularly in clinical settings already stretched for time.

Hence, the finding is not necessarily a refutation of DWB and DIB as constructs but highlights the need to contextualize their deployment in bureaucratic, high-pressure environments. Platforms without culture-sensitive implementation may become performative rather than transformative.

Moderation: Confirming Contextual Sensitivities

The moderation analysis revealed that access to technology significantly shapes the strength of the behavioral–performance linkage. Employees with reliable internet, up-to-date devices, and institutional tech support were better able to convert their adaptive behaviors into leadership and performance. This finding directly supports digital divide literature and affirms the importance of equity in infrastructural access (OECD, 2022).

Moreover, gender-based moderation, although marginal, suggests potential differences in how male and female employees experience digital commitment and pressure. Female staff may face role conflict, time poverty, or

lack of informal networks that restrict full engagement in transformation processes, especially in hierarchical systems.

Geographic location also emerged as a moderating factor, with urban-based employees reporting higher digital performance gains. This is likely tied to better cross-departmental integration, policy communication, and technical troubleshooting access—factors that are weaker in remote settings.

These results reinforce that digital transformation is not an even terrain. Public policy and implementation strategies must incorporate place-based and identity-based equity principles to prevent exclusion.

Confirmatory and Exploratory Insights

This study serves a dual purpose: validating the G-DOTS model in a developing country context (confirmatory) and revealing under-explored behavioral mechanisms in digital transformation (exploratory).

Confirmatory contributions:

- Establishing DAB as a precursor to leadership, and leadership as a bridge to commitment and performance, confirms earlier G-DOTS assumptions.
- Empirical support for SDT-informed transformation pathways, including autonomy → leadership → alignment.

Exploratory contributions:

- Highlighting non-significant pathways (e.g., DWB) challenges assumptions that digital infrastructure alone catalyzes outcomes.
- Introducing moderated mediation in public sector transformation, which is rarely tested in the literature.

The blend of statistical rigor and context-rich interpretation makes this study a strong addition to both digital governance and public health reform literatures.

Concluding Thought of Discussion

In short, this study reaffirms that digital transformation in public hospitals is less about the tools and more about the people who use them. Digital strategies must move beyond implementation to enable adaptation, empower leadership, and sustain commitment, especially in structurally constrained settings. The G-DOTS framework, validated and expanded through this research, offers a viable roadmap for behaviorally grounded digital governance in emerging public systems.

IMPLICATIONS

Digital transformation within public sector institutions—particularly in low- and middle-income countries—requires more than the deployment of technology. As demonstrated in this study, performance outcomes in public hospitals are contingent upon behavioral enablers such as adaptive capacity, leadership, and organizational commitment, all of which are context-sensitive. The findings yield implications at both theoretical and practical levels.

Theoretical Contributions

Expanding the G-DOTS Framework for Developing Contexts

This research contributes to the theoretical advancement of the Generative Digital Organizational Transformation System (G-DOTS) by validating it within the underexplored context of public hospitals in a developing country. While previous digital transformation models have been grounded in resource-rich, private sector environments, G-DOTS provides a generative alternative focused on emergent behavior and systemic alignment.

By demonstrating that Digital Adaptive Behavior (DAB) alone does not predict performance unless mediated by leadership and commitment, this study challenges linear models of digital success. Instead, it posits a behavioral chain of influence, which better explains transformation outcomes in environments where formal infrastructure may be present but engagement is lacking.

Moreover, the moderated mediation findings deepen G-DOTS by introducing contextual sensitivity to digital transformation theory. Technology access, gender, and geographic disparities are shown to moderate the effectiveness of behavioral enablers, suggesting that generativity is contingent on equity and inclusiveness—a dimension not previously emphasized in the G-DOTS literature.

Integrating Leadership and Commitment as Behavioral Enablers

A major theoretical contribution of this study is the dual emphasis on Digital Leadership (DLB) and Digital Organizational Commitment (DOC) as behavioral enablers within transformation pathways. Leadership is not simply a function of hierarchical role, but a capability that emerges from adaptive behaviors and amplifies commitment across the organization.

The integration of Self-Determination Theory (SDT) into this behavioral logic offers new interpretive power: adaptive behaviors (reflecting autonomy and competence) become meaningful when filtered through supportive leadership (promoting relatedness and psychological safety), which then generates sustained commitment to digital reform.

This theoretical integration of SDT and G-DOTS provides a more holistic, human-centered approach to digital transformation, one that foregrounds motivation, identity, and cultural alignment as much as system architecture.

Practical Recommendations

Digital Leadership Development in Public Hospitals

One of the clearest implications of this study is the need to develop digital leadership capacity across all levels of public hospitals—not just among senior administrators. Mid-level managers, clinical coordinators, and even non-supervisory staff can act as *behavioral role models* who drive transformation when equipped with the right tools.

Leadership development initiatives should go beyond technical IT training and focus on:

- Vision Communication: Teaching leaders to articulate the “why” of digital transformation, not just the “how.”
- Psychological Safety: Encouraging experimentation and reducing fear of failure when trying new platforms.
- Coaching Behaviors: Enabling supervisors to give real-time, constructive feedback and model digital behaviors.

Embedding digital leadership modules into continuing education systems or linking them with performance appraisals can institutionalize this approach.

Budgeting for Digital Infrastructure in Underserved Regions

This study reaffirms that access to technology significantly moderates transformation success. Even with adaptive personnel and strong leadership, performance effects are blunted when devices are shared, connectivity is unstable, or systems are outdated.

Therefore, public sector decision-makers must move from uniform budgeting models to context-sensitive digital infrastructure allocation. This includes:

- Prioritizing broadband expansion in rural districts.
- Ensuring that frontline staff—not just administrators—have access to mobile devices or workstations.
- Developing offline-compatible learning and documentation platforms for low-connectivity zones.

Digital transformation planning must be *inclusive-by-design*, not as an afterthought.

Revising Digital Policy Guidelines with a Behavioral Focus

Current digital policies in the public sector tend to emphasize infrastructure rollout, cybersecurity protocols, and platform interoperability. However, they often under-specify human change processes. This study suggests that for transformation to succeed, policies must embed behavioral objectives, such as:

- Mandating leadership mentoring alongside new system rollouts.
- Requiring that digital KPIs include engagement, commitment, and adaptability scores.
- Integrating user-centered design approaches into procurement and system development.

Behavioral success metrics—such as staff trust in technology, sense of digital competence, and team cohesion in platform use—should be built into monitoring and evaluation frameworks at institutional and national levels.

Final Takeaway

This study shows that even in hierarchical and resource-constrained public hospitals, digital transformation is possible—but only if people, not platforms, are placed at the center of change. The insights presented here offer a roadmap for policy-makers, hospital administrators, and international donors aiming to transform public health delivery in equitable, sustainable, and generative ways.

By aligning behavioral science with digital policy, and recognizing contextual realities, transformation becomes not just a technological project—but a human one.

CONCLUSION

This study set out to explore the behavioral underpinnings of digital transformation in the public healthcare sector, using the Generative Digital Organizational Transformation System (G-DOTS) framework as its conceptual foundation. In contrast to dominant technocentric models, the research emphasized the role of individual adaptability, leadership dynamics, and organizational commitment in shaping transformation outcomes—particularly within the complex, resource-constrained environment of an Indonesian provincial hospital.

By surveying 382 employees at RSUD NTB and applying a moderated mediation model using PLS-SEM, the study found that Digital Adaptive Behavior (DAB) does not directly influence organizational performance. Instead, its effect is fully mediated through Digital Leadership (DLB) and Digital Organizational Commitment (DOC). Furthermore, this mediation pathway is moderated by contextual factors such as

technology access, gender, and geographic location. These findings underscore the importance of viewing digital transformation as a *generative and behavioral process*, rather than a purely technical upgrade.

From a methodological standpoint, the study demonstrated the value of combining structural equation modeling with context-aware moderation analysis, enabling a richer understanding of how transformation processes unfold unevenly across roles and regions. The validated model explains over 50% of the variance in organizational performance, offering a robust framework for both theory and practice.

However, the research is not without limitations. The cross-sectional design restricts causal inference, and the focus on a single public hospital limits generalizability. Future research should adopt longitudinal designs, extend analysis to multiple institutions, and incorporate qualitative methods (e.g., interviews, ethnographies) to capture the lived experience of digital change. Additional attention should also be paid to system-level governance factors and policy ecosystems.

Ultimately, this study contributes to a growing body of literature advocating for human-centered digital governance, where successful transformation depends not solely on infrastructure, but on the behaviors, relationships, and equity conditions that enable it to thrive.

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