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STRENGTHENING LOCAL HEALTH GOVERNANCE THROUGH EMPLOYEE COMPETENCE, ADAPTABILITY, AND COMMITMENT: THE MEDIATING ROLE OF ELECTRONIC INFORMATION SYSTEMS

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Abstract
This study explores the strengthening of local health governance by analyzing the role of employee competence, adaptability, and commitment in improving hospital service effectiveness, with the mediating role of Electronic-Based Information Systems (EBIS) in Regional General Hospitals (RSUD) in South Sumatra, Indonesia. The research is motivated by the increasing demand for digital transformation in the public healthcare sector and the need to align technological advancement with human capital development to ensure efficient and high-quality service delivery. Using a quantitative design, data were collected through structured questionnaires and analyzed with Structural Equation Modeling (SEM) via AMOS to examine both direct and indirect relationships among the variables. The findings demonstrate that employee competence, adaptability, and commitment significantly enhance EBIS implementation while simultaneously exerting a direct influence on hospital service effectiveness. Moreover, EBIS serves as a crucial mediating mechanism that links employee-related factors to improved service outcomes. These results provide practical implications for hospital administrators, emphasizing the importance of continuous training, workforce adaptability, and strategic use of information systems to achieve more effective and sustainable local health governance. Overall, this study contributes to both theoretical and practical understandings of how human resource dimensions and digital systems interact to strengthen healthcare services in developing regions.

Keywords: Local Health Governance; Employee Competence; Adaptability; Commitment; Electronic-Based Information Systems.

1. Introduction

Indonesia's healthcare sector has undergone significant reforms in recent years, particularly with the introduction of the Integrated Referral System (SISRUTE) aimed at improving service quality across hospitals. Enacted through Regulation No. HK.02.02/D/1131/2023, this initiative reflects the government's broader agenda to modernize local health governance and enhance public service outcomes (Government Services, 2023). Despite these efforts, persistent challenges remain, especially regarding compliance with response time standards. Data from the Ministry of Health (2022) reveal that patient waiting times in several hospitals most notably in South Sumatra often exceed recommended thresholds, with delays surpassing six hours. These conditions invite critical examination of SISRUTE's effectiveness and the systemic factors contributing to service inefficiencies.

Against this backdrop, the Dynamic Capability Theory (DCT) offers a useful lens to understand how hospitals can adapt to these challenges. DCT highlights the importance of flexible and innovative capabilities that enable organizations to respond effectively to environmental changes. For hospitals, this involves not only adopting electronic information systems but also driving continuous innovation in service delivery. The success of such systems depends largely on the competence, adaptability, and commitment of healthcare

personnel, emphasizing the need for strong human resource strategies to develop dynamic capabilities (Teece, 2018; Eisenhardt & Martin, 2000).

The integration of information technology has become indispensable for strengthening governance and improving service quality. Prior studies, such as Moen et al. (2019) and Seligman et al. (2021), demonstrate that electronic-based systems like the Hospital Management Information System (SIMRS) can enhance communication between hospitals and patients, thereby improving care delivery. However, the success of these systems is strongly influenced by employee competence and commitment. Kwon et al. (2020) argue that effective system adoption requires active staff participation, while Anderson et al. (2021) emphasize training and empowerment as key to fostering greater engagement with technological innovation.

Contrasting evidence, however, suggests that competence, adaptability, and commitment do not always lead to positive outcomes. Research by Tajeddini et al. (2020), Abdullah et al. (2021), Sharma et al. (2021), and Emon & Chowdhury (2023) reveals that under certain conditions, these employee attributes may hinder service effectiveness, particularly when accompanied by negative attitudes toward technology. Tajeddini et al. (2020) and Heksarini et al. (2023) argue that even when staff possess adequate skills and adaptability, unfavorable perceptions can obstruct successful system implementation. This aligns with the Theory of Reasoned Action (TRA), which stresses the role of individual attitudes in shaping intentions to adopt new behaviors, including technological innovations.

The complex interplay between employee competence, adaptability, commitment, and technology integration underscores the need for deeper investigation in the context of local health governance. While existing literature has highlighted the benefits of IT adoption in healthcare, relatively few studies have examined the mediating role of electronic information systems in this process. Addressing this gap, the present study explores how competence, adaptability, and commitment influence hospital governance effectiveness, with a particular focus on the mediating role of electronic systems.

This study adopts a quantitative explanatory approach, employing survey questionnaires distributed among healthcare professionals in hospitals across South Sumatra. The instruments assess employee competence, adaptability, and commitment, as well as perceptions of how electronic systems contribute to service quality. The analysis aims to generate insights into strategies for optimizing technology use to strengthen patient outcomes and overall governance performance (Alolayyan & Alyahya, 2023; Stamouli & Gerbeth, 2021; Khraim, 2023).

Ultimately, the adoption of health information technology, including platforms like SISRUTE, presents both opportunities and challenges for governance in the healthcare sector. Drawing on the Dynamic Capability Theory and the Theory of Reasoned Action, this research seeks to provide a nuanced understanding of the human and technological dimensions that shape healthcare effectiveness. Beyond its theoretical contributions, the study is expected to offer practical recommendations for hospital leaders striving to maximize the benefits of digital systems within the evolving landscape of local healthcare governance.

2. Literature Review

2.1 Employee Competence and Local Health Governance

Employee competence is a central factor influencing the effectiveness of healthcare governance. Competence refers to the skills, knowledge, and professional abilities that enable employees to perform their tasks effectively (Boyatzis, 2018). In hospitals, competent staff are more capable of utilizing electronic-based systems such as the Electronic-Based Information System (SIBE) to streamline processes, minimize documentation errors, and support informed decision-making (Nguyen et al., 2021; Ștefan et al., 2024; Licciardello, 2025). Empirical

findings confirm that digital proficiency enhances service quality and accelerates patient care delivery (Alshamari et al., 2021). Conversely, Jafari et al. (2021) caution that a mismatch between employee skills and technological demands can hinder system performance and reduce service effectiveness. This underscores the importance of continuous training and organizational commitment to cultivating digital competencies (Mirazei et al., 2022; Kwon et al., 2020). Accordingly, this study posits that competence not only influences the adoption of SIBE but also directly strengthens hospital service effectiveness.

H1: Employee competence has a significant effect on the use of SIBE.

H2: Employee competence has a direct effect on hospital service effectiveness.

2.2 Employee Adaptability and Service Effectiveness

Adaptability reflects employees' ability to adjust to technological and organizational changes. Within hospitals, adaptability has become essential due to rapid digitalization and evolving healthcare demands. According to Sharma et al. (2021), adaptable employees can better manage uncertainty, improve response times, and contribute to sustainable governance outcomes. From the perspective of Dynamic Capability Theory, adaptability is considered a strategic capacity enabling organizations to maintain resilience and competitiveness in dynamic environments (Teece, 2020). Empirical studies by Rahman et al. (2020) and Chandra et al. (2023) show that employees with higher adaptability demonstrate greater receptiveness to new systems like SIBE, facilitating smoother digital transformation. However, overadaptation without adequate managerial support may generate stress or resistance, undermining long-term performance (Carter et al., 2019; Bakker & Demerouti, 2020). Thus, adaptability is seen as a critical determinant of both technology adoption and governance effectiveness in hospitals.

H3: Employee adaptability has a significant effect on the use of SIBE.

H4: Employee adaptability has a direct effect on hospital service effectiveness.

2.3 Employee Commitment and Digital Transformation in Healthcare

Commitment represents employees' emotional attachment, motivation, and loyalty toward organizational goals. In the context of healthcare governance, strong commitment encourages personnel to embrace technological innovations and maintain high service quality (Rahman et al., 2020; Den & Wang, 2024). Studies confirm that committed employees are more willing to adopt new information systems, demonstrate higher job satisfaction, and improve patient-centered services (Chandra et al., 2023; Zhang et al., 2023). However, overcommitment can lead to adverse consequences such as job stress, burnout, and reduced performance quality (Carter et al., 2019; Rashidin et al., 2022). Meyer et al. (2022) suggest that a balanced approach to commitment supported by recognition, rewards, and welfare policies helps hospitals sustain positive engagement without overburdening staff. Thus, commitment serves as both a driver of SIBE adoption and a key contributor to effective healthcare governance.

H5: Employee commitment has a significant effect on the use of SIBE.

H6: Employee commitment has a direct effect on hospital service effectiveness.

2.4 Electronic-Based Information Systems as a Mediating Mechanism

Electronic information systems are increasingly recognized as a linchpin in improving healthcare governance. Systems such as SIBE enhance efficiency by providing real-time access to patient records, reducing administrative errors, and improving clinical decision-making (Tan et al., 2021; Wang et al., 2022). Beyond operational benefits, SIBE strengthens interdepartmental coordination and accountability in public hospitals (Choi et al., 2023). However, scholars note that the effectiveness of these systems is not determined by technology alone, but rather by the competence, adaptability, and commitment of the employees who operate them (Lee et al., 2020; Gao et al., 2020). Prior research suggests that information systems serve as a mediating variable, linking human resource capabilities to service effectiveness (Bani-Melhem et al., 2020; Suryani et al., 2021). This aligns with the

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), which underscores the importance of user competence, facilitating conditions, and behavioral intention in determining technology adoption (Venkatesh et al., 2021).

H7: SIBE significantly affects hospital service effectiveness.

H8: SIBE mediates the effect of employee competence on hospital service effectiveness.

H9: SIBE mediates the effect of employee commitment on hospital service effectiveness.

H10: SIBE mediates the effect of employee adaptability on hospital service effectiveness.

2.5 Integrating Theoretical Perspectives

This study integrates UTAUT2 and Dynamic Capability Theory to explain the interplay between human resources and digital technologies in strengthening local health governance. UTAUT2 emphasizes the role of individual acceptance and behavioral intention in adopting new systems, while Dynamic Capability Theory highlights the organizational need for adaptability and innovation to sustain long-term effectiveness (Teece, 2020; Venkatesh et al., 2021). By combining these perspectives, the conceptual framework acknowledges both the human and technological dimensions that influence service delivery in regional public hospitals.

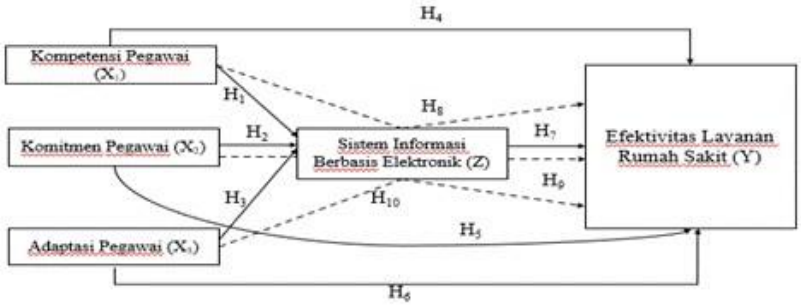

Figure 1: Conceptual Framework

3. Research Methodology

3.1 Research Design

This study employs a quantitative explanatory survey design with a cross-sectional approach to investigate the impact of employee competence, adaptability, and commitment on hospital performance, while assessing the mediating role of the Electronic-Based Information System (SIBE). The explanatory design enables the identification of causal relationships between the independent variables (competence, adaptability, and commitment) and the dependent variable (hospital performance), with SIBE as a mediating factor.

3.2 Research Setting and Population

The research was conducted in regional public hospitals (RSUD) in South Sumatra, which operate under the Indonesian Ministry of Health and serve as primary providers of public healthcare. These hospitals were selected because of their critical role in delivering comprehensive medical services to diverse local communities, making them an appropriate context for analyzing local health governance through technology-enabled systems.

The study population comprised 2,085 hospital employees directly involved in the use of SIBE, including doctors, nurses, other medical staff, and administrative personnel. A specific focus was placed on users of the Integrated Referral Information System (SISRUTE), which facilitates patient referral and interdepartmental coordination.

3.3 Sampling Technique and Sampe Size

The sample was determined using purposive sampling, with inclusion criteria targeting employees actively engaged in the application of SIBE—such as managing electronic medical records, patient scheduling, and hospital communication systems.

To calculate the required sample size, Slovin's formula with a 5% margin of error was applied (Majdina et al., 2024), yielding a final sample of 336 respondents. This ensured proportional representation across different professions, departments, and hierarchical levels within the hospitals.

3.4 Respondent Geographics

Out of the 336 participants, 41.67% were male and 58.33% female. The majority of respondents were aged 30–39 years (33.33%), held a Bachelor's degree (42.86%), and had 5–10 years of work experience (33.33%). Marital status distribution showed that 64.29% were married, while the remainder were unmarried or separated.

Tabel 1: Demographic Information of the respondents

Demographic Profile	Frequency	Percentag
Sex		
Male	140	41,67
Female	196	58,33
Age (years)		
20-29	80	23,81
30-39	112	33,33
40-49	96	28,57
> 50	48	14,29
Education		
Associate Degree	77	21,43
Bachelor's Degree	144	42,86
Master's Degree	96	28,57
Doctorate	24	7,14
Marital Status		
Not married	96	28,57
Married	216	64,29
Separated	24	7,14

3.5 Data Analysis

Structural Equation Modeling (SEM) was employed to test the proposed hypotheses and evaluate the research model's goodness of fit (Obienu et al., 2025). Model fit was assessed using multiple indices:

- Chi-Square ($p > 0.05$) for overall fit (noting sensitivity to large samples),
- RMSEA ≤ 0.08 for error approximation,
- GFI and AGFI ≥ 0.90 for model adequacy,
- CMIN/DF < 2–3 as an indicator of parsimony,
- TLI and CFI ≥ 0.95 as benchmarks of strong model performance.

These comprehensive indicators ensured that the structural model was both statistically robust and practically relevant, allowing for reliable hypothesis testing and meaningful interpretation of the mediating role of SIBE.

4. Results and Findings

4.1 Measurement Model Validation

Prior to testing the structural relationships, a Confirmatory Factor Analysis (CFA) was performed to ensure that all measurement items validly represented their respective constructs. The results demonstrated that all indicators met the validity threshold, with Standardized Loading Factor (SLF) ≥ 0.5 (Hair et al., 2018). Specifically, competence (X1) ranged from

0.777–0.868, commitment (X2) 0.852–0.895, adaptability (X3) 0.811–0.867, SIBE (Y) 0.829–0.879, and service effectiveness (Z) 0.822–0.893.

Construct validity was further confirmed through Average Variance Extracted (AVE) values above 0.5 for all variables (Competence = 0.978; Commitment = 0.978; Adaptability = 0.972; SIBE = 0.977; Service Effectiveness = 0.968). Likewise, Construct Reliability (CR) values exceeded 0.7, confirming strong internal consistency. Thus, the measurement model was validated as both statistically reliable and robust.

4.2 Goodnes of Fit Analysis

The structural model demonstrated an excellent fit with the empirical data. Fit indices included RMSEA = 0.045, GFI = 0.925, AGFI = 0.905, and NFI = 0.920, all surpassing recommended thresholds. Incremental fit indices also indicated a high-quality model, with TLI = 0.945, CFI = 0.950, and IFI = 0.950. Parsimony indices, such as PNFI = 0.765, confirmed an appropriate balance between model simplicity and explanatory power. Collectively, these indicators validated the suitability of the model for hypothesis testing.

4.3 Direct Effects

Path analysis revealed that all hypothesized direct relationships were statistically significant at the 5% level ($p \leq 0.05$). Key findings include:

- Employee competence (X1 → Y) significantly influenced the use of SIBE (p = 0.000; S.E = 0.052).
- Employee commitment (X2 → Y) positively affected SIBE adoption (p = 0.000; S.E = 0.046).
- Employee adaptability (X3 → Y) had a strong positive impact on SIBE (p = 0.000; S.E = 0.047).
- Competence (X1 → Z), commitment (X2 → Z), and adaptability (X3 → Z) each significantly enhanced service effectiveness, with p-values of 0.000, 0.003, and 0.001 respectively.
- Finally, SIBE (Y → Z) directly improved service effectiveness (p = 0.000; S.E = 0.058), highlighting its critical role in facilitating efficient service delivery.

These results confirm that both human resource dimensions and technology utilization directly contribute to improving hospital service performance.

Table 2: Results of Direct Effects Hypothesis Testing

Hypothesis		S.E	P-Value	Conclusion
H1	Employee Competence (X1) - SIBE (Y)	0.052	0.000	significant
H2	Employee Commitment (X2) - SIBE (Y)	0.046	0.000	significant
H3	Employee Adaptability (X3) - SIBE (Y)	0.047	0.000	significant
H4	Employee Competence (X1) – Service Effectiveness (Z)	0.048	0.000	significant
H5	Employee Commitment(X2) - Service Effectiveness (Z)	0.42	0.003	significant
H6	Employee Adaptability (X3) - Service Effectiveness (Z)	0.43	0.001	significant
H7	SIBE (Z) - Service Effectiveness (Z)	0.058	0.000	significant

4.4 Indirect Effects (Mediation by SIBE)

The mediation analysis demonstrated that SIBE functions as a significant intermediary linking employee factors with service effectiveness:

- The indirect effect of competence through SIBE was 0.207, greater than its direct effect (0.160).
- The indirect effect of commitment through SIBE was 0.164, exceeding its direct effect (0.135).
- The indirect effect of adaptability through SIBE was 0.152, slightly higher than its direct effect (0.139).

These findings underscore the pivotal role of electronic information systems in strengthening the contribution of human resource capabilities to public service outcomes within regional hospitals.

Table 3: Standardized Direct Effects

	Employee Competence	Employee Adaptability	Employee Adaptability	SIBE	Service Effectiveness
SIBE	0.382	0.329	0.288	0.00	0.000
Service Effectiveness	0.160	0.135	0.139	0.526	0.000

Table 4: Indirect Effects

	Employee Competence	Employee Adaptability	Employee Adaptability	SIBE	Service Effectiveness
SIBE	0.000	0.000	0.000	0.000	0.000
Service Effectiveness	0.207	0.164	0.152	0.000	0.000

The results of the structural model indicate that employee competence, adaptability, and commitment exert positive direct effects on the use of electronic information systems (SIBE), with path coefficients of 0.382, 0.329, and 0.288 respectively. While these variables also have direct effects on service effectiveness (0.160, 0.135, and 0.139), their influence is comparatively smaller. Notably, SIBE demonstrates the strongest direct effect on service effectiveness (0.526), highlighting its pivotal role in enhancing hospital performance. The indirect effects further confirm this mediating role, as competence (0.207), adaptability (0.164), and commitment (0.152) significantly improve service effectiveness through SIBE. These findings suggest that the contribution of human resources to hospital service outcomes is maximized when mediated by effective utilization of electronic information systems.

Findings

The results of this study confirm that strengthening local health governance depends heavily on employee competence, commitment, and adaptability as core drivers of effective digital transformation in hospitals.

Table 5: Summary of Hypothesis Testing

	Hypothesis	Result	Ha
H1	Employee Competence (X1) - SIBE (Y)	√	Accepted
H2	Employee Commitment (X2) - SIBE (Y)	√	Accepted
H3	Employee Adaptability (X3) - SIBE (Y)	√	Accepted
H4	Employee Competence (X1) - Service Effectiveness (Z)	√	Accepted
H5	Employee Commitment (X2) - Service Effectiveness (Z)	√	Accepted
H6	Employee Adaptability (X3) - Service Effectiveness (Z)	√	Accepted
H7	SIBE (Z)- Efektivitas Pelayanan (Z)	√	Accepted
H8	Employee Competence (X1) – SIBE (Y) - Service Effectiveness (Z)	√	Accepted
H9	Employee Commitment (X2) – SIBE (Y) - Service Effectiveness (Z)	√	Accepted
H10	Employee Aaptability (X3) – SIBE (Y) - Service Effectiveness (Z)	√	Accepted

First, employee competence including technical expertise, operational skills, and problem-solving ability plays a decisive role in ensuring the effective utilization of electronic information systems. Employees with higher competence are better able to operate the system independently and manage technical challenges without compromising service quality, thereby contributing to transparency and accountability in local health governance (Belhaj et al., 2014; Spencer & Spencer, 1993; Estremera, 2024).

Second, employee commitment, whether affective, normative, or calculative, strengthens governance by encouraging proactive technology adoption, compliance with digital protocols, and accountability in service delivery. Previous studies similarly emphasize that staff commitment is a critical determinant of successful hospital information system implementation (Muja et al., 2014; Abudin et al., 2024).

Third, employee adaptability emerges as a central enabler of digital transitions. Cognitive and behavioral flexibility allow employees to embrace change, acquire new system skills, and adjust established practices to align with technological innovation (Ismail et al., 2015; Hailemariam et al., 2024). This adaptability reinforces institutional capacity to sustain governance in dynamic digital environments.

Furthermore, this study highlights the mediating role of the Electronic Information System (SIBE) as a mechanism linking human resource capacity to governance effectiveness. Consistent with the Technology Acceptance Model (TAM) (Davis, 1989), the success of digital systems is shaped not only by their technical availability but also by user readiness, perceived usefulness, and behavioral intentions to adopt them. The use of SIBE was found to enhance coordination across service units, streamline administrative processes, improve data accessibility, and minimize errors factors that directly strengthen local health governance (Obienu et al., 2025).

Practical implications suggest that continuous investments in training, employee development, and change management strategies are essential to achieve sustainable digital transformation in public health institutions. Human resource strategies should prioritize:

- Enhancing technical competencies through targeted capacity-building programs;
- Strengthening organizational commitment by fostering belonging, purpose, and accountability;
- Promoting adaptability through exposure to innovation, learning agility, and proactive leadership support.

In addition, user-centered system design and continuous technical support must accompany digital infrastructure upgrades to reduce resistance and enhance user engagement. Building positive perceptions of digital tools among healthcare personnel is critical to ensuring the long-term sustainability of health information systems.

5. Conclusion

This study enriches the growing scholarship on e-health system implementation by offering empirical evidence that highlights the interconnection between human resource capacities and the effectiveness of digital systems. The findings emphasize that successful technological innovation in healthcare cannot stand alone; it must be supported by comprehensive strategies for strengthening human capital. For policymakers and hospital administrators, this means that investments in employee competence, adaptability, and commitment are just as crucial as infrastructure development in ensuring improved healthcare service delivery within public institutions.

Looking forward, future research should expand this inquiry by examining the long-term sustainability of electronic information systems in local health governance, particularly in diverse regional contexts beyond South Sumatra. Comparative studies across provinces or countries could provide deeper insights into contextual factors that shape digital adoption and

governance outcomes. In addition, qualitative approaches such as interviews and case studies may complement quantitative findings by uncovering nuanced perspectives of healthcare workers regarding challenges and best practices in system utilization. Finally, future studies could also integrate external factors such as regulatory frameworks, patient engagement, and financial resources to build a more holistic understanding of how technology and human resources together strengthen local health governance.

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