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IT Governance Maturity and Business Alignment: A COBIT 2019 Evaluation at RSUD ODSK

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Abstract

IT is crucial for organizational performance and competitiveness, especially in healthcare, where service quality affects patient outcomes. Effective IT governance aligns investments with goals, delivers value, and reduces risks. This study assesses IT governance priorities at RSUD ODSK using the COBIT 2019 framework, identifying key governance and management objectives. The research employs a structured methodology, beginning with problem identification and then data collection through structured interviews using the COBIT 2019 Design Toolkit and the analysis of 10 Design Factors. These factors help determine the most critical governance objectives in RSUD ODSK's operational environment and strategic priorities. Findings indicate that Client Service/Stability is the hospital's top strategic priority, supported by key enterprise goals, including compliance with external regulations, business-service continuity, and internal process optimization. The prioritization process highlights Managed Assurance (MEA04) and Managed Security Services (DSS05) as the most critical governance objectives, both receiving importance scores of 100%, emphasizing the need for continuous IT performance monitoring and strong data security measures. Other highly prioritized objectives include Managed Security (APO13) at 85% and Managed Compliance with External Requirements (MEA03) at 70%, reflecting the hospital's focus on regulatory adherence and risk management. The results provide practical guidance for RSUD ODSK in improving IT governance, aligning IT with organizational goals, and ensuring reliable IT services to enhance patient care and operational efficiency. This study contributes valuable insights for hospitals seeking to strengthen IT governance using COBIT 2019.

Keywords: *IT Governance, COBIT 2019, Healthcare IT, Business Alignment, Regulatory Compliance.*

1. Introduction

In the present era, Information Technology (IT) plays a crucial role in the success of organizations [1], [2]. IT can enhance organizational performance and competitiveness, both now and in the future. The impact of IT is evident in its effectiveness and efficiency, which significantly influence an organization's business processes [3], [4]. Today, organizations must adapt to the evolving data needs, whether internal or external. Nearly all organizations have adopted IT to ensure efficiency and effectiveness in their business processes.

To achieve organizational success, IT implementation must be aligned with organizational objectives [5]. Organizations prioritize IT in their operations due to its significant impact on performance improvement. With technology evolving rapidly, IT implementation decisions must be made carefully to keep up with these changes. IT adoption must be adjusted to fit the organization's internal and external environment, making IT governance management essential in its implementation [6], [7], [8].

Proper IT governance builds trust in IT implementation and ensures that IT assets are valuable future investments. If IT governance is not well-managed, it directly impacts organizational performance [9], [10], [11]. Organizations may fail to meet their expectations and objectives if IT is improperly structured and managed. Therefore, IT implementation must be accompanied by a well-balanced governance management approach to achieve the desired outcomes [12], [13].

It is crucial to evaluate IT services and management by assessing maturity levels and service availability to ensure continuous improvement. One of the frameworks that provides a structured approach for evaluating IT governance is Control Objectives for Information and Related Technology (COBIT) 2019, published by the Information Systems Audit and Control Association (ISACA) as the latest version in the COBIT framework series [14], [15], [16].

COBIT 2019 is an enhanced version of COBIT 5, serving as a comprehensive business management guide for IT governance. It integrates new insights into corporate governance and management practices, providing principles, best practices, analytical tools, and widely accepted models to maximize the value of IT. The new insights introduced in COBIT 2019 significantly improve IT implementation within organizations. It helps businesses establish a new IT governance system based on the design factors provided by COBIT 2019 [15].

2. Research Method

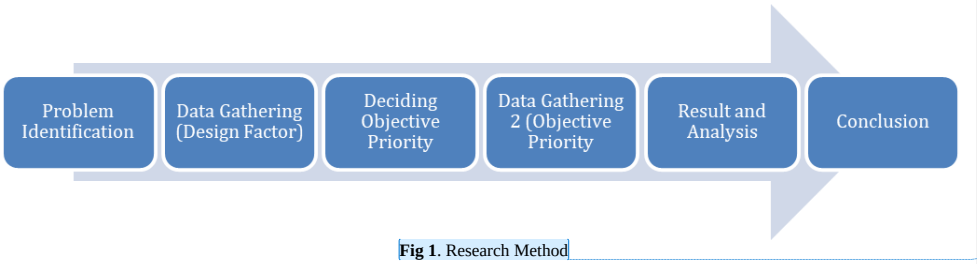

Fig 1. Research Method

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The research methodology employed in this study, as shown in Fig 1, follows a systematic flow to comprehensively address the challenges faced by RSUD ODSK in implementing COBIT 2019 for effective IT governance. The process begins with problem identification, recognizing the existing challenges in IT management and governance within the hospital. This problem identification is derived from initial interviews and literature reviews. Following this, data gathering is conducted using structured interviews with the COBIT 2019 Design Toolkit, which assesses IT governance factors. This stage involves analyzing 10 Design Factors from COBIT 2019 to understand how RSUD ODSK currently applies IT governance, identifying gaps, and exploring improvement opportunities [17], [18].
After gathering design-related data, the research moves to deciding objective priority, determining which governance objectives require focused attention based on priority levels exceeding 75%. To refine these priorities, another round of data gathering is conducted using the COBIT 2019 Governance Objectives, providing deeper insights into key governance areas critical for RSUD ODSK's IT effectiveness. The research then transitions to result and analysis, systematically evaluating findings from both rounds of interviews. Finally, the study concludes by formulating a structured governance design aligned with RSUD ODSK's organizational goals [15], [19], [20].
This structured methodology ensures a comprehensive understanding of COBIT 2019 implementation at RSUD ODSK, offering valuable insights into improving IT governance in healthcare. The findings emphasize that effective IT governance is crucial for optimizing hospital services, mitigating risks, and ensuring IT strategies align with healthcare objectives to enhance service quality and efficiency.

3. Results and Discussion

3.1. Enterprise Strategy

Table 1. Enterprise Strategy

Value	Importance (1-5)	Baseline
Growth/Acquisition	**4**	**3**
Innovation/Differentiation	**1**	**3**
Cost Leadership	**1**	**3**
Client Service/Stability	**5**	**3**

Based on the respondent's answers, we can conclude that the top priority of RS ODSK is Client Service/Stability, as ODSK is a hospital that primarily focuses on patient care. Their second priority is Growth/Acquisition, as they continuously strive to improve their performance.

3.2. Enterprise Goals

Table 2. Enterprise Goals

Value	Importance (1-5)
EG01— Portfolio of competitive products and services	**5**
EG02—Managed business risk	**5**
EG03—Compliance with external laws and regulations	**5**
EG04—Quality of financial information	**3**
EG05—Customer-oriented service culture	**5**
EG06—Business-service continuity and availability	**5**
EG07—Quality of management information	**5**
EG08—Optimization of internal business process functionality	**5**
EG09—Optimization of business process costs	**5**

EG10—Staff skills, motivation and productivity	**3**
EG11—Compliance with internal policies	**5**
EG12—Managed digital transformation programs	**5**
EG13—Product and business innovation	**3**

The assessment of IT-related challenges at Rumah Sakit ODSK highlights various issues affecting IT performance and business alignment. Most identified concerns have low to moderate significance, indicating that while challenges exist, they do not critically impact hospital operations. Key areas of concern include significant IT incidents (such as data loss and security breaches), complex IT decision-making processes, data quality issues, and gaps between business and technical knowledge. These issues require attention to ensure seamless IT operations and improved service delivery.

However, many potential risks, such as high IT costs, failed innovations, reluctance of senior management to engage with IT, and unauthorized IT spending, have been rated as low priority, suggesting that existing governance and control measures are effective.

Overall, IT management at RS ODSK appears well-structured and actively monitored, with continuous improvements and stakeholder involvement ensuring smooth integration between IT and hospital operations. Regular evaluations, user training, and proactive issue resolution should remain a priority to enhance IT effectiveness further.

3.3. Risk Profile

Table 3. Risk Profile

Risk Scenario Category	Impact (1-5)	Likelihood (1-5)	Risk Rating	Baseline
IT investment decision-making, portfolio definition & maintenance	1	1	1	9
Program & project life cycle management	1	2	2	9
IT cost & oversight	3	2	6	9
IT expertise, skills & behaviour	5	4	20	9
Enterprise/IT architecture	3	3	9	9
IT operational infrastructure incidents	2	4	8	9
Unauthorized actions	4	2	8	9
Software adoption/usage problems	3	3	9	9
Hardware incidents	3	2	6	9
Software failures	1	2	2	9
Logical attacks (hacking, malware, etc.)	5	3	15	9
Third-party/supplier incidents	4	3	12	9
Noncompliance	4	2	8	9
Geopolitical Issues	5	3	15	9
Industrial action	5	1	5	9
Acts of nature	5	1	5	9
Technology-based innovation	2	2	4	9
Environmental	1	2	2	9
Data & information management	4	3	12	9

The risk assessment for IT investment and management at Rumah Sakit ODSK highlights various factors influencing the hospital's operations. Key risks with the highest impact (rated 5) include IT expertise and skill gaps, logical attacks, industrial actions, and natural disasters, all of which can severely affect hospital operations and service quality. Unauthorized actions, third-party incidents, noncompliance, geopolitical issues, and data management risks are also significant, with impacts rated at 4. These factors underline the importance of strong governance, cybersecurity, and compliance measures to safeguard hospital operations.

Although certain risks, such as software failure, IT investment decision-making, and environmental factors, have relatively low impact and likelihood ratings, continuous monitoring and improvement are still necessary to ensure stability and efficiency.

While the hospital demonstrates strong risk management and rapid response mechanisms, ongoing evaluation, training, and strategic IT planning are crucial to mitigate potential threats and maintain operational excellence.

3.4. I & T Related Issues

Table 4. I&T Related Issues

IT-Related Issue	Importance (1-3)	Baseline
Frustration between different IT entities across the organization because of a perception of low contribution to business value	**2**	**2**
Frustration between business departments (i.e., the IT customer) and the IT department because of failed initiatives or a perception of low contribution to business value	**1**	**2**
Significant IT-related incidents, such as data loss, security breaches, project failure and application errors, linked to IT	**3**	**2**
Service delivery problems by the IT outsourcer(s)	**1**	**2**
Failures to meet IT-related regulatory or contractual requirements	**2**	**2**

Regular audit findings or other assessment reports about poor IT performance or reported IT quality or service problems	**2**	**2**
Substantial hidden and rogue IT spending, that is, IT spending by user departments outside the control of the standard IT investment decision mechanisms and approved budgets	**1**	**2**
Duplications or overlaps between various initiatives or other forms of wasted resources	**1**	**2**
Insufficient IT resources, staff with inadequate skills or staff burnout/dissatisfaction	**1**	**2**
IT-enabled changes or projects frequently fail to meet business needs and are delivered late or over budget	**2**	**2**
Reluctance by board members, executives or senior management to engage with IT or a lack of committed business sponsorship for IT	**1**	**2**
Complex IT operating model and/or unclear decision mechanisms for IT-related decisions	**2**	**2**
Excessively high cost of IT	**1**	**2**
Obstructed or failed implementation of new initiatives or innovations caused by the current IT architecture and systems	**1**	**2**
The gap between business and technical knowledge, which leads to business users and information and/or technology specialists speaking different languages	**2**	**2**
Regular issues with data quality and integration of data across various sources	**2**	**2**
High level of end-user computing, creating (among other problems) a lack of oversight and quality control over the applications that are being developed and put into operation	**1**	**2**
Business departments implement their information solutions with little or no involvement of the enterprise IT department (related to end-user computing, which often stems from dissatisfaction with IT solutions and services)	**1**	**2**
Ignorance of and/or noncompliance with privacy regulations	**1**	**2**
Inability to exploit new technologies or innovate using I&T	**1**	**2**

The assessment of IT-related issues at RS ODSK indicates that most concerns have a low to moderate impact on operations. The most critical issues include data loss, security breaches, and system-related incidents, which have caused disruptions, as well as incredibly inpatient data input and access control. Additionally, complex IT decision-making processes, data integration issues, and communication gaps between IT and business units pose challenges that require ongoing attention.
However, many potential risks—such as high IT costs, lack of management involvement, failed innovations, and unauthorized IT spending—are currently well-managed due to strong governance, structured budgeting, and active leadership engagement. The hospital's IT infrastructure is generally well-maintained, and continuous training, improved data management, and enhanced security measures should remain priorities to ensure efficiency and reliability in IT operations.

3.5. Threat Landscape

Table 5. Threat Landscape

Value	Importance (100%)	Baseline
High	**30%**	**33%**
Normal	**70%**	**67%**
Low	**0%**	**0%**

RS ODSK operates in a lowland area, while Universitas Sam Ratulangi is in a higher elevation. During heavy rainfall, flooding can occur, covering areas around the hospital multiple times, but this is considered a moderate-level threat. Additionally, the hospital faces a low risk of civil unrest as it is adjacent to the North Sulawesi Regional Police Headquarters, which ensures a secure environment. The hospital is a 12-story building, and in the event of an earthquake, safety measures and disaster response protocols are already in place to ensure protection and emergency handling.

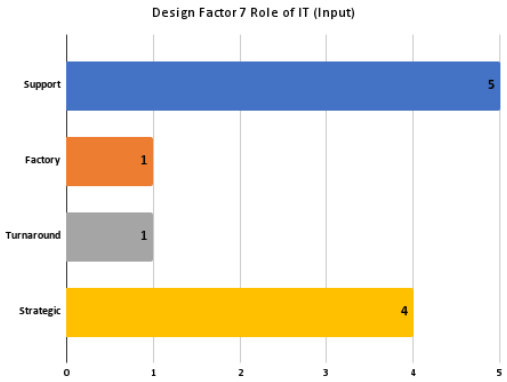
3.6. Compliance Requirements

Table 6. Compliance Requirements

Value	Importance (100%)	Baseline
High	**100%**	**0%**
Normal	**0%**	**100%**
Low	**0%**	**0%**

The compliance requirements table for ODSK Hospital reveals a sophisticated approach to regulatory adherence, with the "High" value category assigned 100% importance but 0% baseline, indicating that perfect compliance remains an aspirational goal despite being the only acceptable standard; meanwhile, the "Normal" category's 0% importance paired with 100% baseline suggests that while current operations maintain standard compliance levels, this is viewed as insufficient given the ongoing pandemic challenges, and the "Low" category's 0% ratings across both metrics firmly establishes that substandard compliance is wholly unacceptable under any circumstances. This stringent framework, exemplified by strict mask-wearing enforcement with consequences for noncompliance, reflects ODSK Hospital's dual commitment as a North Sulawesi government healthcare facility: upholding the highest possible safety

and regulatory standards while pragmatically acknowledging implementation challenges across all operational aspects, including patient care protocols, medication management, facilities maintenance, waste disposal, and staff training—an especially critical approach as the facility continues navigating evolving health threats from COVID-19 and other circulating viruses while respecting regional health challenges and cultural considerations unique to its location.



3.7. Role of IT

Fig 2. Role of IT

Based on the "Design Factor 7 Role of IT (Input)" chart, RS.ODSK has established a clear hierarchy of IT priorities, with the Support role receiving the highest score of 5, followed by the Strategic role at 4, while both Factory and Turnaround roles score just 1 each. This prioritization reflects the hospital's approach of positioning IT primarily as a support function that enables and facilitates business service processes, ensuring systems remain operational while providing technical assistance to staff. The emphasis on support demonstrates that the organization values technology primarily as an enabler of its core healthcare mission rather than viewing IT as either a production center or transformation agent.

The secondary priority given to the Hospital Management Information System (SIMRS) aligns with the high score of the Strategic role, indicating that while day-to-day support remains paramount, the hospital recognizes SIMRS as a critical strategic asset for both operating and innovating business service processes. This balanced approach—heavily weighted toward support with significant strategic consideration—suggests ODSK Hospital has adopted a service-oriented IT model where technology decisions are driven primarily by how they enhance clinical and administrative functions, with strategic innovation occurring within established frameworks to keep the hospital competitive as healthcare technology evolves.

3.8. Sourcing Model of IT

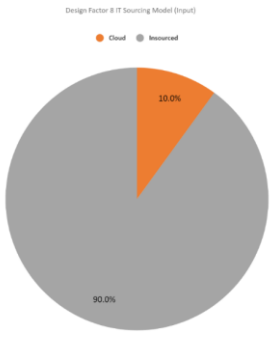


Fig 3. Sourcing Model of IT

Design Factor 8 identifies the source model for IT used by RS ODSK. After conducting interviews with the company, the types of source models utilized were identified. Among the three sourcing models—Outsourcing, Cloud, and Insourced—90% of the IT sourcing model in this company comes from Insourced, as the IT staff and department operate independently. Meanwhile, 10% falls under Cloud, which serves as a backup in case of system downtime, helping to restore lost data. Outsourcing accounts for 0% because the company does not use it.

3.9. IT Implementation Methods

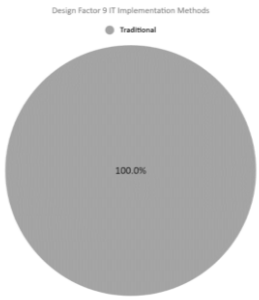


Fig 4. Implementation Methods

Design Factor 9 refers to the IT implementation methods, including Agile, DevOps, and Traditional. Based on the analysis and supporting data shown in the diagram, RS ODSK has fully adopted the Traditional IT implementation method, with a 100% adoption rate. This indicates that the hospital relies on a conventional approach in developing and managing its IT infrastructure, likely focusing on structured planning, sequential processes, and well-documented procedures.

The absence of Agile and DevOps methodologies at 0% suggests that RS ODSK has not yet transitioned to more modern and flexible IT development approaches. Agile emphasizes iterative progress and adaptability, and DevOps, which integrates development and operations for faster deployment, is currently not part of the hospital's IT strategy. Instead, the reliance on Traditional implementation implies a preference for stability, predictability, and strict control over IT processes.

The large, fully shaded pie chart visually reinforces this data, demonstrating that all IT implementation efforts at RS ODSK follow the Traditional methodology. This approach may align with regulatory requirements and the hospital's operational framework, ensuring compliance and reliability. However, as the healthcare sector continues to evolve with technological advancements, there may be future opportunities for RS ODSK to explore Agile or DevOps methodologies to enhance efficiency and responsiveness in IT operations.

3.10. Technology Adaption Strategy

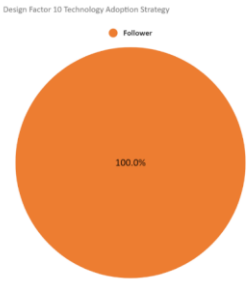


Fig 5. Technology Adaption Strategy

Design Factor 10 refers to the types of corporate IT adoption strategies, including First Mover, Follower, and Slow Adopter. RS ODSK adopts the Follower strategy, as the company utilizes existing technologies that have already been proven effective within its operations. Therefore, the value of RS ODSK's Technology Adoption Strategy is classified as a Follower, with a 100% adoption rate. First-mover and Slow Adopter strategies both have a 0% adoption rate. The First Mover strategy refers to companies that adopt new technologies early, becoming industry leaders and gaining a competitive advantage. On the other hand, the Slow Adopter strategy applies to companies that are slow to adopt technology, only implementing it long after other businesses have already been using it. Since RS ODSK does not follow either of these strategies, first-mover and Slow-adoption approaches are not applied within the company.

3.11. IT Governance Design Results

After conducting the analysis, the importance levels of Governance and Management Objectives in RSUD ODSK have been identified based on COBIT 2019. Figure 6 highlights the varying degrees of importance assigned to different governance and management objectives, reflecting the hospital's IT governance and operations priorities.

From the analysis, MEA04 (Managed Assurance) and DSS05 (Managed Security Services) emerge as the most critical objectives, each receiving an importance score of 100. This indicates a strong emphasis on security, compliance, and assurance, which aligns with the hospital's need to maintain regulatory compliance and safeguard patient data. Additionally, APO13 (Managed Security) and MEA03 (Managed Compliance with External Requirements) also receive high scores (85 and 70, respectively), further emphasizing the hospital's prioritization of security risk management and regulatory adherence.

Other key objectives include DSS03 (Managed Problems) with a score of 70 and DSS02 (Managed Service Requests & Incidents) with a score of 45, signifying a proactive approach to problem management and service continuity. Meanwhile, EDM03 (Ensured Risk Optimization) and APO12 (Managed Risk), with scores of 65 and 60, respectively, indicate that while they are not the top priority, risk management and optimization are essential. These findings suggest that incident handling, risk management and issue resolution are crucial to the hospital's IT strategy, ensuring that disruptions are minimized and operational efficiency is maintained. Other less essential objectives are considered less critical, with a score of less than 45.

Conversely, some objectives are assigned negative importance values, such as BAI11 (Managed Projects) at -55 and APO04 (Managed Innovation) at -35. This indicates that project management and innovation are not prioritized, likely due to the hospital's focus on stabilizing its IT environment rather than engaging in extensive development initiatives. Similarly, APO16 (Managed Vendors) and BAI02 (Managed Requirements Definition) show negative values (-20 and -25, respectively), reflecting a limited reliance on external vendors and a lower emphasis on structured requirement management at this stage.

4. Conclusion

This study evaluates the prioritization of IT governance aspects at Rumah Sakit Umum Daerah (RSUD) ODSK using the COBIT 2019 framework to identify the most critical governance and management areas to align IT governance with the hospital's strategic goals. Through structured data collection and analysis of COBIT 2019's 10 Design Factors, the research highlights Client Service/Stability as the top priority, ensuring IT strategies support high-quality patient care. Key enterprise goals include compliance with external regulations, business-service continuity, and internal process optimization, reflecting the hospital's focus on regulatory adherence, operational resilience, and process efficiency. The Governance and Management Objectives prioritization provides clear direction for IT governance efforts. Managed Assurance (MEA04), with an importance score of 100%, highlights the need for continuous IT performance monitoring to maintain stable systems and meet operational and regulatory expectations. Managed Security Services (DSS05), also rated regulations essential for maintaining public trust and service quality. Managed Problems (DSS03) (70%) focuses on 100%, underscores the importance of data protection and system security, crucial for safeguarding sensitive patient information and ensuring service continuity.

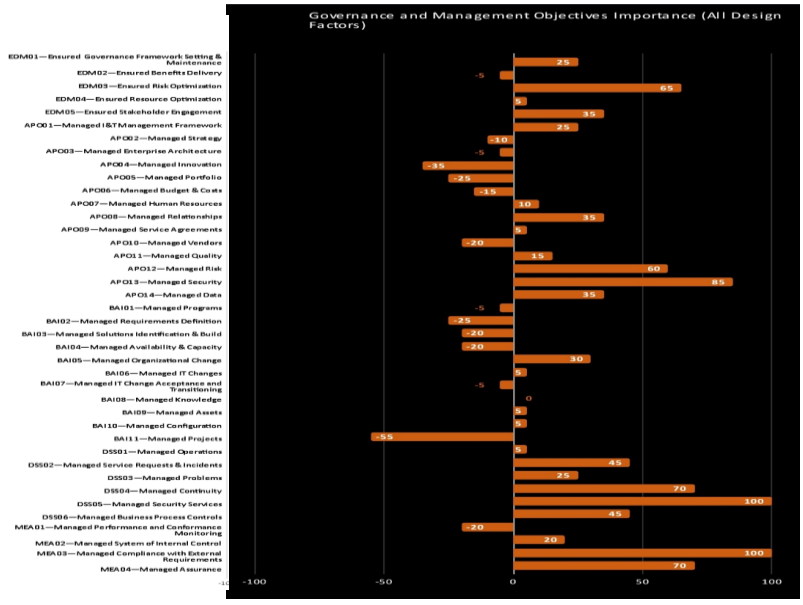


Fig 6. IT Governance Design Result

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Managed Security (APO13), with 85%, highlights the need for comprehensive security management, ensuring smooth integration of proven technologies while minimizing security risks. Managed Compliance with External Requirements (MEA03), at 70%, reflects the hospital's commitment to meeting healthcare, identifying and resolving recurring IT issues to prevent future disruptions, and aligning with the hospital's traditional IT management approach. This study highlights the critical importance of aligning IT governance with organizational goals, especially in healthcare, where reliable IT systems directly impact patient safety and service quality. By adopting a structured governance design based on COBIT 2019, RSUD ODSK can enhance service delivery, strengthen IT governance, and effectively address emerging risks, ensuring IT continues to support high-quality healthcare services.

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