Enhancing Organizational Performance through COBIT 2019-Based IT Governance Audit: A Case Study of a Digital Technology Company

Laurentinus Heriyanto Setiadi¹, Melissa Indah Fianty²*

¹,²Departement of Information System, Faculty of Engineering & Informatics, Universitas Multimedia Nusantara, Indonesia
Email: ¹jonathan.beato@student.umn.ac.id, ²melissa.indah@umn.ac.id

Abstract

This study investigates the pivotal role of information technology (IT) governance in contemporary business landscapes, particularly emphasizing the digital technology sector. Through an examination of a digital technology company specializing in software development and fleet management platforms, the study utilizes the COBIT 2019 framework to conduct an IT governance audit. The research workflow, comprising planning, fieldwork, reporting, and result analysis stages, facilitates a comprehensive evaluation of the company's IT governance capabilities. Findings indicate proficiency in managed solutions identification and project management, alongside gaps in managing IT changes effectively. Recommendations are provided to address these gaps, emphasizing enhanced collaboration, documentation, and protocol establishment. By shedding light on IT governance practices within the digital technology sector, this study contributes to advancing organizational performance and competitiveness in an evolving landscape. Specifically, the recommendations align with the following domains: BAI03 (Managed Solutions Identification & Build), BAI06 (Managed IT Changes), and BAI11 (Managed Projects).

Keywords: Audit, Capability Level, COBIT 2019, IT Governance

1. INTRODUCTION

The use of information technology (IT) has become a major factor in the rapid growth of business. For example, multinational companies such as Google, Amazon, Tesla, or Alibaba are experiencing growing businesses due to their adoption of artificial intelligence [1]. This is driven by the increase in the number of Internet users and the role of IT in connecting the community with companies [2]. One of the factors in the use of information technology is the pandemic, where companies that survive amidst the new normal and Large-Scale Social Restrictions (PSBB) are companies that understand IT [3]. Based on research by Microsoft and IDC Asia Pacific, approximately 74 percent of companies in Indonesia have digitalized their businesses, ranging from using digital payments, launching on the Internet, e-commerce, to automating business [4]. Fundamentally, innovation is a
necessity for business, because companies that have not digitalized are more vulnerable [5]. Therefore, companies are obliged to innovate. Generally, companies that act as market leaders tend to innovate on products, while manufacturing companies that offer affordable products tend to innovate on processes [6]. Whatever strategy the company takes, IT is needed.

The need for IT drives businesses to implement IT governance. As stated by the IT Governance Institute (ITGI), IT governance is a component in company activities, such as business processes, that companies need to carry out to ensure that the use of IT aligns with the company’s strategy and objectives [7]. To ensure that the company has implemented governance capable of maintaining IT performance and optimally managing resources, an IT governance audit is necessary [7] [8]. Audit is a process of gathering evidence, then evaluated by a competent independent party with the aim of improving the capabilities of the evaluated party based on predetermined criteria [9]. In this case, an Information System, or Information Technology (IS/IT) audit is conducted on the company’s IT governance to determine whether the company has implemented best practices to protect assets or has maintained data integrity, so that the implemented IT aligns with business objectives [10]. An IS/IT audit can be carried out smoothly if the auditor makes good use of technology [11]. One of the technologies that supports auditors during an IS/IT audit is the COBIT 2019 framework.

Control Objective for Information and Related Technology (COBIT) is a documentation that summarizes best practices in IT governance [7]. COBIT 2019 serves as a foundation for evaluating IT governance in companies, for instance, whether there are errors and deviations in the use of IT in the company or how good the company’s management and knowledge of IT are [12]. COBIT 2019 was chosen because it provides ease with the presence of a design guide, namely design factors [13] [14]. If compared to the previous framework, COBIT 5, the presence of design factors is more helpful and more flexible because it can be adjusted to the conditions of the company implementing IT [15] [16] [17]. There are several previous studies that have used COBIT 2019, with the differences lying in the research objects and their objectives.

The discussion of previous studies illustrates the diverse application of COBIT 2019 in evaluating IT governance across different sectors and types of organizations. By examining how COBIT 2019 was utilized to assess IT governance in companies focusing on port and logistics, as well as in a State-Owned Enterprise (BUMN) operating in the Maintenance, Repair, and Overhaul (MRO) sector, it showcases the breadth of areas that can be evaluated using this framework. Furthermore, by highlighting the specific objectives obtained from the design factors in each study, it emphasizes the flexibility of COBIT 2019 in addressing various aspects of IT governance. This contextual understanding serves to set the stage for the current study, which focuses on evaluating the IT
governance of a company in the digital technology sector. By building upon the previous discussions, this study contributes to a broader understanding of IT governance practices and challenges across industries, thus enriching the knowledge base in this field [18][19][20]. Meanwhile, in this study, the focus is on assessing the IT governance in a company operating in the digital technology sector.

The company, established in 2008, specializes in the development of software for fleet management platforms and inter-machine telemetry systems. The company has accumulated extensive experience in various projects, including In-Vehicle Heavy Duty computing, fleet monitoring platforms, interconnected IoT, and telemetry data analysis. In 2016, the company partnered with Sojitz Corporation Japan, increasing the company’s value to US$ 10 million and helping the company develop a fleet management platform for various business industries. As an Indonesian technology startup focusing on the automotive industry, the company also introduced an innovative project, Traxia Mobility Service (TMS), where vehicles can be connected with cloud computing technology [21] [22]. The company offers IT product development services, but there are problems experienced by the company. The following is a table that outlines the problems in the company:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Impact</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intern training.</td>
<td>The work is not effective and often delayed, it is difficult to divide the work among the interns, and even at the end of the contract, they do not work well</td>
<td>Once every three months.</td>
</tr>
<tr>
<td>Presenting features to customers.</td>
<td>The product features are considered less valuable, not too useful, and customer evaluations are declining.</td>
<td>Once a year.</td>
</tr>
</tbody>
</table>

Based on Table 1, a comprehensive breakdown of the company's existing issues in 2023 is provided, delineating the nature, repercussions, and frequency of each problem. Firstly, the challenge pertaining to intern training is highlighted. Interns struggle to perform effectively, resulting in frequent delays and inefficiencies in work. Task allocation among interns becomes challenging, and performance remains subpar even towards the end of contract periods. This recurring issue, manifesting once every three months, indicates a consistent drain on resources and productivity. The passive approach to intern training has led to ongoing inefficiencies, delaying tasks and hindering productivity. Additionally, the difficulty in task allocation implies a lack of structure and guidance, further exacerbating the problem. The persistently subpar performance of interns reflects a failure to effectively address training needs, potentially affecting overall company performance and reputation.
Secondly, the issue of presenting product features to customers is expounded upon. Customers perceive the product features as lacking in value and usefulness, resulting in declining evaluations and potential loss of business. This issue arises once a year, indicating a recurring challenge that requires sustained efforts to address. The passive approach to presenting product features has resulted in a disconnect between customer expectations and the delivered value. The declining evaluations signify a loss of customer satisfaction and loyalty, which can ultimately impact revenue and market competitiveness. Addressing this issue proactively is crucial for maintaining customer trust and sustaining long-term business success.

The company faces significant challenges in its operations, including ineffective intern training and declining customer perceptions of product features. These issues directly impact productivity, efficiency, and ultimately, the company's reputation and market competitiveness. To address these challenges and align the company’s IT strategies with its overarching objectives, a comprehensive evaluation of IT governance is imperative. COBIT 2019, renowned for its ability to assess and improve IT governance practices, serves as the chosen framework for this evaluation. By leveraging COBIT 2019, the company aims to identify gaps in its IT governance processes, particularly in areas related to intern training effectiveness and product feature presentation. The framework's structured approach, incorporating design factors tailored to organizational needs, facilitates a thorough assessment of these critical areas. Through this evaluation, the company seeks to enhance its IT governance practices, ensuring alignment with business objectives and addressing the root causes of the identified challenges. Thus, the integration of COBIT 2019 into the evaluation process not only provides a structured framework for analysis but also offers actionable insights to drive tangible improvements in IT governance and overall organizational performance.

2. METHODS

The study presents a research flow outlining the stages involved in the company's audit process as illustrated in Figure 1.

1) Planning, in the initial phase, the research focuses on determining the research object by identifying and selecting a relevant topic. Subsequently, the research aims to identify the specific problems to be investigated, followed by conducting a literature review to understand previous research, identify knowledge gaps, and establish a theoretical basis supporting the research.

2) Field Work, in the subsequent stage, COBIT 2019 design factors are selected based on the research's scope and objectives. These factors are then integrated into the research methodology, aligning with the COBIT 2019 process relevant to the research object. Additionally, a RACI chart is

Laurentinus Heriyanto Setiadi, Melissa Indah Fianty | 679
developed to delineate and document responsibilities during the implementation of COBIT 2019.

3) Reporting, moving forward, the third stage entails reporting, where the capability level of the implemented COBIT 2019 process is assessed. A gap analysis is conducted to compare the actual performance with the desired standards. Subsequently, a comprehensive report is compiled, encompassing the research findings and analysis results.

4) Results, Finally, the research culminates in presenting the final results, which include the findings, analysis, and evaluation within the methodology framework employed. The research findings are thoroughly examined and analyzed to draw meaningful conclusions. Based on these conclusions, recommendations are provided for further development and improvement.

Figure 1. Research Workflow

This structured approach ensures a systematic and comprehensive audit process, integrating COBIT 2019 effectively to assess IT governance capabilities and derive actionable insights for enhancing organizational performance.
3. RESULTS AND DISCUSSION

In the following section, the outcomes of the study are presented, and an in-depth analysis and interpretation of the findings are provided to offer insights and implications.

3.1 Planning

The result of this planning process is the establishment of a clear research direction and the formation of a strong theoretical foundation to support further research. By identifying critical issues to be investigated, such as ineffective intern training and declining customer perceptions of product features, the company can align its research focus with organizational needs. Additionally, through literature review, the company has gained in-depth understanding of market conditions and best practices that can be applied to address the challenges faced. Thus, the outcome of this planning process is to provide a solid foundation for the company to proceed with further research efforts aimed at enhancing performance and competitiveness.

3.2 Field Work

The process of selecting IT involves assessing or modifying the company's IT requirements to monitor, evaluate, and gauge the effectiveness of implemented IT solutions. This procedure is essential for aligning organizational strategies and objectives with the current IT infrastructure. The chosen method is the COBIT 2019 core model, renowned for its flexibility in effectively managing IT within a company and addressing organizational needs.

The selection process of the COBIT 2019 Core Model for the company consists of four stages: comprehending the organizational context, identifying governance priorities, outlining governance tasks, and aligning COBIT 2019 objectives. The initial framework of the existing governance system within a company is determined by several design factors, including enterprise strategy design, corporate objectives, IT risk assessment, IT-related challenges, IT threat landscape, compliance requirements, IT role, IT sourcing model, IT implementation resources, technology adoption plan, and company scale.

1) Enterprise Strategy Design and Enterprise Goal

Following interviews with the CEO, the company opted for the IT process using COBIT 2019 mapping, based on 11 design factors aligned with COBIT 2019 guidelines. The initial factor, "Enterprise Strategy," outlines four key strategies: growth/acquisition, innovation/differentiation, cost leadership, and customer service. Analysis revealed a priority on innovation and differentiation, followed by customer service, with growth/revenue and cost efficiency also noted as important factors in the market. Moving on to the
second factor, "Enterprise Goals," it details 13 objectives and their significance. The company particularly emphasizes portfolio management, customer service orientation, and business innovation. These objectives are then linked to alignment goals to identify governance and/or management objectives of highest priority, including APO02, APO04, APO08, APO09, APO10, BAI06, BAI07, BAI08, and DSS01.

2) IT Risk Profile and IT Related Issues
Design Factor 3, focusing on IT Risk Profile, outlines 19 potential scenarios of IT system risks, categorized into four levels based on impact and likelihood. The company's analysis identified high-risk scenarios, including unauthorized actions, alongside normal risks like project life cycle management and IT architecture incidents. The presence of unauthorized actions is particularly concerning due to their frequent occurrence (3) and significant impact (4). Moving on to Design Factor 4, it discusses 20 IT-related issues, ranging from data loss to security breaches, all deemed serious within the company's IT landscape.

3) IT Threat Landscape and Compliance Requirements
Design Factor 5, IT Threat Landscape, assesses the level of threat within the company. Based on the provided graph, the threat level tends to be normal at 75 percent, prompting innovation to stay competitive with other products and ensure the development of product features remains relevant. Moving on to Design Factor 6, Compliance Requirements, it evaluates the company's adherence to compliance standards. The company shows a high level of compliance, not only with domestic technology policies but also with foreign policies, such as those of Japan, due to partnerships with Sojitz Corporation.

4) Role of IT, Sourcing Model for IT and IT Implementation Resource
Design Factor 7 emphasizes IT's crucial role in the company's strategic initiatives, turnarounds, and factory operations, with varying degrees of reliance across projects. Design Factor 8 reveals a preference for internal technology development over outsourcing, utilizing in-house resources and cloud infrastructure. Design Factor 9 showcases a preference for Agile project implementation, occasionally complemented by DevOps, while traditional methods are seldom used. Lastly, Design Factor 10 underscores the company's early adoption of technology, occasionally innovating based on societal acceptance, such as with Chatbots. The company rarely abstains from adopting new technologies. Additionally, according to COBIT 2019, the company falls under the small and medium enterprise category based on the analysis of 46 full-time employees.

5) Concluding the Governance System Design
Figure 2 is a summary of the analysis of the various design factors, highlighting the significant importance of governance and management objectives within the company. These objectives play a crucial role in ensuring the effective management and oversight of IT processes. Notably, BAI03 (Managed Solutions Identification & Build), BAI06 (Managed IT Changes), and BAI11
(Managed Projects) emerge as priorities in the company's IT strategy, as indicated by their high scores. These findings emphasize the company's dedication to structured solutions identification and development, efficient management of IT changes, and successful project management within its IT framework.

![Figure 2. Factors Conclusion Result](image)

6) RACI
   Based on the chosen COBIT 2019 objectives (BAI03, BAI06, and BAI11), roles were identified. The RACI chart assigns responsibilities to stakeholders.
Table 2. Capability Level Measurement Result

<table>
<thead>
<tr>
<th>Objective Process</th>
<th>Chief Executives Officer</th>
<th>Project Management Office</th>
<th>Internet of Things Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAI03</td>
<td>A</td>
<td>C/I</td>
<td>R</td>
</tr>
<tr>
<td>BAI06</td>
<td>A</td>
<td>C/I</td>
<td>R</td>
</tr>
<tr>
<td>BAI11</td>
<td>A/C</td>
<td>R</td>
<td>I</td>
</tr>
</tbody>
</table>

Table 2 those with more "Responsible" roles become primary interviewees. The Internet of Things team has the most "Responsible" roles, making it the main interviewee for BAI03 and BAI011. Both the Project Management team and the IoT team share equal "Responsible" roles in BAI06, so either could be interviewed for BAI06.

3.3 Reporting and Results

1) Achievement of Capability Level

Based on additional interviews, an assessment of the company's capability level was conducted, focusing on objectives BAI03, BAI06, and BAI11, with detailed objectives and activities sourced from COBIT 2019. The capability levels are summarized in Table 2:

Table 3. Capability Level Measurement Result

<table>
<thead>
<tr>
<th>Objective Process</th>
<th>Percentage</th>
<th>Category</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAI03</td>
<td>86%</td>
<td>Fully Achieved</td>
<td>Level 3</td>
</tr>
<tr>
<td>BAI06</td>
<td>83%</td>
<td>Largely Achieved</td>
<td>Level 2</td>
</tr>
<tr>
<td>BAI11</td>
<td>90%</td>
<td>Fully Achieved</td>
<td>Level 3</td>
</tr>
</tbody>
</table>

Table 3 outlines the company's capability levels for objectives BAI03, BAI06, and BAI11, evaluated according to COBIT 2019 standards. BAI03, focusing on Managed Solutions Identification & Build, achieved an 86% rating, indicating Level 3 capability and significant proficiency in this area. BAI06, addressing Managed IT Changes, scored 83%, reaching Level 2 status, suggesting satisfactory performance with room for improvement. Lastly, BAI11, concerning Managed Projects, attained a 90% rating, also achieving Level 3, highlighting adept project management capabilities. This analysis offers a comprehensive understanding of the company's IT management capabilities, identifying strengths and areas for improvement to enhance overall performance and efficiency.

2) Gap Analysis

The gap analysis, depicted in Figure 3, provides an overview of the variance between the measured results and the company's target objectives.
In objective BAI03, which pertains to Managed Solutions Identification & Build, there is a discrepancy of one proficiency level between the achieved result and the desired target. Similarly, objective BAI11, focusing on Managed Projects, also exhibits a one-level gap, indicating that the company's performance falls short of the intended target by one proficiency level. However, the most notable gap is observed in objective BAI06, addressing Managed IT Changes, where there is a significant two-level gap between the achieved result and the target. This suggests a substantial disparity between the company's current performance in managing IT changes and the desired level of proficiency outlined in the objectives. These findings underscore specific areas where the company may need to focus its efforts to bridge the identified gaps and align its performance more closely with its strategic objectives.

3) Detailed Findings
Based on interview analysis, several key findings emerged from the investigation, as summarized. The findings primarily revolve around processes in BAI03, BAI06, and BAI11. Particularly noteworthy is the company's lack of involvement of sponsors and third parties in project implementation, which can hinder effective collaboration and project outcomes. Additionally, the absence of defined criteria for emergency changes and the failure to document such changes pose challenges in managing project disruptions efficiently, impacting the company's ability to reach level 3 proficiency in BAI06. These findings underscore specific areas where the company needs to focus its attention to enhance project management practices and overall performance alignment with strategic objectives.

4) Recommendations
Based on the findings and their impact on the company, two types of recommendations emerge. Firstly, recommendations for improvement across various processes are outlined. These include designing detailed, functional products for evaluation, comprehensively checking solution quality, involving sponsors and third parties, and establishing protocols for emergency changes.
Additionally, specific recommendations are provided to enhance the company's performance level in objective BAI06. These recommendations entail systematic planning and evaluation of change requests, involvement of business process owners, and proper documentation and monitoring of emergency changes. To reach Level 3 proficiency, five key activities are suggested, followed by an additional five activities to achieve Level 4 proficiency in BAI06.

4. CONCLUSION

The study reveals critical insights into the company's IT governance and management processes using the COBIT 2019 framework. The planning phase established a strong research foundation, identifying key issues such as ineffective intern training and declining customer perceptions, which allows for focused research efforts. The adoption of the COBIT 2019 core model and analysis of design factors like enterprise strategy and IT risk profile highlight the importance of robust IT governance. The company shows strong capabilities in BAI03 (Managed Solutions Identification & Build) and BAI11 (Managed Projects), achieving Level 3 proficiency, while BAI06 (Managed IT Changes) demonstrates satisfactory performance with room for improvement at Level 2.

The study identifies gaps in IT change management, emphasizing the need for enhanced collaboration and documentation. Key issues include inadequate involvement of sponsors and third parties in projects and the absence of criteria for emergency changes. Recommendations include designing detailed evaluation products, involving stakeholders, and establishing protocols for emergency changes. By addressing these areas, the company can bridge the identified gaps, enhance its IT governance framework, and achieve higher levels of proficiency, ultimately driving better organizational performance and competitiveness.

REFERENCES


