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Information Technology Governance Design in Trading Companies Using the COBIT 2019 Framework

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Abstract

Effective information technology (IT) governance is very important for trading companies in managing their information assets well. The COBIT 2019 has been recognized as an international standard for IT governance that helps organizations achieve their strategic goals through the implementation of structured practices and processes. This research aims to design an IT governance framework based on COBIT 2019, especially for trading companies. The research methodology uses a case study approach by analyzing the unique needs and characteristics of trading companies in the IT context. The result is a design that is tailored to the needs and challenges faced by trading companies, including aspects of information security which are crucial in today's digital era. This research contributes to IT practitioners and senior managers to understand the practical and effective implementation of COBIT 2019 in improving IT governance in trading companies. By using COBIT 2019, trading companies can optimize the management of their information assets while ensuring regulatory compliance and increasing stakeholder trust.

Keywords: COBIT 2019 Framework, Information Technology Governance, Trading Companies, Design Factors.

1 INTRODUCTION

With the rapid advancement of technology and the increasing digitization of businesses, organizations today have unprecedented opportunities to enhance efficiency [1]. Information technology and data have emerged as critical assets, driving organizations to recognize the importance of effectively utilizing technology, managing associated risks, and aligning IT practices with robust governance frameworks [2]. As we transition into the digital era, technologies such as cloud computing, artificial intelligence, and the Internet of Things are not merely trends; they are now essential elements of business strategy and success [3]. IT governance is a vital component of corporate governance, focusing on optimizing technology to meet both internal and external business demands. Without a strong governance structure, companies face challenges in controlling IT applications and measuring their impact, hindering their ability to use technology as a strategic advantage [4]. The successful management of IT depends on its alignment with organizational goals, ensuring that technology serves the company's strategic objectives.

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An effective IT governance framework, such as COBIT 2019, provides organizations with the tools needed to achieve strategic objectives while minimizing risks and maximizing resource use [5]. This framework supports companies in identifying and capitalizing on opportunities related to technology use, helping them to evaluate and refine their business processes.

For example, a company selling finished goods in Salatiga has adopted various information systems, including social media platforms (WhatsApp, Instagram, Facebook), a sales information system for cashier transactions, and a corporate website. However, these systems are not integrated, resulting in an over-reliance on existing technology, limited capacity for independent development, potential productivity losses due to technological failures, and vulnerabilities in data security and transaction accuracy—all of which threaten the company's reputation and customer trust.

Conducting an IT governance audit is one way for companies to align IT use with organizational objectives. A well-executed audit assesses current IT utilization and identifies areas for improvement, ensuring that technology is managed efficiently. The COBIT framework, developed by the IT Governance Institute (ITGI) under the Information Systems Audit and Control Association (ISACA), offers a comprehensive set of guidelines for governing IT [5-9]. Evolving from COBIT 5 to COBIT 2019, the framework now encompasses best practices for managing and controlling IT to achieve desired business outcomes.

This research draws upon the COBIT 2019 framework to assess IT management capabilities within organizations, providing clear recommendations for enhancing governance practices to better support organizational performance. Unlike previous studies, which have analyzed capability levels without offering concrete recommendations, this study addresses the gap by providing actionable insights based on the latest framework [10-12].

In today's digital age, integrating IT into every aspect of a business is no longer optional but essential. Companies must adopt strategies that effectively leverage IT to achieve their objectives [13-14]. The structure of an IT governance system includes critical components such as human resources, control measures, and regulations, with human assets playing a pivotal role in designing, implementing, and evaluating systems. Inadequate IT governance can result in significant negative consequences, underscoring the need for structured frameworks like COBIT, which provide a standardized approach for managing IT across an organization. Effective use of technology enhances operational efficiency in areas such as inventory management, sales, and customer service, while also enabling businesses to adapt to digital trends and gain insights from data analytics [15-16].

This research aims to develop a robust IT governance framework to ensure the seamless integration of IS/IT across all organizational functions, addressing current gaps and optimizing technology usage.

2. RESEARCH METHODOLOGY

This research combines qualitative and quantitative approaches. A qualitative approach allows researchers to deepen their understanding of phenomena that are complex, ambiguous, and difficult to explain numerically **Error! Reference source not found.**. In contrast, a quantitative approach involves the use of measurement instruments that have been tested to produce consistent and reliable data **Error! Reference source not found.**. Qualitative data in this research was obtained through observation and interviews, while quantitative data was obtained through questionnaires filled out by respondents, then analyzed using maturity level calculations. The stages in this research in Figure 1.

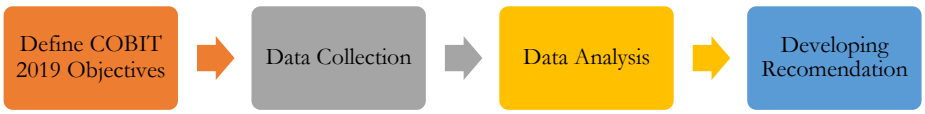

Figure 1. Research Stage

2.1 Determine COBIT 2019 Objectives

The first stage involves defining the objectives for applying the COBIT 2019 framework to align IT governance with the organization's business strategy and goals. The goal is to identify the appropriate domains or process objectives from the COBIT 2019 framework that are most relevant to the company. This involves understanding the company's specific context and strategy to ensure the framework's effective application.

a) **Understanding the Company Context**: We begin by understanding the organization's strategy, existing IT governance maturity, and specific business needs. This understanding helps identify which areas of IT governance need the most attention.
b) **Evaluation Using COBIT 2019 Design Factors**: The next step is to evaluate the organization by utilizing the COBIT 2019 design factors to determine the initial scope of the management system. This process involves analyzing Design Factors (DF) 1-4 to set the foundational scope and Design Factors (DF) 5-11 to expand the scope as needed. The analysis results will determine which domains or process objectives within COBIT 2019 have the highest importance and relevance to the organization.

c) **Tailoring the IT Management System**: After identifying the objectives, the next step is to collect data related to these objectives. By considering the COBIT 2019 design factors, the organization can develop an IT management system tailored to its needs and business goals [14].

2.2 **Data Collection**

The data collection stage utilizes both primary and secondary methods to gather comprehensive information on the organization's current IT governance practices. The methods include:

a) **Observation**: Direct observation of the organization's current IT practices and processes to understand how well they align with the desired COBIT 2019 objectives.
b) **Interviews**: Structured interviews with key stakeholders such as IT managers, senior executives, IT staff, and business managers to collect qualitative data on current IT governance practices, challenges, and areas for improvement.
c) **Literature Studies**: Reviewing existing literature, documents, and reports on the organization's IT governance, including IT policies, procedures, audit reports, compliance records, and previous governance frameworks in use.
d) **Surveys and Questionnaires**: Distribution of surveys and questionnaires to a broader range of employees involved in IT processes. These instruments capture quantitative data on the current state of IT governance, employee awareness of IT policies, and the perceived effectiveness of IT controls.

2.3 Data Analysis

The data analysis stage involves several sub-steps to assess the organization's current IT governance maturity and identify areas for improvement. The analysis methods include:

a) **Measurement Scale Analysis**: A recapitulation of respondents' answers from distributed questionnaires concerning IT management and utilization. Each respondent's answer will be assessed on the COBIT 2019 scale as "yes" (value of 1) or "no" (value of 0). This helps quantify the organization's adherence to best practices.
b) **Capability Level Analysis**: Following the Guttman scale methodology, the company's current IT governance capabilities are assessed according to the COBIT 2019 framework. This analysis determines the capability levels of various IT governance activities, identifying the organization's strengths and weaknesses.
c) **Gap Analysis**: After identifying the current and expected capability levels, a gap analysis is performed to pinpoint specific areas where

improvements are needed. This analysis helps identify which IT governance activities require enhancement to meet the desired capability levels and align with COBIT 2019 standards.

2.4 Developing Recommendations

Based on the findings from the data analysis, this stage focuses on developing actionable recommendations to improve IT governance within the organization. The recommendations aim to achieve the target level of IT process capability, as outlined by the COBIT 2019 framework.

a) **Formulating Specific Recommendations**: The recommendations are designed to address identified gaps and weaknesses, helping the company improve its IT governance processes. For example, if a gap is found in risk management, the recommendation may include implementing a formal risk management process or adopting new tools and training.
b) **Implementation Plan**: An implementation plan is developed to guide the organization in executing these recommendations. This plan includes a timeline, resource allocation, roles and responsibilities, and key performance indicators (KPIs) to monitor progress and ensure successful implementation.
c) **Validation and Monitoring**: The recommendations are validated with key stakeholders to ensure feasibility and alignment with organizational goals. A monitoring and evaluation framework is established to track the implementation's progress, incorporating regular reviews, feedback, and continuous improvement mechanisms.

The COBIT 2019 framework's design principles help the organization focus on achieving business goals while ensuring transparency, accountability, and effective decision-making throughout the IT governance process [15].

3. RESULTS AND DISCUSSION

3.1 Assesment Results

Based on a series of interviews with key stakeholders within the company, the following insights were gathered:

a) Understanding the Company's Strategy, the company employs a business strategy focused on increasing sales and enhancing customer service. To achieve these objectives, the company actively pursues the development of new fashion products and innovations, continuously working to improve the quality of both products and services offered to customers.
b) Understanding the Company's Goals, the company prioritizes leveraging information technology, particularly in response to the rapid advancements characteristic of the digitalization era. This focus is integral to the company's

strategy for maintaining competitiveness and meeting evolving customer expectations.

c) **Understanding the Company's IT Risk Profile**, the company faces a range of potential risks associated with its use of IT resources, including the development and implementation of application systems. These risks can vary in severity, from minor disruptions to major impacts on business operations. A significant risk is the potential for system failures that could disrupt IT operations and ongoing business processes.

d) **Understanding IT-Related Issues**, the company encounters several IT-related issues that manifest as materialized IT risks. Key challenges include inadequate employee capabilities in managing IT systems and weaknesses in the security infrastructure, which increase the vulnerability of data to breaches.

3.1.2 Determine the Initial Scope of Governance

The results of the introduction through interviews and observations have been applied to the design factors in the COBIT 2019 framework as follows.

a) Design Factor 1: Corporate Strategy

This first design factor describes the different strategic approaches of various organizations and companies. Each organizational entity naturally differs in how they design their basic strategy. There are four main categories in company strategy, namely growth/acquisition, innovation/differentiation, cost leadership, and customer service/stability. The identification of the results of the first design factor for the company can be depicted in Figure 2.

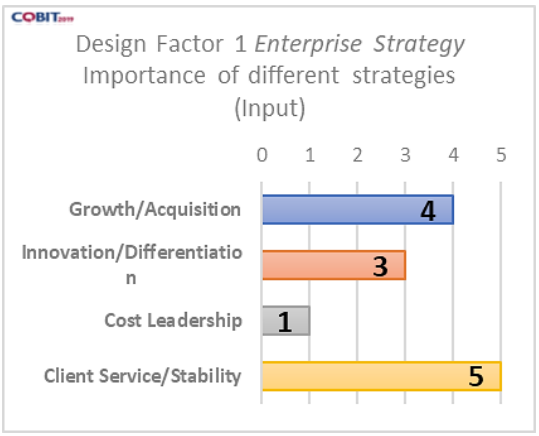

Figure 2. Corporate Strategy Design Factors

Based on Figure 2 which has been presented, the company's main attention in its corporate strategy is centered on the service to clients/stability aspect which is

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assessed with a score of 5. This assessment is based on the company's core objectives, which focus on improving product quality and service to customers. Apart from that, the growth aspect is assessed with a score of 3 because the company is committed to continuing to develop in serving customers well. Innovation is also part of the company's strategy, although it is not the main focus, because the innovation implemented is largely based on customer needs. Meanwhile, the value in terms of cost leadership is given a score of 1, considering that the company is basically a sales company that gets goods from suppliers and does not focus on controlling costs.

b) Design Factor 2: Company Goals

In the second design factor, a company adopts a strategy to achieve a set of predetermined goals. This goal can be explained in the context of the COBIT 2019 framework in the second design factor, namely "Company Goals". The identification results are as show in Figure 3

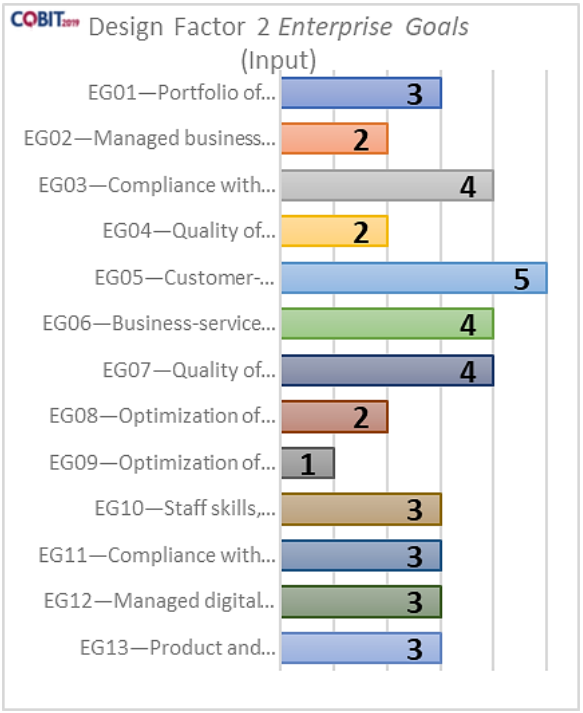

Figure 3. Design Factors Corporate Goals

Based on Figure 3, it can be seen that the company focuses on customer-oriented service aspects, which can be found between EG05 to EG07 with point 4 which provides a focus on customers.

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c) Design Factor 3: Risk Profile

In design factor 3, there is recognition of the risks that may arise within the company. Risk profiles are the most current issues related to information technology that are being faced today and indicate the most vulnerable areas. There are 11 risk categories that need to be considered. The following are the results of introducing the risk profile in the company as shown in Figure 4.

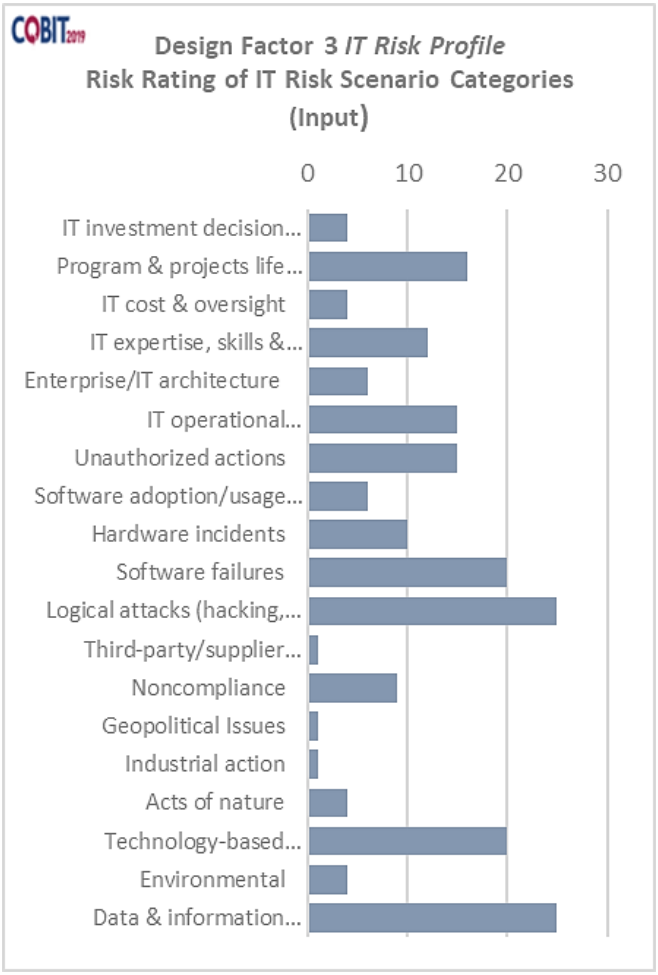

Figure 4. Risk Profile Design Factors

Referring to Figure 4, the highest value is 25, which has a big impact if this risk occurs. Logical attacks and data & information management categories are assets that companies must pay close attention to and manage carefully. This is because if there is a leak of transaction data and customer data, the consequences will be very serious. Population data, especially if it falls into the big data domain, will

have a very detrimental impact on companies. In addition, in the context of technology-based innovation, good planning is very important. Companies must ensure that the use of technology does not complicate or complicate company operations.

d) Design Factor 4: Enterprise IT-Related Issues

The fourth design factor records the discovery of problems that the company is currently experiencing. At this stage, an evaluation is carried out regarding issues or problems related to Information Technology that are being faced by the company. The following are the results of identification of ongoing Information Technology problems as shown in Figure 5.

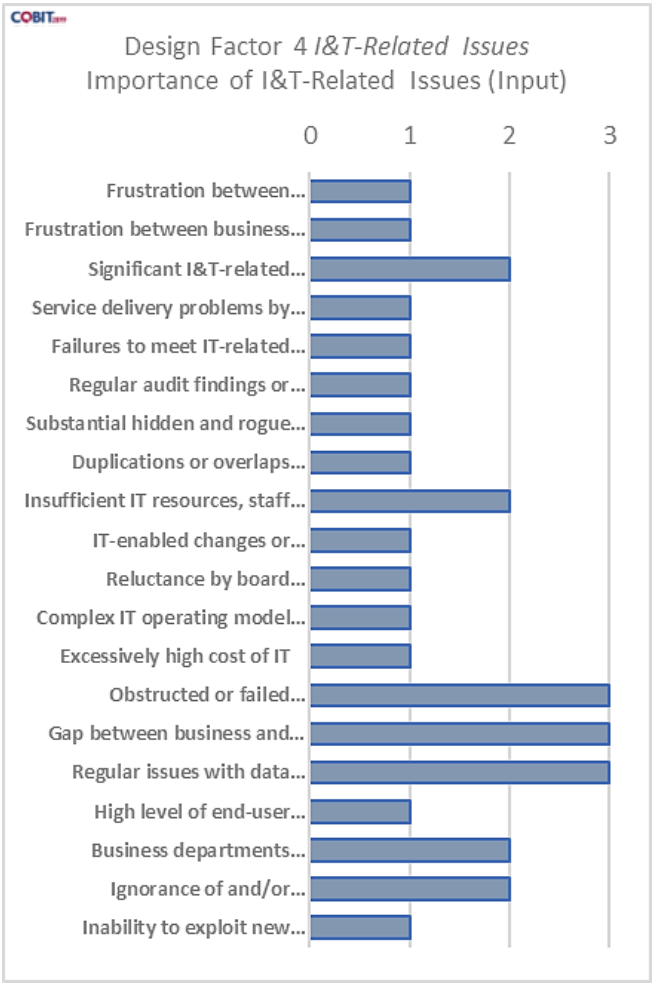

Figure 5. Design Factors Related to Corporate IT Issues

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Referring to Figure 5, the issues that often arise in companies are related to information technology. This includes a lack of effectiveness in implementing previously prepared innovation plans, as well as a lack of employee ability to utilize technology to create innovations that support the company in managing its operations.

e) Design Factor 5: IT Threat Landscape

The fifth design factor is understanding the Information Technology Threat Landscape, which is an important step in helping companies or organizations to recognize various potential threats that could endanger the organization's operations as shown in Figure 6. In this context, we will focus on companies.

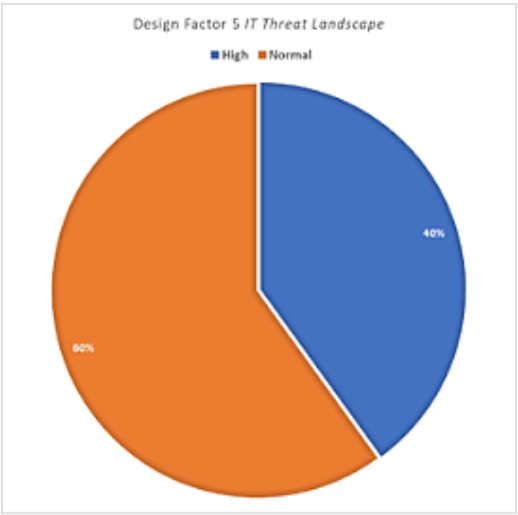

Figure 6. IT Threat Landscape Design Factors

The identification results can be found in the illustration above. There is a conventional risk of 60% which arises due to frequent disruptions to the installed WiFi network. The next threat, with a high-risk level of up to 40%, is repeated damage to company hardware. These threats can be handled effectively because the companies concerned quickly resolve problems that arise.

f) Design Factor 6: Compliance Needs

The 6th design factor describes the process of identifying the company's level of conformity with compliance requirements, both coming from internal and external to the company. The interview results show that the company complies with these requirements with a compliance level reaching 100%, indicating that the company fully complies with the existing requirements as shown in Figure 7.

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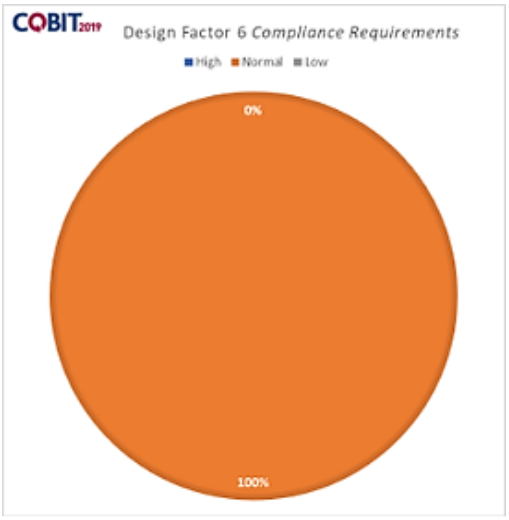

Figure 7. Requirements Compliance Design Factors

g) Design Factor 7: Role of IT

The 7th design factor is the role of information technology issues, which was designed with the aim of assisting in identifying the role of information technology within the company as shown in Figure 8.

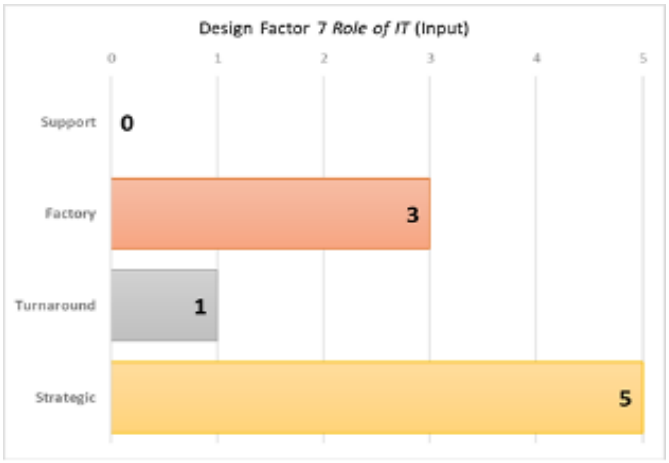

Figure 8. IT Role Design Factors

Based on Figure 8, it can be seen that Information Technology (IT) has a very significant role in company operations. This is reflected in the strategic assessment given with a score of 5, indicating that all aspects of the company's operations are highly dependent on IT. A score of 3 on the factory factor indicates that when a disruption occurs in the company's IT system, this will have a direct impact on the

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company's business processes. On the other hand, an assessment with a score of 1 on the change factor indicates that IT does not have a significant role in the innovation efforts carried out by the company.

h) Design Factor 8: Enterprise IT Sourcing Model

Design factors 8 are used to identify how companies plan their IT resource procurement, represented in the form of percentages. An illustration of the results of design factor 8 as shown in Figure 9.

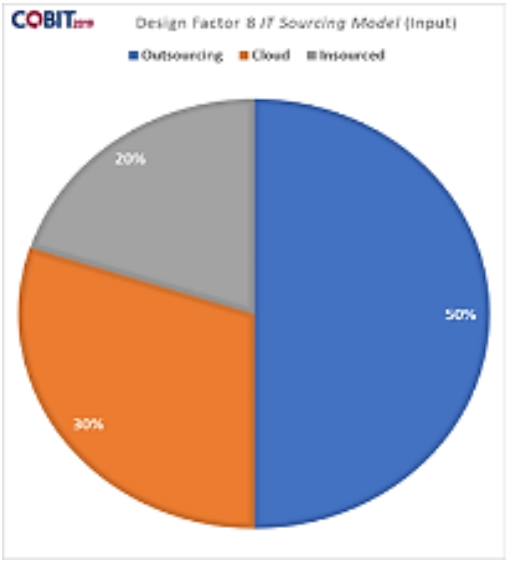

Figure 9. Company IT Resource Model Design Factors

Figure 9 shows that the share of outsourcing activities is 50%. This is due to the fact that companies duplicate IT services from third parties in the creation and development of certain IT programs or applications. Additionally, about 30% comes from the cloud portion, as companies use cloud services such as Google Drive to store data online. Furthermore, around 20% comes from insourced activities, which indicates that the company has its own IT staff, but their function is more focused on monitoring and operating existing IT service systems.

i) Design Factor 9: Implementation Method

Design factor 9 aims to identify the methods or approaches used by companies in developing information technology, and this is measured in percentage form. The results of design factor 9 as shown in Figure 10. According to the data seen in the Figure 10, the percentage of implementing Agile methods in companies reaches 100%. This is since most of the information technology development and

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implementation processes in these companies adopt Agile methods. the company decided to implement Agile methods because they actively use feedback from customers in the development process. Thus, the information obtained from customer feedback is used to communicate and coordinate among various teams within the company.

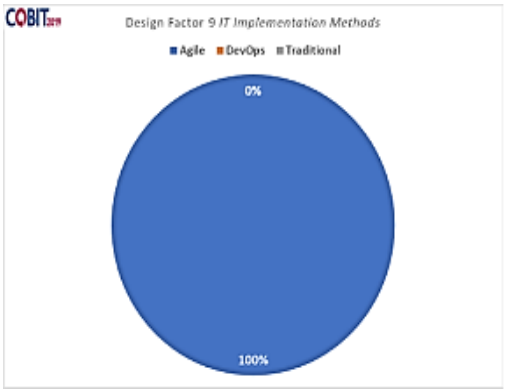

Figure 10. IT Implementation Method Design Factors

j) Design Factor 10: Technology Adoption Strategy

Implementation Strategy Technology Adoption is the 10th design factor. It aims to recognize the strategies adopted by companies in adopting technology. As shown in Figure 11, the company's approach to implementing technology consists of several aspects: 15% is the first mover, because the company is a pioneer in implementing this technology when compared with similar competitors in the same region. 60% are followers, because the company uses technology that does not originate from the company and has been used by many similar competitors outside the same region. Meanwhile, 25% are slow adopters, where companies are not in a hurry to implement new technology and prefer to utilize existing IT resources.

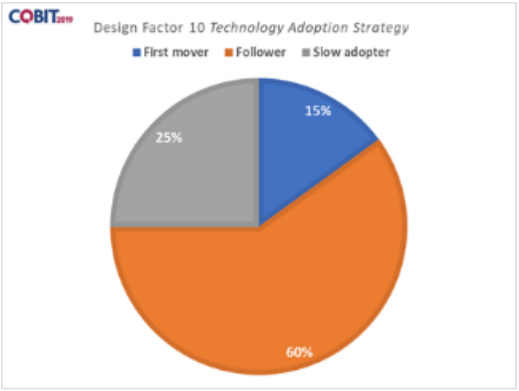

Figure 11. Technology Adoption Strategy Design Factors

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3.2 Discussion

Based on the results, implementing the COBIT 2019 framework in trading companies reveals several critical insights. Firstly, the framework demonstrates a high degree of adaptability, allowing it to be tailored to the specific needs and strategic objectives of trading companies. This research highlights that COBIT 2019's principles—alignment with business goals, value delivery, and effective risk management—are particularly beneficial in the trading sector, where market volatility and regulatory compliance are significant concerns. These findings align with existing literature that emphasizes the flexibility and comprehensive nature of COBIT 2019, which is suitable for various industries, including trading companies. The framework's adaptability enables organizations to align their IT governance with business objectives, enhancing strategic decision-making and operational efficiency.

However, one notable challenge identified in this study is the integration of COBIT 2019 with existing IT systems and processes within trading companies. This challenge is consistent with findings from previous studies that highlight the difficulties organizations face when implementing new governance frameworks. Issues such as resistance to change, the need for significant cultural shifts, and extensive training requirements are frequently cited in the literature as barriers to successful implementation. This study specifically found that inadequate employee capabilities and weaknesses in existing security infrastructure increased the complexity of adopting the COBIT 2019 framework.

The practical implications of this study are significant for trading companies seeking to enhance their IT governance. The findings suggest that a phased implementation approach, beginning with a pilot program, can help mitigate initial resistance and provide a clearer understanding of the framework's benefits. Additionally, the study underscores the importance of executive support and clear communication throughout the implementation process—critical success factors that have been highlighted in previous research.

Moreover, the benefits of applying COBIT 2019 in trading companies are evident, as improved risk management, enhanced compliance with regulatory requirements, and better alignment of IT with business goals were among the key advantages reported. These benefits align with COBIT 2019's objectives, which aim to optimize IT investments and support strategic business objectives.

Based on the assessment results and the specific findings regarding the company's conditions and strategy, the following recommendations are proposed to enhance IT governance using the COBIT 2019 framework:

1) **Align IT Governance with Corporate Strategy**: Given that the company focuses on customer service and stability (Design Factor 1), IT governance initiatives should prioritize improving customer-facing technologies and ensuring service reliability. Emphasizing quality service and growth while maintaining operational stability should guide IT investments and decision-making processes.
2) **Enhance IT Capabilities to Meet Company Goals**: As the company prioritizes leveraging information technology to maintain competitiveness (Design Factor 2), it is crucial to strengthen IT capabilities. This can be achieved by investing in employee training programs to improve technical skills and understanding of IT governance principles, thus addressing the current gaps in employee capabilities and mitigating associated risks.
3) **Improve IT Risk Management Practices**: Given the significant risks associated with IT resource use, system development, and implementation (Design Factor 3), the company should adopt robust risk management practices. This includes developing a comprehensive risk management framework that identifies, assesses, and mitigates risks related to IT operations. Specific attention should be given to managing logical attacks, data breaches, and system failures, as these were identified as high-risk areas.
4) **Address IT-Related Issues and Enhance Security Measures**: To resolve existing IT-related issues (Design Factor 4), such as inadequate employee capabilities and vulnerabilities in security infrastructure, the company should implement targeted security measures. This might involve upgrading security protocols, investing in advanced security tools, and ensuring continuous monitoring and auditing of IT systems to protect against data breaches.
5) **Implement a Phased Approach to Integrating COBIT 2019**: Start with a phased implementation strategy, beginning with a pilot program to test the framework in a controlled environment. This approach will allow the company to address initial resistance, identify potential challenges early, and demonstrate the framework's benefits to stakeholders.
6) **Leverage the IT Threat Landscape for Better Preparedness**: Understanding the IT threat landscape (Design Factor 5) is crucial for recognizing potential threats that could disrupt operations. The company should enhance its monitoring and response capabilities to manage conventional risks, such as WiFi disruptions and hardware failures, which were identified as recurring issues.
7) **Strengthen Compliance with Regulatory Requirements**: Given that the company meets compliance needs (Design Factor 6) at a high level, it should continue to align its IT governance practices with both internal

and external compliance requirements. Regular audits and updates to compliance policies can help maintain this high standard.

8) **Maximize the Role of IT in Supporting Strategic Objectives**: The significant role of IT in company operations (Design Factor 7) suggests that IT should be leveraged more strategically to support innovation and operational efficiency. This can be achieved by enhancing collaboration between IT and business units, ensuring IT investments are aligned with business strategies, and encouraging the use of IT in decision-making processes.
9) **Optimize IT Sourcing Models and Methods**: Given the current IT sourcing model (Design Factor 8), which relies heavily on outsourcing and cloud services, the company should evaluate the effectiveness of its sourcing strategy. It may be beneficial to increase the proportion of insourced IT activities to enhance control and reduce dependence on external providers. Moreover, adopting the Agile implementation method (Design Factor 9) should continue to be a priority, as it aligns with the company's need for flexibility and responsiveness.
10) **Adopt a Strategic Approach to Technology Adoption**: Finally, considering the company's technology adoption strategy (Design Factor 10), the organization should continue being a technology follower while cautiously exploring new technologies that could provide a competitive edge. This balanced approach will ensure that the company remains competitive without overcommitting to unproven technologies.

This research is limited by its focus on a small number of trading companies, which may not fully represent the broader industry landscape. Future research could expand the sample size and include companies of varying sizes and geographical locations to validate the findings further. Additionally, longitudinal studies could provide deeper insights into the long-term impacts of COBIT 2019 on trading companies' performance and strategic alignment.

4. CONCLUSIONS

This research demonstrates that the COBIT 2019 framework is a valuable tool for enhancing IT governance in trading companies by aligning IT with business objectives, improving operational efficiency, managing risks, and ensuring regulatory compliance. Effective implementation of COBIT 2019 requires integrating the framework with the company's culture and strategic goals, enabling better coordination between IT and business functions. To achieve sustainable and adaptive IT governance, this study recommends a phased adoption approach, supported by strong executive commitment and clear communication to overcome resistance. Overall, COBIT 2019 helps trading companies optimize IT investments and maintain competitiveness in a digital environment.

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