

IT Governance Analysis in Interior Contracting Industry: A COBIT 2019 Approach

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Abstract: The very rapid development of technology is currently having an impact on every industry, which must adapt by carrying out technological transformation to survive and have added value for customers. Many businesses, including interior contractors, use a variety of hardware and software, as well as information systems, to streamline their business processes. Under these conditions, the importance of strong IT governance to ensure that the implementation of IT investments continues to provide great benefits for the company's progress has been considered a top priority. This research explores how IT governance functions in this industry using COBIT 2019, a leading evaluation framework. The main areas of COBIT 2019 will be used to assess a company's IT capabilities. This study focused on an interior contractor company in Serpong, Indonesia, which was already using enterprise resource planning (ERP) and project management software. The analysis identified 12 out of 40 domains that need improvement to achieve certain target levels. These agreed targets aim to improve IT capabilities, such as reducing dependence on external vendors for system development and creating clear standards for managing technological change. Despite these recommendations, further investigation revealed a gap between the desired and current conditions. This research proposes solutions to bridge this gap, including achieving greater IT system independence and establishing clear guidelines for navigating technological advances.

Keywords: COBIT 2019, Information Technology Governance, Interior Contractor

INTRODUCTION

Digital technology has become widespread in daily life, transforming numerical data into useful information. Interior architecture has also benefited from digital technology, with 3-dimensional works and digital presentations being popular (DEMİRARSLAN & DEMİRARSLAN, 2020). More specifically, the interior design and contracting industry thrives on creativity and meticulous project management. In today's digital landscape, technology plays a vital role in every stage of a project, from computer-aided design (CAD) software to enterprise resource planning (ERP) systems. As for CAD, computer-aided design plays an important role in improving efficiency and implementing an efficient indoor scene rendering system, providing a reference for the development of indoor aesthetics (Wang & Lei, 2023). Meanwhile, ERP systems have been used by organizations to integrate and streamline their operations (Hindarto & Wedha, 2023).

Artificial Intelligence (AI) developments that have begun in recent years have also entered the interior industry. The interior design method based on artificial intelligence technology helps to enhance the effect of intelligent application of interior design and promotes the optimization and upgrading of the interior design working experience. (Gong, 2023). Also, Information and Communication Technologies (ICT), which were formerly housed in industrial products, are now found in spaces, necessitating a transdisciplinary approach to design. As adaptive technologies like artificial

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intelligence and augmented reality emerge, user interfaces are becoming more diverse in terms of their senses. ICTs, user interfaces, and traditional elements will all be present in built environments. (Semizoğlu & Kaya, 2023).

However, leveraging technology effectively requires a structured approach to Information Technology (IT) governance. Information Technology governance is the part of organizational governance that ensures information systems are implemented in a way that is aligned with organizational goals and strategies. Effective governance management can ensure that all company resources are managed effectively to achieve the stated goals. Information technology governance is also a mitigation step in coordinating the application of information technology in line with business objectives. If this governance is carried out correctly, it will enable the business world to continue to compete with competitors. (Darmawan & Wijaya, 2022).

The use of information technology in the interior contracting industry is still not running as expected by the company. It is still often found that information technology is one of the obstacles to decision-making in business processes. Information systems or applications offered by vendors are also a challenge because of the risk of dependency on the system or application. Because of the extensive use and dependence of organizations on information technology (IT), inadequate management and oversight of IT systems have also been identified as sources of failure (Ako-Nai & Singh, 2019). Another example is that organizations are struggling to manage the integration between ERP systems and big data technologies, leading to a lack of ERP responsiveness (Bandara et al., 2024). This condition is certainly not what is expected from the initial goal of the information system, which helps the company's goals and strategies be achieved.

To overcome these problems, an evaluation of IT governance is needed. Regular reviews are necessary to ensure that any errors in the governance system can be corrected promptly. Many frameworks can be used according to the needs of the organization, such as COBIT, ISO, ITIL, TOGAF, and others (Ilham Akbar Sodik & Nugraheni, 2022). This research will use COBIT 2019, which stands for Control Objectives for Information and Related Technologies, designed and created by ISACA, a global association that helps individuals and companies achieve the positive potential of technology (ISACA a, 2019). This framework is the newest update from COBIT 5 and can be combined with several other IT governance frameworks to produce the results desired by the organization (White, 2019).

This research will explore how the COBIT 2019 framework can be utilized to assess and improve IT practices within an interior contracting company. By employing COBIT 2019's structured approach, the research will analyze an institution's current situation, and existing processes, and apply COBIT procedures to align with government and management objectives, improving processes, resources, and roles (Alvarado-Sarango, 2021). In this research, the scope is only on the application of information technology governance which is limited by the domains in COBIT 2019, which total forty domains consisting of five Governance Objectives domains and thirty-five Management Objectives domains (Association, 2019). An evaluation will be conducted for PT. XYZ, is an interior contractor company located in Serpong, Indonesia. This company has been in business for almost 40 years and started its technology transformation in 2012 by implementing SAP, one of the leading ERP software (SAP, 2021), and PROMYS in 2015, an in-house mobile and web application for their project management system. The objectives of this research are to analyze the company's current IT governance and propose solutions to bridge any identified gaps. Ultimately, this research aims to contribute to a deeper understanding of how IT governance practices using COBIT 2019 can be optimized for success within the interior design and contracting sector.

METHODS

The descriptive research approach will be the research method used to address research issues. Using data that can be seen or seen as it is, the descriptive approach is a method for tackling problems that involve characterizing the state of the topic or target of research at a particular point in time. This target or topic can be an individual, an organization, a society, or something else entirely (Chandra, 2021).

As generally depicted in the research flow diagram Figure 1, for this research, the initial stage in the descriptive research method is conducting a literature review. A literature study is a type of

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research methodology that involves reading through a variety of previously published works, including books and other works from national and international journals, among others (Hayati, 2022). In this research, the literature takes information about COBIT 2019 and related research previously in journals.

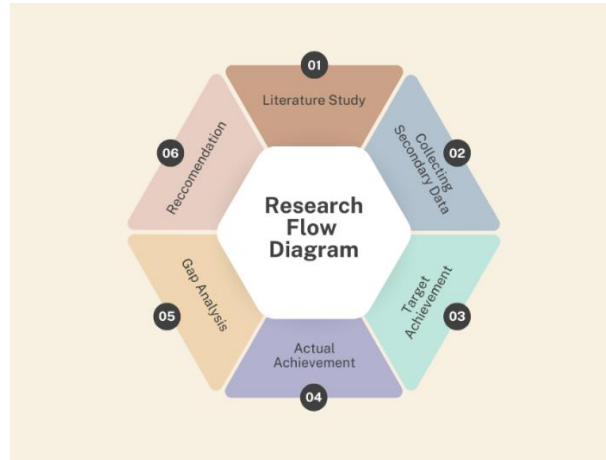


Fig.1 Research Flow Diagram
Source: researcher property

The second stage is collecting secondary data. Data that has already been gathered by earlier institutions or organizations is known as secondary data, and it is typically easier and faster to obtain (Syafnidawaty, 2020). To collect it for this research, observations were made of an interior contractor company PT. XYZ located in Gading Serpong, Tangerang has started its digital transformation journey by implementing SAP® in 2012 and PROMYS an in-house build project management software since 2015. Data in the form of features used, number of users and other supporting data such as infrastructure that supports the use of systems and applications in the company.

The next third stage is in determining achievement targets. The process begins with conducting an assessment to identify how IT is managed in the company, implemented, and whether there have been any obstacles so far. This assessment will use forty domains that group in ten Design Factors (DF) as stated in the COBIT 2019 Design Guide, which includes: enterprise strategy, enterprise goals, risk profile, I&T-related issues, threat landscapes, compliance requirements, role of IT, sourcing model of IT, IT implementation methods, and IT adoption strategy (Lumingkewas et al., 2022). The significance of the company's ongoing operations was evaluated by researchers using the COBIT 2019 design factor evaluation tool. This tool will produce the suggested target level capability for each process in the COBIT 2019 core model by interviewing individuals who directly oversee IT governance at this organization using the design factor toolkit (ISACA, 2019). The Likert scale of 5 points maximum will be used to assess each domain and the result of the assessment will lead us to the suggested target capability level by COBIT 2019 and the agreed target capability level by the company at levels 3 and 4. In addition, the approach used to calculate activities in each priority objective and ensure the level of capability is based on the NPLF (Normalised Process Level Factor) statistical formula. This rating scale measuring level of capability based on the ISO/IEC 15504 standard (Gede Purnawa et al., 2024). The level of process capability is ensured using the NPLF method, as depicted in the capability level ranking process in Table 1 below.

Rating	Description	Percentage of Achievement
N	Not Achieved	0% - 15%
P	Partially Achieved	>15% - 50%
L	Largely Achieved	>50% - 85%
F	Fully Achieved	>85% - 100%

Table 1. NPLF Rating Scale
Source: COBIT 5 framework

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The following is an explanation of the table above. The term “Not Accomplished” describes an implementation stage where the element is not present at all or no action is taken. “Partial” indicates limited or incomplete implementation even though some steps have been taken. “Most” indicates an important or substantial level of application. However, there is still potential for progress or improvement. “Fully” indicates that the organization has implemented the elements in the assessed COBIT domain or process fully and comprehensively.

The next three stages are actual achievements, gap analysis, and recommendations. Actual achievements are obtained directly by examining each user, representing a company's division. This stage is critical to determining the extent to which the target level of ability that has been previously set has been realized in practice. After obtaining value from this activity, the next stage is gap analysis. This activity will look at the results of actual achievements and compare them with targets, determine which gaps have the most significant impact, and understand the reasons underlying these gaps in each domain. And in the final stage, recommendations will be provided for the company to take further action to reduce the gap to the target. The recommendations follow what is in the action plan at COBIT 2019 in each domain.

RESULT

DESIGN FACTOR

Design Factor (DF) 1: Enterprise Strategy

Figure 2 illustrates that PT. XYZ's primary strategy is growth/acquisition, while its secondary strategies are innovation/differentiation, cost leadership, and client service/stability.

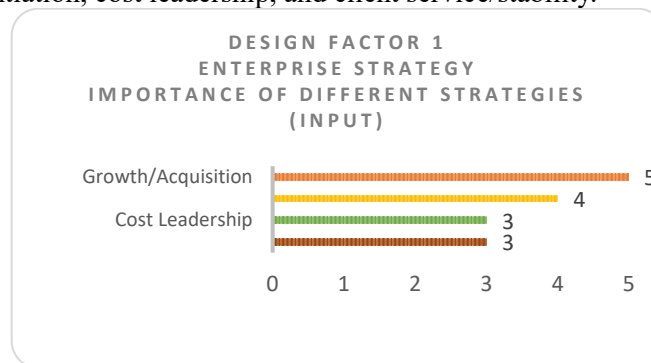


Fig.2 DF1 Enterprise Strategy
Source: COBIT 2019 Toolkit

Design Factor (DF) 2: Enterprise Goals

Figure 3 DF2 shows the enterprise goals of PT. XYZ. Interviews with respondents indicate that EG04 and EG13 stand for the enterprise goals, which center on product and business innovation as well as the caliber of financial information. However, their secondary enterprise goals are found to be EG05, EG10, and EG12, which are customer-oriented service culture, staff skills, motivation, and productivity; and managed digital transformation programs.

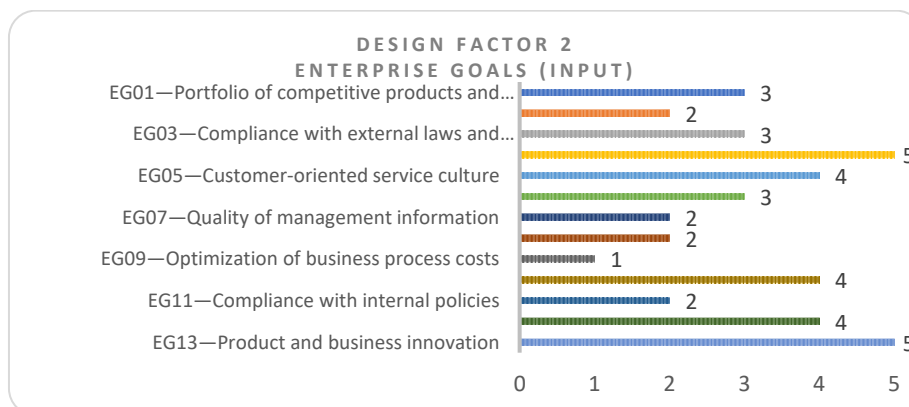


Fig.3 DF2 Enterprise Goals / Source: COBIT 2019 Toolkit

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Design Factor (DF) 3: Risk Profile

Figure 4 shows PT. XYZ's IT risk profile, denoted by DF3. Seven hazards have been identified based on the respondent interviews. Four of them are categorized as very high risk: logical attacks, technology-based innovation, data & information management, and software adoption/usage issues. The other three risk profiles, on the other hand, are categorized as high risk and include hardware incidents, enterprise/IT architecture, and IT expertise, skills, and behavior.

Risk Rating baseline	Risk Description
16	Very High Risk
12	High Risk
6	Normal Risk
0	Low Risk

Table 2. Risk Rating Scale
Source: COBIT 2019 framework

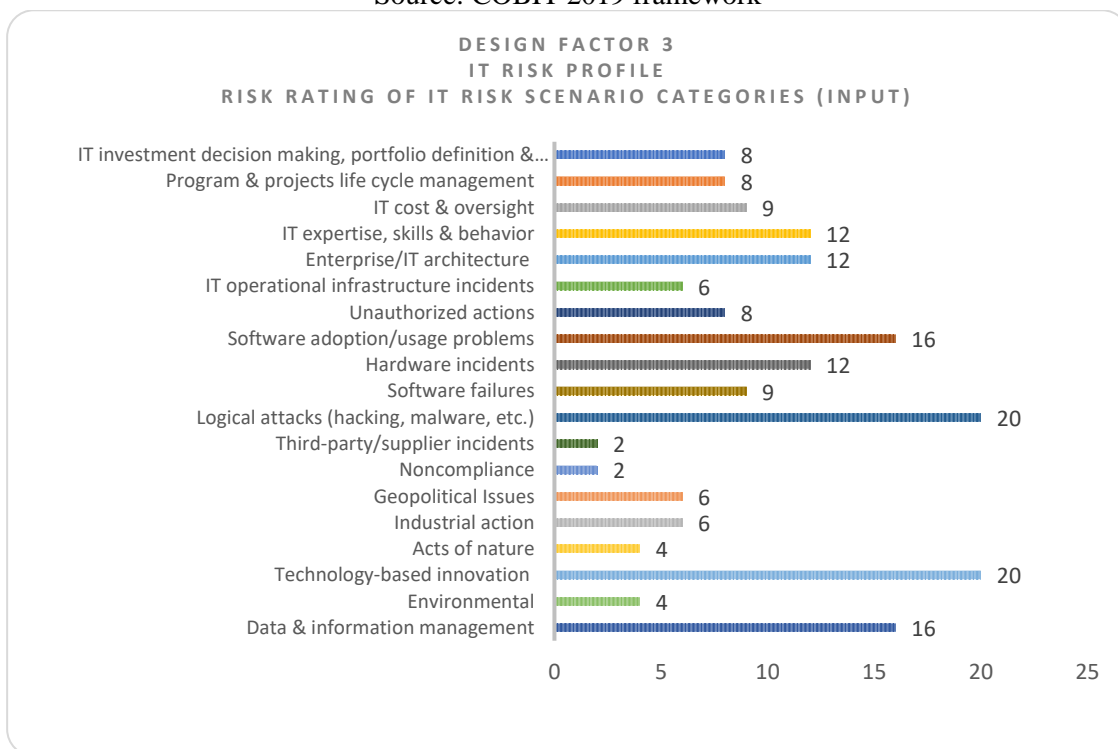


Fig.4 DF3 IT Risk Profile
Source: COBIT 2019 Toolkit

Design Factor (DF) 4: I&T Related Issues

The I&T-related problems for PT. XYZ is shown in Figure 5 by DF4. Interviews with respondents revealed that they are presently dealing with six I&T-related problems. These I&T-related problems include major IT-related incidents, like data loss, security breaches, project failures, and application errors; significant IT spending that is hidden or rogue, meaning it is done by user departments outside of the regular I&T investment decision-making processes and approved budgets; resource duplication or overlaps between initiatives; a lack of dedicated business sponsorship for IT; frequent problems with data quality and integration across multiple sources; and business departments implementing their information solutions with little to no support from IT.

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Issue Rating	Issue Description
3	Serious Issue
2	Issue
1	No Issue

Table 3. Issue Rating Scale
Source: COBIT 2019 framework



Fig.5 DF4 I&T Related Issues
Source: COBIT 2019 Toolkit

Design Factor (DF) 5: Threat Landscapes

According to DF5, the threat level where PT. XYZ operated was 70% high and 30% normal, as seen in Figure 6.

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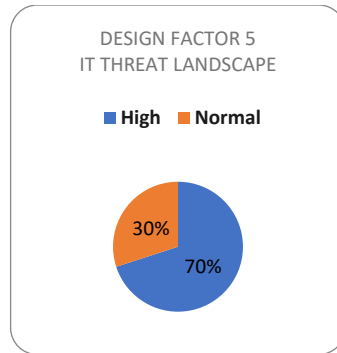


Fig.6 DF5 IT Threat Landscape
 Source: COBIT 2019 Toolkit

Design Factor (DF) 6: Compliance Requirements

Figure 7 illustrates that in DF6, as per the respondents' interviews, the percentage of respondents who complied with all external and internal regulations was 70% normal and 30% high.

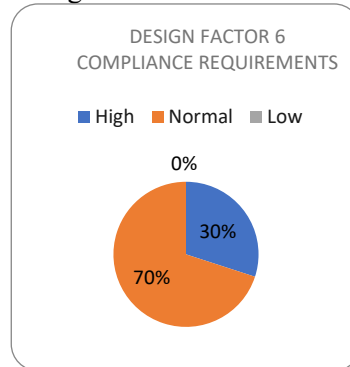


Fig.7 DF6 Compliance Requirements
 Source: COBIT 2019 Toolkit

Design Factor (DF) 7: Role of IT

DF7 explains PT. XYZ's IT department's function. The primary function of IT at this company is turnaround, as seen in Figure 8, based on the results of interviews with respondents. IT is perceived as a catalyst for organisational change and improvement. This organisation views IT's secondary role as strategically important since it fosters innovation, competitive advantage, and business expansion.

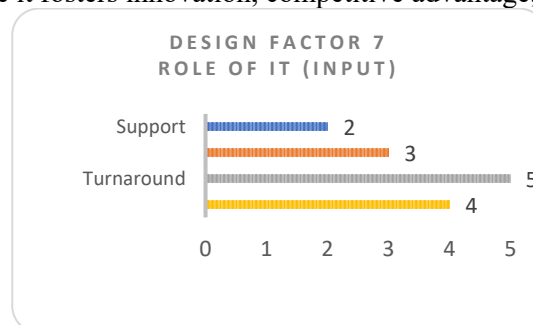


Fig.8 DF7 Role of IT (input)
 Source: COBIT 2019 Toolkit

Design Factor (DF) 8: Sourcing Model of IT

Based on the results of the interviews with respondents, as depicted in Figure 9, DF8 indicates that the IT sourcing model at PT. XYZ is 60% cloud and 20% for both cloud and outsourced.

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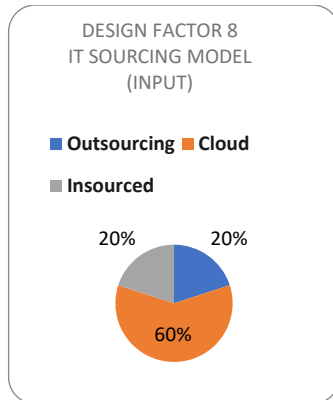


Fig.9 DF8 Sourcing Model of IT
Source: COBIT 2019 Toolkit

Design Factor (DF) 9: IT Implementation Methods

According to the findings of the respondent interviews in DF9, as illustrated in Figure 10, 60% of PT. XYZ's IT implementation techniques are agile, 30% are traditional, and 10% are DevOps.

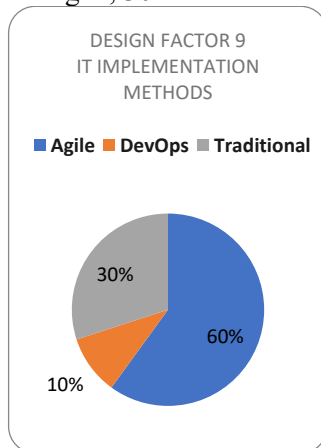


Fig.10 DF9 IT Implementation Methods
Source: COBIT 2019 Toolkit

Design Factor (DF) 10: IT Adoption Strategy

Based on the results of interviews with respondents, DF10 shows that the technology adoption strategy at PT. XYZ is made up of 70% followers, 20% first movers, and 10% slow adopters, as shown in Figure 11.

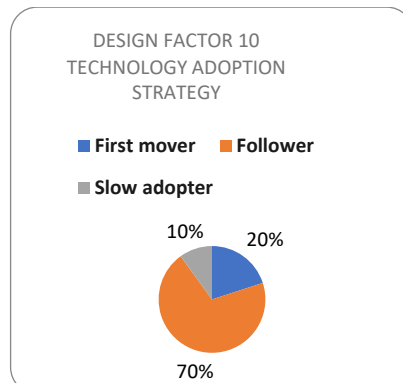


Fig.11 DF10 IT Adoption Strategy
Source: COBIT 2019 Toolkit

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As shown in Table 4, there are 12 domains obtained from the assessment results given to each design factor and have suggested target capability levels 3 and 4, based on value on governance/management objectives priority, which had agreed by PT. XYZ. The level is determined based on the rating scale from the COBIT 2019 tools, namely 1 if the score is below 25%, 2 if the score is between 25% to 54%, 3 if the score is between 55% to 74%. The highest score is 4 if it is more or equal to 75%.

DOMAIN	Concluded Scope: Governance/ Management Objectives Priority	DESIGN FACTORS Conclude the Scope of the Governance System	
		Suggested Target Capability Level	Agreed Target Capability Level
APO08—Managed Relationships	50	3	3
APO12—Managed Risk	50	3	3
BAI01—Managed Programs	55	3	3
BAI05—Managed Organizational Change	65	3	3
BAI07—Managed IT Change Acceptance and Transitioning	50	3	3
BAI10—Managed Configuration	60	3	3
DSS04—Managed Continuity	50	3	3
APO03—Managed Enterprise Architecture	75	4	4
APO04—Managed Innovation	85	4	4
BAI02—Managed Requirements Definition	75	4	4
BAI03—Managed Solutions Identification & Build	80	4	4
BAI06—Managed IT Changes	100	4	4

Table 4. Target Capability Level
Source: COBIT 2019 Toolkit

However, from the actual results of achieving the 12 domains, it was found that they did not reach the predetermined capability targets. As shown in Table 5, there are gaps in these 12 domains and appropriate recommendations are needed so that future conditions can achieve the targets that have been determined.

No.	Domain	Target	As Is	%	Gap
1	APO08—Managed Relationships	3	2	83%	1
2	APO12—Managed Risk	3	1	16%	2
3	BAI01—Managed Programs	3	1	25%	2
4	BAI05—Managed Organizational Change	3	1	44%	2
5	BAI07—Managed IT Change Acceptance and Transitioning	3	2	72%	1
6	BAI10—Managed Configuration	3	2	80%	1
7	DSS04—Managed Continuity	3	2	52%	1
8	APO03—Managed Enterprise Architecture	4	1	37%	3
9	APO04—Managed Innovation	4	1	50%	3
10	BAI02—Managed Requirements Definition	4	2	60%	2
11	BAI03—Managed Solutions Identification & Build	4	2	72%	2
12	BAI06—Managed IT Changes	4	2	62%	2

Table 5. Gap of Capability Level
Source: COBIT 2019 Toolkit

To narrow the gap or even to be able to meet capability targets, actions are needed as recommendations for companies to be able to achieve these targets according to those in the COBIT 2019 framework in each domain, as shown in Table 6 below.

Domain	Description	Reccomendation
APO08	Managed Relationships	Coordinate and communicate operational activities, roles and responsibilities, including the definition of request types, hierarchical escalation, major outages (planned and unplanned), and content and frequency of service reports.
APO012	Managed Risk	Establish and maintain a method for the collection, classification and analysis of I&T risk-related data. Record relevant and significant I&T risk-related data on the enterprise’s internal and external operating environment.

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		Maintain an inventory of control activities that are in place to mitigate risk and that enable risk to be taken in line with the risk appetite and tolerance. Classify control activities and map them to specific I&T risk scenarios and aggregations of I&T risk scenarios.
BAI01	Managed Programs	<p>Maintain and enforce a standard approach to program management, aligned to the enterprise's specific environment and with good practice based on defined process and use of appropriate technology. Ensure that the approach covers the full lifecycle and disciplines to be followed, including the management of scope, resources, risk, cost, quality, time, communication, stakeholder involvement, procurement, change control, integration and benefit realization.</p> <p>Appoint a dedicated manager for the program, with the commensurate competencies and skills to manage the program effectively and efficiently.</p>
BAI05	Managed Organizational Change	<p>Assess the scope and impact of the envisioned change, the various stakeholders who are affected, the nature of the impact on and involvement required from each stakeholder group, and the current readiness and ability to adopt the change.</p> <p>To establish the desire to change, identify, leverage and communicate current pain points, negative events, risk, customer dissatisfaction and business problems, as well as initial benefits, future opportunities and rewards, and competitive advantages.</p> <p>Identify, prioritize and deliver opportunities for quick wins. These could be related to current known areas of difficulty or external factors that need to be addressed urgently.</p>
BAI07	Managed IT Change Acceptance and Transitioning	<p>Ensure that the test plan reflects an assessment of risk from the project and that all functional and technical requirements are tested. Based on assessment of the risk of system failure and faults on implementation, include in the plan requirements for performance, stress, usability, pilot, security testing and privacy.</p> <p>Ensure that the test plan addresses the potential need for internal or external accreditation of outcomes of the test process (e.g., financial or regulatory requirements).</p>
BAI10	Managed Configuration	To ensure completeness and accuracy, review proposed changes to CIs against the baseline.
DSS04	Managed Continuity	<p>Define and document the agreed minimum policy objectives and scope for business resilience.</p> <p>Identify potential scenarios likely to give rise to events that could cause significant disruptive incidents.</p> <p>Conduct a business impact analysis to evaluate the impact over time of a disruption to critical business functions and the effect that a disruption would have on them.</p>
APO03	Managed Enterprise Architecture	<p>Identify enterprise goals and strategic drivers. Define constraints that must be addressed, including both enterprisewide and project-specific constraints (e.g., time, schedule, resources, etc.).</p> <p>Align architecture objectives with strategic program priorities.</p>

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		Understand enterprise capabilities and goals, then identify options to realize those goals.
APO04	Managed Innovation	Set up a technology watch process and perform research and scanning of the external environment, including appropriate websites, journals and conferences, to identify emerging technologies and their potential value to the enterprise. Consult third-party experts as necessary to confirm research or supply information on emerging technologies. Capture I&T-innovation ideas from staff and review for potential implementation.
BAI02	Managed Requirements Definition	Identify required actions for solution acquisition or development based on the enterprise architecture. Take into account scope and/or time and/or budget limitations.
BAI03	Managed Solutions Identification & Build	Establish a high-level design specification that translates the proposed solution into a high-level design for business processes, supporting services, workflows, applications, infrastructure, and information repositories capable of meeting business and enterprise architecture requirements. Involve appropriately qualified and experienced user experience designers and IT specialists in the design process to make sure that the design provides a solution that optimally uses the proposed I&T capabilities to enhance the business process.
BAI06	Managed IT Changes	Prioritize all requested changes based on the business and technical requirements; resources required; and the legal, regulatory and contractual reasons for the requested change. Define what constitutes an emergency change. Ensure that a documented procedure exists to declare, assess, approve preliminarily, authorize after the change and record an emergency change.

Table 6. Recommendation
Source: COBIT 2019 framework

DISCUSSION

The study results show that the APO03 Managed Enterprise Architecture and APO04 Managed Innovation were found to be priority processes for PT. XYZ, but both have the biggest gap in the capability level. This was due to lack of building a common architecture consisting of business process, information, data, application and technology architectural layers. Also, there have been no activities to prepare a technological monitoring process to carry out systematic monitoring and scanning the company's external environment to identify new technology that has the potential to create value (for example, by realizing corporate strategy, optimizing costs, avoiding obsolescence, and better support enterprise and I&T processes).

Another priority process of BAI02 Managed Requirements Definition, BAI03 Managed Solutions Identification and Build, and BAI06 Managed IT Changes also has a fairly large gap. This was due to the business case lacks activities to identify, prioritize, and agree on business information, functional, technical, and control requirements for I&T solutions. Consistency in high-level designs,

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use of Agile techniques, and control over changes are lacking, including standard changes and emergency maintenance.

The APO12 Managed Risk has been found as the lowest capability level among the twelve domains with a partial rating of 16%. This was found on inconsistent activities for maintaining an inventory of known risks and risk attributes, including expected frequency, potential impact and response, related documents current resources, capabilities and control activities related to the risk item.

However, the right strategy and consistency are needed in making improvements as recommended in each domain, to narrow the gap or even meet predetermined targets. These can be divided in the following actions of short-term, medium-term, and long-term. Additionally, the company should prioritize actions based on risk assessment to significantly impact data security and business operations. Stakeholders should be involved at all levels, including management, IT, and employees. Key performance indicators (KPIs) should be implemented to track progress and measure success.

CONCLUSION

Based on research findings, several recommendations can be given to PT. the quality of the company's IT and ensuring that IT is aligned with the institution's business objectives to provide stable customer service. This research also aims to provide clear guidance and steps that can be taken to address identified deficiencies and strengthen processes within organizations, particularly in the interior contracting industry. Through implementing the recommendations provided, it is hoped that organizations can significantly improve compliance, security, and overall performance, in line with strategic objectives and long-term operational sustainability.

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