



Unlocking IT Excellence: A Deep Dive into Design Factors for Successful IT Implementation with COBIT

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ABSTRACT

COBIT 2019 formulates 11 design factors that must be considered in designing IT governance. One of these design factors is IT Implementation Methods, which refers to the methods used by organizations to implement IT. This article aims to discuss the importance of IT implementation methods in IT governance, various types of IT implementation methods that organizations can choose from, and factors to consider in selecting the appropriate IT implementation method. The article employs a qualitative approach with literature review as the method of data collection. The results of the analysis indicate that the chosen IT implementation method can influence various aspects of IT governance, such as alignment with business strategy, risk management, resource availability, and organizational leadership commitment. The article recommends that organizations carefully consider these factors when selecting an IT implementation method that aligns with their needs and environment.

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1. INTRODUCTION

IT governance is a crucial aspect for organizations striving to use information technology effectively and efficiently in achieving their business objectives. One of the primary advantages of effective IT governance is the improvement of efficiency and productivity in various business processes. By aligning IT strategies with organizational goals, companies can optimize their operations and enhance overall performance (Falchi de Magalhães et al., 2020). Additionally, IT governance plays a vital role in ensuring the quality and security of data. It assists organizations in implementing measures to protect sensitive information from potential risks such as loss, damage, or misuse. This aspect is particularly critical in today's digital age where data security is a top priority.

Moreover, effective IT governance is instrumental in ensuring compliance with relevant regulations and standards. Organizations need to navigate a complex landscape of legal requirements and industry standards, and a robust IT governance framework helps in meeting these obligations. By aligning IT practices with regulatory requirements, companies can avoid legal pitfalls and maintain a trustworthy business environment (Scalabrin Bianchi et al., 2021). Control Objective for Information Technologies (COBIT) is a recognized information security framework that serves as a valuable tool in this regard. It provides a comprehensive framework for managing and governing IT assets, facilitating good governance practices in various settings, including companies, social environments, public sectors, and business contexts (De Haes et al., 2019).

COBIT, as an information security framework, is structured to cater to the needs of diverse entities. It assists both government and IT management in achieving their expected goals by offering a standardized approach to information technology governance (Ilmudeen, 2021). One of the crucial design factors within COBIT is the method of IT implementation. The chosen IT implementation method can significantly impact key aspects of IT governance, including alignment, performance, risk management, and value delivery. Organizations should carefully evaluate factors such as project complexity, scope, cost, time, and quality when selecting an IT implementation method. This consideration ensures that the chosen approach aligns seamlessly with the organization's overall IT governance strategy and maximizes the potential benefits of IT projects.

2. METHODS

2.1. Previous research

There have been several previous studies that utilize COBIT in IT Governance. COBIT 5 uses for assess the current capability level, gap analysis, risk analysis, and proposed recommendations for The Universal Service Obligation (USO) program mandated by Badan Aksesibilitas Telekomunikasi dan Informatika (BAKTI) (Muhammad, R. et al., 2021). The researcher (Dharma et al., 2021) found that the Civil Registry Service Office of Tabanan Regency faced declining governance quality, necessitating an IT Governance Audit. Utilizing the COBIT 2019 framework, the audit identified eight critical areas aligned with enterprise goals, including domains like EDM04, APO04, APO07, and others. Gap analysis determined the current versus expected capabilities, leading to improvement recommendations based on current capabilities. Notably, efforts within the APO08 domain saw enhancement from level 1 to level 2.

In another study conducted by (Kesuma et al., 2021) with the objective of understanding specific IT governance structures, the researcher found that the purpose of this research is to apply the COBIT 2019 Framework to build an IT Governance design in Instidla. This research falls under descriptive qualitative research. The method employed for this system development involves analyzing the state of the data relationships, gathered through field research methods such as interviews, literature reviews, and questionnaires. Evaluating the capability level against the anticipated target level indicated that the gap analysis for the APO01 process stands at level 1. This suggests that the activities within Instidla somewhat meet their objectives but are still incomplete or lack a structured approach.

2.2 IT Implementation Methods

First, the IT implementation methods that organizations can implement from encompass various approaches. The first approach that can be taken is the Agile method, a newer approach to IT implementation. This method follows an incremental approach, with each stage completed in shorter timeframes. Its advantages include high flexibility and high team involvement, while the drawbacks include difficulties in monitoring and controlling the project efficiently due to its high flexibility.

Next, there is the DevOps. DevOps encapsulates a blend of cultural beliefs, methodologies, and instruments designed to enhance an organization's capacity to deliver applications and services swiftly consistently and securely. It emphasizes collaboration, communication, integration, automation, and evaluation between software development and IT operations. The primary objective of DevOps is to expedite the software deployment process from development to production stages, concurrently enhancing its quality and dependability. Rather than being merely a singular tool or technology, DevOps represents a set of principles and practices adaptable to various organizational contexts.

Finally, there is the Traditional method. The traditional method is often referred to as the waterfall method because its process flows sequentially from top to bottom, starting from requirements analysis to maintenance. This method follows a structured, linear approach, progressing through stages of planning, analysis, design, implementation, and maintenance. In the traditional approach, software development and operations are typically separated. The development team is responsible for creating the software, while the operations team is tasked with running and maintaining it.

2.3 Factors to be Considered in Choosing An IT Implementation Method

In considering the most suitable IT implementation method, organizations must identify and consider several key factors. Firstly, alignment with organizational needs is a crucial aspect. The selected COBIT implementation method must be tailored to the specific needs of the organization, and the appropriate design should consider the organizational structure, business goals, and the unique IT environment of the company (Nugraheni et al., 2022). A meticulous identification of these specific needs is a fundamental initial step to ensure the success and efficiency of the implementation (Nurdin & Lubis, 2023).

Next, alignment with business objectives becomes a significant design factor. The chosen COBIT implementation method must ensure that each implemented IT control aligns with the organization's business objectives. COBIT itself emphasizes the importance of bridging the gap between business strategy and IT functions. Therefore, the implementation design must create a strong synergy between business and technology aspects, thereby ensuring the maximum

contribution to the achievement of organizational goals.

Risk management also deserves primary attention in the design of the COBIT implementation method. The design should encompass the identification, evaluation, and management of IT risks that the organization might face. This involves developing risk mitigation plans that align with business needs and priorities, allowing the organization to address challenges and uncertainties with a measured and responsive approach.

Resource availability is another crucial design factor. The design of the COBIT implementation method must carefully consider human, financial, and technological resource aspects needed to guarantee a successful implementation. Therefore, organizations must ensure that adequate capacity is available to manage and support the implementation according to the plan.

Lastly, but equally important, is the commitment of organizational leaders. The success of COBIT implementation heavily relies on active support from senior management and key stakeholders within the organization. By ensuring this commitment, organizations can create an environment where IT initiatives can thrive and provide optimal value. In this context, the implementation design must include strategies to strengthen and sustain the commitment of organizational leaders throughout the entire implementation process.

2.4. Practical implications of IT method design factors in COBIT implementation

In the context of COBIT implementation, there are significant practical implications of IT method design factors. Firstly, the use of a structured project plan is crucial. The design of the implementation method must include a clear project plan with well-defined stages. A structured project plan helps establish the direction of implementation, identify milestones, and provide consistent guidance throughout the entire process. This ensures the orderliness and smoothness of COBIT implementation according to the predefined objectives (Suwarno, 2022).

Next, the development of capabilities and skills becomes a crucial factor. Organizations need to consider investing in the development of the necessary IT capabilities and skills to support COBIT implementation. This may involve training employees, human resource development, or even recruiting experts with specialized skills in relevant IT domains (Nurdin & Lubis, 2023). By having a skilled and trained team, organizations can more effectively address the complexity of COBIT implementation (Panca Wijanarko et al., 2023).

Continuous monitoring and evaluation should also be an integral part of the implementation method design. The design should include mechanisms for continuous monitoring and evaluation to ensure sustainability and continuous improvement. By regularly monitoring the progress of implementation, organizations can identify potential issues or obstacles early on and take necessary corrective actions. Continuous evaluation also allows updates and adjustments to the implementation strategy in response to changing needs or market conditions (Napitupulu, 2020).

By considering these factors in the design of the COBIT implementation method, organizations can ensure that the implementation not only aligns with the COBIT framework but also provides maximum and sustainable benefits in supporting overall business goals and IT management.

2.5 Design Research

In this research, we employ the Governance System Design Method outlined in the COBIT 2019 methodology guide. This approach encompasses various phases, including identifying issues, conducting a literature review, gathering data, analyzing capability, determining gap values, and formulating recommendations.

2.5.1 Identifying Issues

This is the initial phase where researchers pinpoint specific challenges, problems, or areas of concern related to the governance system. It's crucial to understand the existing issues before moving forward with any analysis or recommendations.

2.5.2 Literature Review

This involves reviewing existing literature, studies, publications, and research related to the topic at hand. A literature review helps researchers understand what has been previously studied, what findings are available, and where gaps or areas for further investigation might exist.

2.5.3 Data Collection

This phase involves collecting relevant information or data that can provide insights into the governance system's functioning, effectiveness, challenges, and areas of improvement. Data will be collected through various methods such as surveys, interviews, observations, and analyzing existing organizational documents.

2.5.4 Capability Analyze

After collecting data, researchers analyze the capabilities of the governance system. This involves evaluating strengths, weaknesses, opportunities, and threats. The goal is to assess how well the current system performs its intended functions and where improvements might be needed.

2.5.5 Determining Gap Values

Based on the analysis of capabilities, researchers determine the "gap" between the current state of the governance system and the desired or optimal state. This gap analysis helps identify specific areas that require attention or enhancement.

2.5.6 Formulating Recommendations

Using the insights gathered from the previous phases, researchers develop recommendations. These suggestions aim to address identified issues, close gaps, enhance capabilities, and improve the overall effectiveness and efficiency of the governance system.

3. RESULTS AND DISCUSSION

The outcomes are showcased as a design element utilizing the COBIT 2019 framework. The specific design element chosen is IT Implementation, depicting how IT governance is implemented at PT XYZ. Below are the levels of Importance of IT Implementation Methods categorized into three types: Agile, DevOps, and Traditional. These methods provide distinct approaches to managing and executing IT projects, each with its strengths and areas of application. Understanding the nuances of each method is crucial for organizations like PT XYZ to optimize their IT strategies and ensure efficient project delivery. PT XYZ assigns an importance value of 60% to Agile, 30% to DevOps, and 10% to Traditional. This distribution reflects the company's prioritization and strategic alignment with modern IT implementation methodologies, indicating a stronger emphasis on Agile practices for flexibility and responsiveness.

Table 1. Levels of Importance of IT Implementation Methods.

Value	Importance (100%)	Baseline	Description
Agile	60%	15%	The organization uses the Agile development work method for its software development.
DevOps	30%	10%	The organization uses the DevOps work method to build, deploy, and operate software.
Traditional	10%	75%	The company employs a more classical approach to software development (waterfall) and separates software development from operations.

The results from the Governance/Management Objectives Importance provide a comprehensive overview of the priorities, progress, and focus of the organization's IT governance or management. This analysis enables effective resource allocation, prioritizes investments in areas with the highest needs, and designs appropriate improvement strategies to ensure the achievement of governance and management objectives aligned with COBIT 2019 standards.



Design Factor 9 IT Implementation Methods

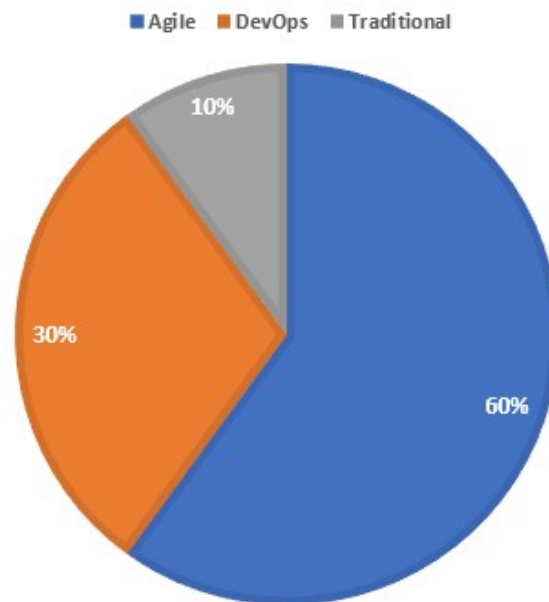


Figure 1. Levels of Importance of IT Implementation Methods.

Table 2. Resulting Governance/Management Objectives Importance.

Governance / Management Objective	Score	Baseline Score	Relative Importance
EDM01	1.00	1.00	0
EDM02	1.00	1.00	0
EDM03	1.00	1.00	0
EDM04	1.00	1.00	0
EDM05	1.00	1.00	0
APO01	1.00	1.00	0
APO02	1.00	1.00	0
APO03	1.30	1.10	20
APO04	1.00	1.00	0
APO05	1.00	1.00	0
APO06	1.00	1.00	0
APO07	1.15	1.05	10

APO08	1.00	1.00	0
APO09	1.00	1.00	0
APO10	1.00	1.00	0
APO11	1.00	1.00	0
APO12	1.15	1.05	10
APO13	1.00	1.00	0
APO14	1.00	1.00	0
BAI01	1.75	1.20	45
BAI02	2.80	1.48	90
BAI03	3.40	1.65	105
BAI04	1.00	1.00	0
BAI05	2.05	1.28	60
BAI06	2.80	1.48	90
BAI07	2.35	1.38	70
BAI08	1.00	1.00	0
BAI09	1.00	1.00	0
BAI10	1.60	1.18	35
BAI11	1.90	1.23	55
DSS01	1.45	1.15	25
DSS02	1.15	1.05	10
DSS03	1.15	1.05	10
DSS04	1.00	1.00	0
DSS05	1.00	1.00	0

DSS06	1.00	1.00	0
MEA01	1.45	1.13	30
MEA02	1.00	1.00	0
MEA03	1.00	1.00	0
MEA04	1.00	1.00	0

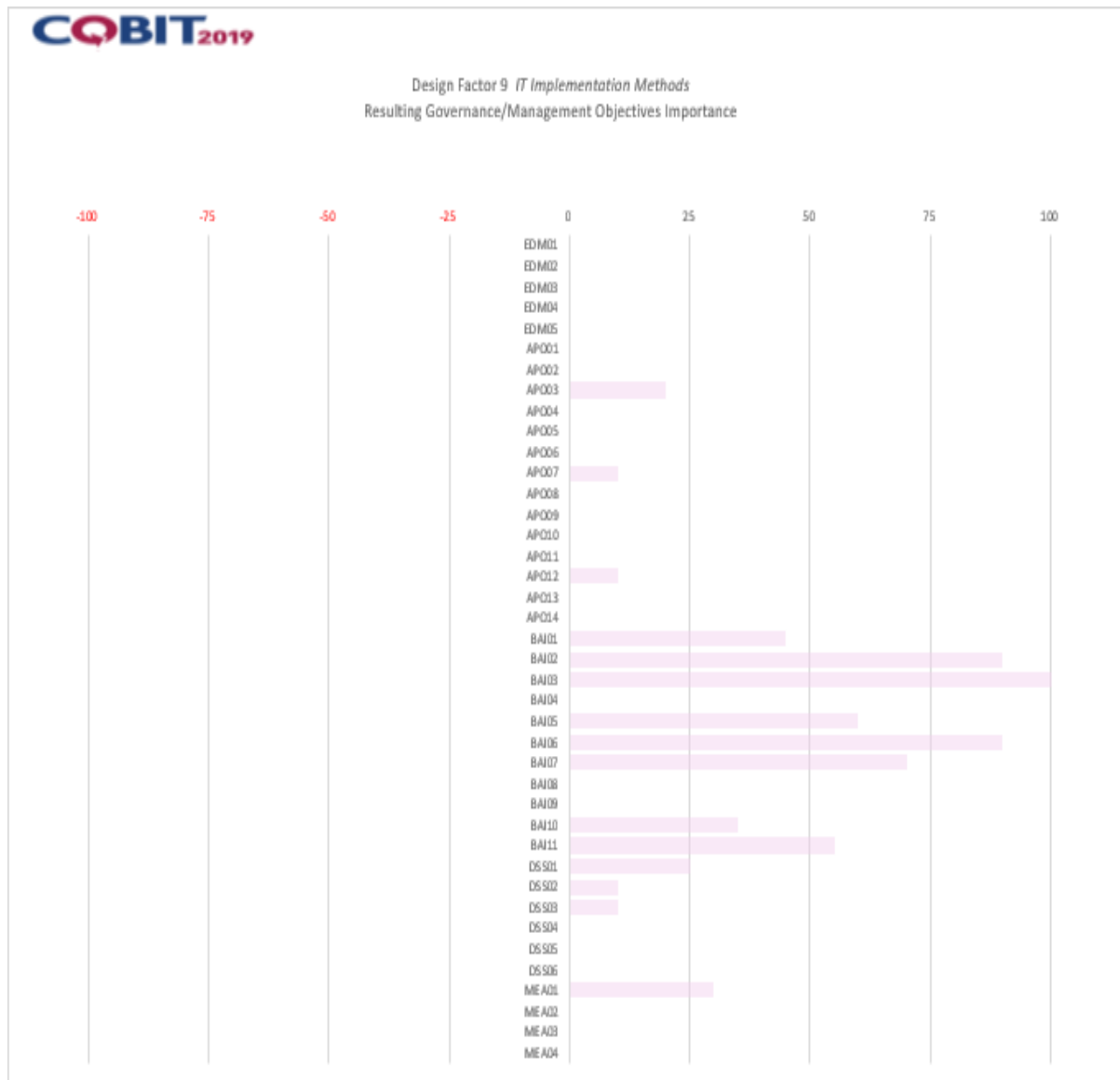


Figure 2. Governance/Management Objectives Importance.

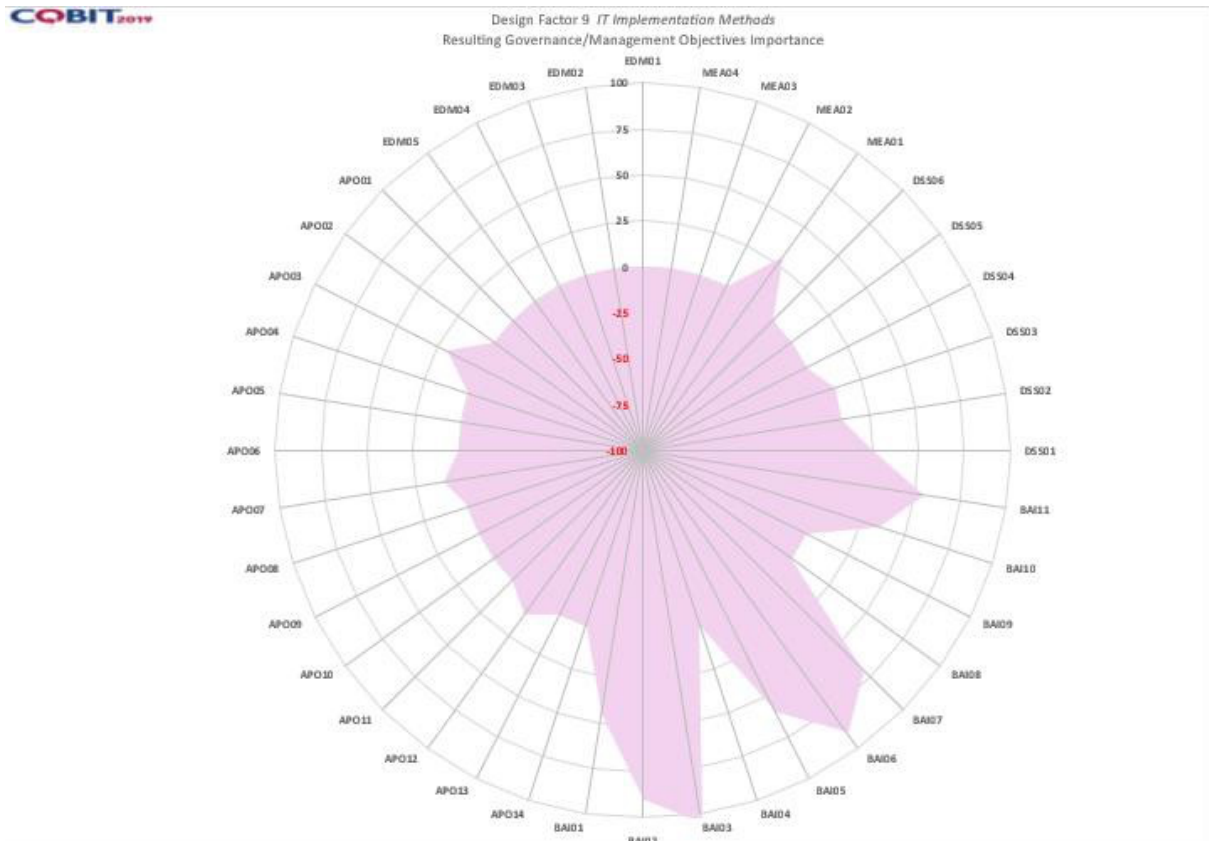


Figure 3. Graph of Governance/Management Objectives Importance.

Based on the results of the Governance/Management Objectives Importance concerning IT Implementation, it was found that all Management Objectives exceeded the baseline score. These include Managed Enterprise Architecture (APO03), Managed Human Resources (APO07), Managed Risk (APO12), Managed Programs (BAI01), Managed Requirements Definition (BAI02), Managed Solutions Identification and Build (BAI03), Managed Organizational Change (BAI05), Managed IT Changes (BAI06), Managed IT Change Acceptance and Transitioning (BAI07), Managed Configuration (BAI10), Managed Projects (BAI11), Managed Operations (DSS01), Managed Service Requests and Incidents (DSS02), Managed Problems (DSS03), and Managed Performance and Conformance Monitoring (MEA01). This indicates that the organization has made progress or improvements in achieving IT governance objectives compared to the initial conditions or established reference standards. In other words, the positive difference between the actual score and the baseline score signifies that the organization's IT governance has moved in a favourable direction in line with the principles and standards of COBIT 2019. This underscores the effectiveness of improvement efforts or implementations undertaken by the organization within the context of IT governance based on the COBIT 2019 framework.

4. CONCLUSION

The implementation of COBIT within an organization presents inherent complexities and challenges that necessitate meticulous attention to design factors within the IT methodology. Key among these complexities is the need to align IT controls with overarching business objectives and the prevailing organizational environment. Informed by the Governance/Management Objectives Importance outcomes related to IT Implementation, it's noteworthy that the organization

has demonstrated commendable progress across multiple fronts. Specifically, objectives such as Managed Enterprise Architecture (APO03), Managed Human Resources (APO07), Managed Risk (APO12), and a slew of others in areas like Managed Programs (BAI01) and Managed Operations (DSS01) have surpassed their baseline scores. This positive trajectory indicates a tangible advancement in IT governance objectives, positioning the organization favourably within the parameters of COBIT 2019's principles and standards. The efficacy of this advancement is not solely rooted in a deep understanding of COBIT; it also hinges on strategic method design. This encompasses crafting a well-structured project blueprint, cultivating requisite capabilities and expertise, and instituting rigorous monitoring and evaluation frameworks. Such a holistic and meticulous approach empowers organizations to bolster operational efficiency, elevate IT service quality, and mitigate risks intrinsic to IT management.

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