JISKA (Jurnal Informatika Sunan Kalijaga)
Vol. 8, No. 3, SEPTEMBER, 2023, Pp. 210 – 221
ISSN: 2527 – 5836 (print) | 2528 – 0074 (online)

COBIT 2019 Implementation for Enhancing IT Governance in Educational Institutions

Gilberth Wattimury [(1)]*, Ahmad Faza [(2)]
Information System, Faculty of Engineering and Informatics, Universitas Multimedia Nusantara, Tangerang
e-mail : gilberth.wattimury@student.umn.ac.id, ahmad.faza@umn.ac.id.
* Penulis korespondensi.
Artikel ini diajukan 8 Agustus 2023, direvisi 11 September 2023, diterima 12 September 2023, dan dipublikasikan 30 September 2023.

Abstract

This study explores the application of COBIT 2019 in assessing IT governance at Yayasan Bunda Hati Kudus, a prominent educational institution. The research uses the Planning, Field Work, Reporting, and Follow-Up stages to leverage the Gallegos' framework. Findings reveal that Yayasan Bunda Hati Kudus operates at IT governance level two, employing COBIT 2019 domains BAI04, BAI05, and BAI11. Notably, the organization faces challenges in implementing IT across campuses, requiring remedies for decentralized systems, operational disruptions, and unmet needs. The study underscores COBIT's efficacy in addressing IT-related challenges and governance implementation. The novelty lies in adapting COBIT 2019 to assess IT governance within an educational context, offering tailored insights for enhancing capability levels and aligning IT strategies with organizational priorities.

Keywords: COBIT 2019, IT Governance Assessment, Educational Institution, Gallegos' Framework, Decentralized Systems

1. INTRODUCTION

Information Technology (IT) is crucial for human life as it aids in creating, changing, storing, communicating, and sharing information (Sukamto et al., 2021). It enhances business competitiveness (Sihotang et al., 2019) and requires optimal resource use – human, informational, and IT infrastructure (Aditya et al., 2019). Effective IT governance aligns business and IT strategies, achieved through the COBIT (Control Objectives for Information and Related Technology) framework (Windasari et al., 2022). COBIT ensures stakeholder support, enhancing IT investment value (De Haes et al., 2020). COBIT 2019 assesses IT governance levels (0 to 5) (Harisaiprasad, 2020), which is helpful for organizations like Yayasan Bunda Hati Kudus. Yayasan Bunda Hati Kudus is a prominent educational institution with a vision for holistic growth (Yayasan Bunda Hati Kudus, 2023). Iman et al. (2023) implement IT across campuses; three systems serve distinct needs. Challenges persist in decentralized systems, operational disruptions, and unmet needs. Remedies require assessing IT governance using COBIT 2019, yielding actionable insights (Iman et al., 2023).

Previous studies have focused on applying COBIT frameworks in addressing various IT governance and management challenges across different organizations. One study explored the problems within an academic application's functionality and standardization at SMAN 15 Bandar Lampung (Martallata & Wasilah, 2022). Sukamto et al. (2021) investigated the organizational structure and IT governance framework absence at a detailed level. Another research from Fikri et al. (2020) applied COBIT 2019 to enhance vertical integration and operational relations in PT. XYZ.

Similarly, a study by (Andry et al., 2020) employed COBIT 5 to address employee attendance-related salary reductions. Moreover, a study at Universitas XYZ examined the use of COBIT 2019 for IT management alignment with government policies and relevant needs (Atrinawati et al., 2021). Additionally, various studies have employed COBIT frameworks to address IT management and risk control. In a distinctive approach by Hartono et al. (2020), they utilized COBIT 5's EDM domain to optimize a company's NAP. Similarly, another study aimed to achieve

target capability levels using COBIT 5 due to the previous audit results falling below expectations (Muttaqin et al., 2020). Tangprasert (2020) highlighted the significance of COBIT 5 in enhancing risk management control in an experimental study involving both business and government organizations.

Furthermore, a company lacks risk management practices for COBIT 5 framework utilization for recommendations (Sanjaya & Fianty, 2022). Lastly, a study by Priyono & Wella (2022) implemented COBIT 5 to determine factors for improving IT processes in a company. This current research holds novelty in its focus on IT governance measurement within an educational foundation, encompassing multiple schools, distinguishing itself from prior studies. It utilizes COBIT 2019, leveraging its design factors and toolkit design features to address specific organizational challenges (Priyono & Wella, 2022). This approach stands out from COBIT 5, which mainly relies on Enterprise and Alignment Goals charts, often misaligning the organization's problem priorities. Moreover, the tailored application of COBIT 2019 domains to match the organization's specific challenges is a notable divergence from past studies that followed a more standardized approach based on COBIT domains. As such, this research presents a novel perspective on IT governance evaluation, adapting a proven framework to a unique educational context.

2. METHODS

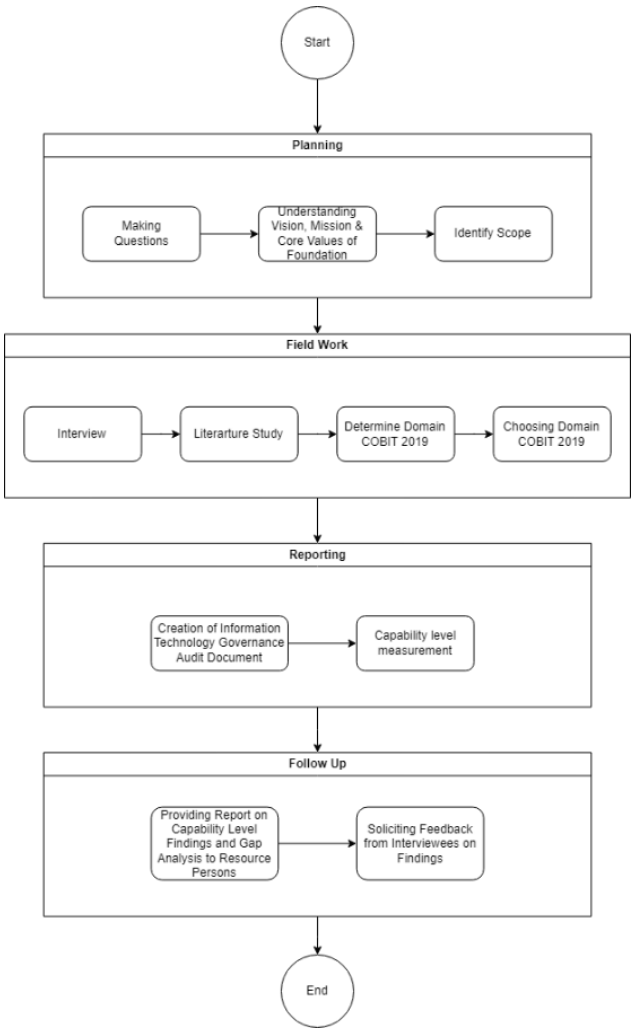

Figure 1 Gallegos' Four-Stage Framework

The research process follows Gallegos' four-stage framework: Planning, Field Work, Reporting, and Follow-up (Nugraha & Octavira, 2022), outlined in Figure 1. The planning stage involves formulating questions regarding the current IT governance, future expectations, and challenges within Yayasan Bunda Hati Kudus. Vision, mission, core values, and research scope are collected. Field Work entails interviewing the IT Head to identify issues using COBIT 2019 guidelines and related studies. Problems are aligned with COBIT 2019 process domains using the provided toolkit. Reporting involves creating questionnaires from identified domains to assess current and desired IT governance capabilities. Data is analyzed, gap analysis is conducted, and an IT governance audit document is generated. Follow-up includes presenting findings, obtaining feedback from the IT Head, and proposing recommendations for Yayasan Bunda Hati Kudus to enhance IT governance capabilities. The response and subsequent actions are recorded. This study's novelty lies in applying COBIT 2019 to assess IT governance in an educational foundation encompassing multiple schools (Karim et al., 2020).

3. RESULT AND DISCUSSION

3.1 Planning Stage

The questions are developed based on three vital aspects for determining IT governance issues within an organization: the current state of IT governance, future expectations, and existing problems. Understanding the foundation's vision, mission, and core values reveals its commitment to quality education and student improvement. The research scope, as identified through interviews, focuses on the educational bureau of Yayasan Bunda Hati Kudus.

3.2 Fieldwork Stage

Domain determination involves translating interview findings into COBIT 2019 domains using the COBIT Design Toolkit, encompassing 11 design factors. These factors contain an organization's current state and general use of information technology. Ten specific design factors were selected for Yayasan Bunda Hati Kudus' issues (Karim et al., 2020).

1) Design factor 1 – Enterprise strategy: From interviews and Yayasan Bunda Hati Kudus' mission, two primary enterprise values, "Growth" and "Stability," were identified. The IT Head aims to enhance existing systems and maintain service satisfaction for students and parents across school branches.
2) Design factor 2 – Enterprise goals: Yayasan Bunda Hati Kudus prioritizes enterprise goals: EG07 - Quality of management information, EG09 - Optimization of internal business processes, and EG10 - Staff skills, motivation, and productivity. This selection aligns with the foundation's vision and mission for enhancing quality education services.
3) Design factor 3 – Risk Profile: Using a scale of 1 to 5 for impact and likelihood, the IT risk scenarios are rated, and their multiplication yields a risk rating categorized as very high, high, normal, or low, with a base value of 9. In the case of Yayasan Bunda Hati Kudus, the risk factors identified through the IT Head's interview encompass program & project life cycle management, IT expertise, skills & behavior, noncompliance, software adoption/usage problems, and hardware incidents. These factors stem from insufficient IT personnel, vendor noncompliance, and project management gaps.
4) Design factor 4 – IT-Related Issues: The IT-related concerns for Yayasan Bunda Hati Kudus encompass resource scarcity, excessive staff workload, and vendor service issues – particularly system features and insufficiently detailed project management.
5) Design factor 5 – Threat Landscape: Yayasan Bunda Hati Kudus' IT threat landscape is divided into 67% normal and 33% high levels due to their utilization of in-house and virtual private servers for school administration and exams. This distribution aligns with the organization's significance in assessing the IT threat importance.
6) Design factor 6 – Compliance Requirements: Yayasan Bunda Hati Kudus maintains 100% normal compliance with Ministry of Education, Culture, Research, and Technology regulations for teaching activities each academic year. Dapodik's e-report system for student

report management aligns with this commitment. This percentage underscores the organization's high importance in adhering to established rules.

7) Design factor 7 – Role of IT: IT at Yayasan Bunda Hati Kudus enhances staff and branch school employees' productivity.
8) Design factor 8 – Sourcing Model for IT: Yayasan Bunda Hati Kudus primarily sources its IT solutions from third-party vendors, while some are developed in-house since their IT system implementation, including MyCampus for administration and academics, and Google Edu during the COVID-19 pandemic in 2018 and 2019.
9) Design factor 9 – IT Implementation Methods: Yayasan Bunda Hati Kudus combines traditional methods, seeking third-party assistance for system development, and Agile methodology for small-scale projects such as creating in-house exam websites. The percentage allocation reflects the organization's prioritization of IT implementation methods.
10) Design factor 10 – Technology Adoption Strategy: Yayasan Bunda Hati Kudus predominantly adopts technology among long-standing users due to its recent system implementation in 2018 and ongoing internal alignment (Karim et al., 2020). Prioritization is based on the organization's significance in adopting technology, distributed across three values.
11) Design factor 11 – Enterprise Size: Factor 11 designates an organization's size based on permanent employee count, categorized as large (more than 250 employees) or small and medium (50 to 250 employees). With 300 educators and staff, Yayasan Bunda Hati Kudus falls into the large category.

The factor design yields three domains utilized in capability level assessment:

1) BAI04 - Managed Availability and Capacity
2) BAI05 - Managed Organizational Change
3) BAI11 - Managed Projects

Table 1 RACI Chart Identified on Bunda Hati Kudus Foundation

Activities	Chief Information Officer	Computer Teacher
BAI04.01 Assess current availability, performance, and capacity and create a baseline	R/A	I
BAI04.02 Assess business impact.	R/A	C/I
BAI04.03 Plan for new or changed service requirements	R/A	I
BAI04.04 Monitor and review availability and capacity.	R/A	I
BAI04.05 Investigate and address availability, performance, and capacity issues	R/A	I
BAI05.01 Establish the desire to change	R	I
BAI05.02 Form an effective implementation team.	A	C/I
BAI05.03 Communicate the desired vision	A	C/I
BAI05.04 Empower role players and identify short-term wins.	A	I
BAI05.05 Enable operation and use.	A	I
BAI05.06 Embed new approaches	R	C
BAI05.07 Sustain changes	R	I
BAI11.01 Maintain a standard approach for project management.	A	I
BAI11.02 Startup and initiate a project	A	C/I
BAI11.03 Manage stakeholder engagement.	R	C/I
BAI11.04 Develop and maintain the project plan.	R/A	I
BAI11.05 Manage project quality.	R	C/I
BAI11.06 Manage project risk.	R/A	C/I
BAI11.07 Monitor and control projects.	R/A	C/I
BAI11.08 Manage project resources and work packages	R	I
BAI11.09 Close a project or iteration.	R	I

Before identifying which parties will be requested to respond regarding the chosen COBIT 2019 domains at Yayasan Bunda Hati Kudus, creating a RACI Chart to delineate responsibilities for the selected domains is essential. Two positions are considered as potential respondents for this research:

1) Chief Information Officer (CIO): The CIO oversees systems across branch schools, rectifying hardware and software issues and addressing errors and complaints from branch school staff about vendor features.
2) Computer Teacher: The Computer Teacher is accountable for maintaining hardware and software performance on computers and networks at each branch school. They collaborate with the CIO to manage IT for individual schools.

The selection of these candidates is motivated by the absence of a dedicated IT team or division within the foundation. Therefore, the CIO and computer teachers must collaborate to address IT-related challenges at each school. Table 1 is the RACI Chart outlining responsibilities for activities based on the domains.

3.3 Reporting Stage

Capability level assessment involves calculating the average value of each activity within every subdomain, followed by calculating the average of each subdomain to determine the capability level of the domain. A domain's capability level advances to the next tier once its value meets the prerequisites of the preceding capability level. Table 2 is the averaged responses from Yayasan Bunda Hati Kudus respondents to the distributed questionnaire.

Table 2 Averaged Results of Capability Levels for All Domains

Domain	Process	Score	Average Score
BAI04 - Managed Availability and Capacity	BAI04.01	77	75,2
	BAI04.02	64,75	
	BAI04.04	83,75	
BAI05 – Managed Organizational Change	BAI05.01	80,63	80,43
	BAI05.04	80,84	
	BAI05.06	82,5	
	BAI05.07	77,75	
BAI11 – Managed Projects	BAI11.01	77,5	74,32
	BAI11.02	73,21	
	BAI11.04	77,5	
	BAI11.05	71,25	
	BAI11.06	73,92	
	BAI11.07	71,75	
	BAI11.08	75,39	
	BAI11.09	74	

Following the calculations for each domain's capability level and determining the achieved results, a Gap Analysis is conducted to compare the expected capability level as envisioned by Yayasan Bunda Hati Kudus based on statements from the respondents. Table 3 represents the Gap Analysis of expected versus current capability levels at Yayasan Bunda Hati Kudus.

Table 3 Gap Analysis for Capability Levels

Domain	Target Level	Current Level	Gap
BAI04 - Managed Availability and Capacity	4	2	2
BAI05 – Managed Organizational Change	4	2	2
BAI11 – Managed Projects	4	2	2

JISKA (Jurnal Informatika Sunan Kalijaga)
Vol. 8, No. 3, SEPTEMBER, 2023: 210 – 221

Identify findings and their impacts on Yayasan Bunda Hati Kudus, followed by recommendations for improvement and enhancing capability levels to support the foundation's decision-making regarding its next steps in information technology governance. Table 4 is a list of improvement recommendations for domains.

Table 4 Findings and Recommendations to Current Levels

Domain	Process	Findings	Impacts	Recommendations
BAI04 - Managed Availability and Capacity	BAI04.01	Due to the lack of human resources, considerations such as these remain incomplete.	Considerations regarding assessing availability, performance, and capacity are often overlooked.	Further enhancement of considerations regarding business priorities, business objectives, budget impact, resource utilization, IT capabilities, and industry trends is needed.
	BAI04.02	The financial system lacks synchronization, where monthly school bills might be paid but not yet marked as settled.	Customer dissatisfaction, particularly among parents paying monthly school fees.	Further identification is required in crucial service or solution areas within capacity management and procurement processes.
	BAI04.04	Reports on capacity, such as server procurement, exist, but direct evaluation or in-person assessment has not been conducted.	Financial allocation might be insufficient or excessive, possibly leading to misuse.	Validation of capacity reports within budgeting processes.
BAI05 – Managed Organizational Change	BAI05.01	Despite the collective desire for change, varying school-specific needs result in suboptimal system utilization.	Lack of uniformity in the systems used by each school.	System improvement or replacement is necessary.
	BAI05.04	Efforts have been made, yet the focus reverts to individual school requirements.	The benefits of the desired system are inadequately communicated or not proportionate to the drawbacks of the current system.	Utilize definitive actions that can resolve issues by explaining their benefits and aligning them with the vision.

Domain	Process	Findings	Impacts	Recommendations
	BAI05.06	Responsibilities are delegated for daily operations, while urgent matters require the IT Head to visit the school.	Delayed issue resolution disrupts productivity.	Appoint representatives from the Head of IT for each school.
	BAI05.07	Communication exists, but it became mandatory only in the past two years.	The absence of change guidelines due to undocumented communication reflects top management commitment gaps.	Conduct formal communication to commit to system changes.
BAI11 – Managed Projects	BAI11.01	Lack of project management training for the current project due to reliance on the vendor for system development.	Internal project management oversight is absent for each project within the foundation.	Ensure a comprehensive lifecycle approach encompassing resources, risks, and costs in project execution.
	BAI11.02	Project leadership is directed toward the vendor; the Head of Information Technology can only oversee and provide an overview of the implemented system. Requirements and approvals are subject to management.	A lack of dedicated project management responsibility hampers project execution.	Engage an experienced project manager in the implementation of this system project.
	BAI11.04	Error reporting occurs at the end of each academic semester and is collected and communicated to the vendor. However, the vendor consistently delays repairs, citing other client priorities.	Delayed system error resolution disrupts school staff work for hours.	Document approval between the foundation and the vendor, including an agreed-upon schedule to ensure both parties understand the consequences of delayed or additional feature delivery.

Domain	Process	Findings	Impacts	Recommendations
	BAI11.05	Efforts have been made, and issues have been forwarded to responsible parties; however, vendor response time remains challenging.	The absence of project outcome evaluation prevents the foundation from assessing project success.	Identify performance metrics and reevaluate the vendor's product delivery quality.
	BAI11.06	Due to delayed awareness of system implementation, the Head of Information Technology assessed the system after it was already in use, discovering issues post-implementation, which were addressed albeit belatedly.	Frequent server outages hinder staff productivity when using the implemented system.	Present risk assessment outcomes to the leadership.
	BAI11.07	Pre-adoption documented changes faced delays, rendering it impractical. Documentation of changes is incomplete, as the requested features have not been fully rectified.	The comprehensive assessment of changes during project execution remains unclear.	Communicate pending feature fixes to leadership.
	BAI11.08	Decision-making authority rests with management, where the Head of Information Technology can only identify missing or misaligned features.	Due to a lack of responsibility, unclear business needs, and required IT resources for the existing system project, coupled with delayed delivery of necessary features.	Clearly define and agree upon responsibilities for procuring and managing third-party products, services, and relationships.
	BAI11.09	Despite management's preference for the vendor's system, school representatives oppose its use.	The divergence between leadership-desired system usage and actual system expectations.	Address school representatives' concerns about dissatisfaction with the vendor's system to leadership.

Several recommendations for enhancing capability levels are provided to enable the organization to elevate its capability from level 2 to level 3. Table 5 shows the improvement recommendations based on the subdomains of the COBIT 2019 framework.

Table 5 Recommendations to Improve Capability Level

Domain	Process	Recommendations
BAI04 - Managed Availability and Capacity	BAI04.01	Enhance communication with the vendor regarding occurring issues. Evaluate lacking features and communicate missing features to the vendor.
	BAI04.02	Map selected solutions or services to the underlying applications and infrastructure (IT and facilities) to enable focusing on critical resources for availability planning. Ensure leadership understands that recurring data errors are compromising.
	BAI04.03	Identify availability and capacity implications of changing business needs and enhancement opportunities. Utilize modeling techniques to validate availability, performance, and capacity plans. Review availability and capacity implications from service trend analysis.
	BAI04.04	Integrate data collection into the existing system in use. Incorporate reporting and monitoring into recurring capacity management activities.
	BAI04.05	Establish escalation procedures for swift resolution in case of capacity and performance emergencies. Employ continuity, recovery, and availability specifications for resource grouping and prioritization.
BAI05 – Managed Organizational Change	BAI05.02	Enhance communication with the core team to articulate a vision aligning with the organization's objectives.
	BAI05.03	Conduct and document formal communications. Assess the understanding of desired objectives and address each issue raised by employees.
	BAI05.04	Align human resources to facilitate change in support of the organization's vision.
	BAI05.05	Incorporate a holistic approach to ongoing changes and document all modifications. Take corrective actions for system limitations.
	BAI05.06	Maintain ongoing reminders through communication for change. Conduct audits to identify the root causes of low adoption and take steps to rectify the issues.
	BAI05.07	Continue to guide new staff and impart the knowledge necessary to sustain changes. Compare system improvements with the performance of the enhanced system.
BAI11 – Managed Projects	BAI11.01	Implement PMO for the ongoing project as quickly as possible. Evaluate the effectiveness of this project management approach.
	BAI11.03	Communicate and assess the proposed system implementation for the organization with the leadership. Conduct requirements analysis and engage stakeholders in the project.
	BAI11.05	To assess the vendor's system's performance, execute quality control in line with the quality management plan.
	BAI11.06	Continue conducting risk analysis for each project phase.

Domain	Process	Recommendations
	BAI11.07	Establish and operate a change control system for the project to review, approve, and integrate changes into the comprehensive project plan, aligning with the program and project governance framework. Maintain ongoing communication with the vendor regarding system issues.
	BAI11.09	Track outstanding activities to ensure the project delivers the intended outcomes. Compile a current project analysis for conclusions upon completion, determining its value following the organization's expectations.

3.4 Discussion

For the BAI04 domain at level 2, Yayasan Bunda Hati Kudus scored 75.2, indicating "Largely Achieved." The organization considers procurement assessments, service performance, and resource capacity, identifying critical data or service solutions. Capacity reports are produced for system procurement, yet a level 3 upgrade isn't feasible due to a value below 85. For the BAI05 domain at level 2, the average is 80.43, signifying "Largely Achieved." Yayasan Bunda Hati Kudus grasps change scope and impact, assessing stakeholder readiness. Staff training and swift issue solutions are planned, with communication aligning with the vision. Despite progress, level 3 isn't attainable with a sub-85 value. BAI11 domain, achieving level 2 at 74.32 ("Largely Achieved"), involves steps, yet level 3 isn't reached due to the sub-85 value. Figure 1. shows a gap analysis between the measurement level results and the organization's capability expectations.

The study's results demonstrate the application of COBIT 2019 to address IT-related challenges. COBIT 2019 provides recommendations for resolving issues like Implementing IT across campuses, which involves three systems catering to distinct needs (Iman et al., 2023). Persistent challenges encompass decentralized systems, operational disruptions, and unmet needs (Iman et al., 2023). These findings align with prior research indicating that both COBIT 2019 and its precursor, COBIT 5, play a crucial role in overcoming IT-related challenges and implementing effective IT Governance across various organizations (Andry et al., 2020; Atrinawati et al., 2021; Fikri et al., 2020; Hartono et al., 2020; Martallata & Wasilah, 2022; Muttaqin et al., 2020; Priyono & Wella, 2022; Sanjaya & Fianty, 2022; Sukamto et al., 2021; Tangprasert, 2020).

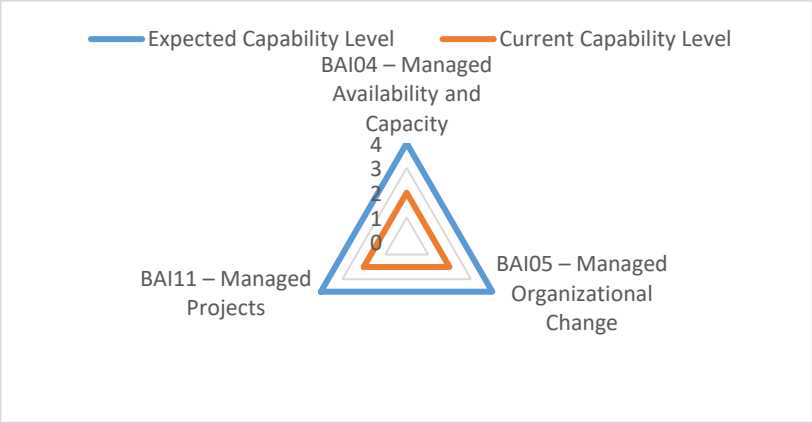

Figure 2 Radar Chart Gap Analysis

4. CONCLUSION

Based on the research results regarding the measurement of IT governance capability at Yayasan Bunda Hati Kudus, the following conclusions can be drawn: The IT governance capability level at Yayasan Bunda Hati Kudus can be assessed using COBIT 2019, employing the Gallegos audit

research framework, including Planning, Field Work, Reporting, and Follow-Up. The determined IT governance capability level is at level two. The identification of COBIT 2019 domains at Yayasan Bunda Hati Kudus is based on the organization's current tendencies and priority issues, such as inadequate features of the vendor's academic system and frequent errors leading to reduced staff productivity. These issues are incorporated into the design factors using the COBIT Toolkit Design, resulting in the selection of the following COBIT 2019 domains for this study: BAI04, BAI05, and BAI11. The outcomes of this research provide recommendations for improvements and enhancements that Yayasan Bunda Hati Kudus should undertake to elevate their IT capability level, particularly moving from level two to level four, with a specific focus on subdomains BAI04.04 regarding capacity report validation for budgeting processes, BAI05.01 concerning system enhancements, and BAI11.08 relating to vendor responsibilities in procurement agreements.

REFERENCES

Aditya, M. A., Mulyana, R. D., & Mulyawan, A. (2019). Perbandingan Cobit 2019 dan Itil V4 sebagai Panduan Tata Kelola dan Management IT. *Jurnal Computech & Bisnis (e-Journal)*, *13*(2), 100–105. https://doi.org/10.56447/AT

Andry, J. F., Hartono, H., & Zakir, A. (2020). Assessment IT Governance of Human Resources Information System Using COBIT 5. *International Journal of Open Information Technologies*, *8*(4), 59–63. http://injoit.org/index.php/j1/article/view/893

Atrinawati, L. H., Ramadhani, E., Fiqar, T. P., Wiranti, Y. T., Abdullah, A. I. N. F., Saputra, H. M. J., & Tandirau, D. B. (2021). Assessment of Process Capability Level in University XYZ Based on COBIT 2019. *Journal of Physics: Conference Series*, *1803*(1), 012033. https://doi.org/10.1088/1742-6596/1803/1/012033

De Haes, S., Van Grembergen, W., Joshi, A., & Huygh, T. (2020). COBIT as a Framework for Enterprise Governance of IT. In *Management for Professionals* (pp. 125–162). Springer. https://doi.org/10.1007/978-3-030-25918-1_5

Fikri, A. M., Priastika, H. S., Octaraisya, N., Sadriansyah, S., & Trinawati, L. H. (2020). Rancangan Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 2019 (Studi Kasus: PT XYZ). *INFORMATION MANAGEMENT FOR EDUCATORS AND PROFESSIONALS : Journal of Information Management*, *5*(1), 1. https://doi.org/10.51211/imbi.v5i1.1410

Harisaiprasad, K. (2020, April 27). *COBIT 2019 and COBIT 5 Comparison*. ISACA. https://www.isaca.org/resources/news-and-trends/industry-news/2020/cobit-2019-and-cobit-5-comparison

Hartono, H., Aristo, J., Rosadi, P., Darma, W., Ekklesia, R., & Efraison, W. (2020). Evaluating IT Governance at Network Access Provider on COBIT 5 Domain EDM. *Journal of Systems Integration*, *11*(2), 1–10. https://doi.org/https://doi.org/10.20470/JSI.V11I2.397

Iman, T. S., Destriani, M., & Ridwaudin, A. R. (2023). Audit Tata Kelola Sistem Informasi E-Sa Menggunakan Framework Cobit 2019 Domain Dss Pada Yayasan As Syifa Al Khoeriyah Subang. *Global*, *10*(1), 20–32. http://ejournal.unsub.ac.id/index.php/Fasilkom

Karim, A., Bangun, B., Kusmanto, Purnama, I., Harahap, S. Z., Irmayani, D., Nasution, M., Haris, M., Rahmadani, & Munthe, I. R. (2020). *Pengantar Teknologi Informasi*. Yayasan Labuhanbatu Berbagi Gemilang.

Martallata, R. A. P., & Wasilah, W. (2022). Academic Information System Governance Using The Framework It Balanced Scorecard And The Cobit Framework 2019 (Case Study: SMAN 15 Bandar Lampung). *Proceeding International Conference on Information Technology and Business*, 72–80. https://jurnal.darmajaya.ac.id/index.php/icitb/article/view/3394

Muttaqin, F., Idhom, M., Akbar, F. A., Swari, M. H. P., & Putri, E. D. (2020). Measurement of the IT Helpdesk Capability Level Using the COBIT 5 Framework. *Journal of Physics: Conference Series*, *1569*(2), 022039. https://doi.org/10.1088/1742-6596/1569/2/022039

Nugraha, D. S., & Octavira, P. (2022). Audit Tata Kelola IT dan Process Investasi Digital Library Menggunakan Pendekatan Framework Cobit 4.1. *Indonesian Accounting Literacy Journal*, *2*(1), 254–268. https://doi.org/10.35313/ialj.v2i1.3516

Priyono, E. B. S., & Wella, W. (2022). COBIT 5.0: IT Governance Measurement on Reputable Bank in Indonesia. *Ultima InfoSys : Jurnal Ilmu Sistem Informasi*, *13*(2), 62–67. https://doi.org/10.31937/SI.V13I2.2708

Sanjaya, D., & Fianty, M. I. (2022). Measurement of Capability Level Using COBIT 5 Framework (Case Study: PT Andalan Bunda Bijak). *Ultima InfoSys : Jurnal Ilmu Sistem Informasi*, *13*(2), 68–76. https://doi.org/10.31937/SI.V13I2.2749

Sihotang, H. T., Zarlis, M., Efendi, S., Jollyta, D., & Husain. (2019). Evaluation of Maturity Level of Information and Communication Technology (ICT) Governance with CobIT 5.0. *The International Conference on Computer Science and Applied Mathematic*. https://doi.org/10.31227/OSF.IO/CQBWP

Sukamto, A. S., Novriando, H., & Reynaldi, A. (2021). Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 2019 (Studi Kasus: UPT TIK Universitas Tanjungpura Pontianak). *Jurnal Edukasi Dan Penelitian Informatika (JEPIN)*, *7*(2), 210–218. https://doi.org/10.26418/jp.v7i2.47859

Tangprasert, S. (2020). A Study of Information Technology Risk Management of Government and Business Organizations in Thailand using COSO-ERM based on the COBIT 5 Framework. *The Journal of Applied Science*, *19*(1), 13–24. https://doi.org/10.14416/j.appsci.2020.01.002

Windasari, I. P., Yonanta, M. Y., Himawati, R. Y., & Rochim, A. F. (2022). Enterprise Governance of IT Audit Using DSS & MEA COBIT 2019 (Case Study: Faculty of Engineering UNDIP). *TEKNIK*, *43*(1), 67–77. https://doi.org/10.14710/teknik.v43i1.34121

Yayasan Bunda Hati Kudus. (2023). *Visi Misi*. Yayasan Bunda Hati Kudus. https://www.ybhk.or.id/visi-misi/