



Information Technology Governance Analysis Using COBIT 2019 Framework in Disdukcapil

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Abstract

Information Technology (IT) has become a part that has an important role and value both in terms of investment and intangible potential for organizations in their operational life. The use of IT in government sector organizations, in order to provide services to the public, as well as managing government running mechanisms including interactions with citizens is known as E-Government. The essence of e-Government is to increase efficiency, transparency, public participation and responsiveness of government institutions. This research aims to find out the extent of the use of Information Technology in the Salatiga City Population and Civil Registration Service by analyzing the 2019 COBIT Framework Governance. This research method was carried out by interviewing and giving questionnaires to informants to obtain data to be managed with the 2019 COBIT Toolkit. Based on the results This research obtained 10 domains which have a greater value equal to a score of 50 and recommends 5 domain processes which become references as an effort to improve the Information Technology Governance of the Salatiga City Population and Civil Registration Service.

Keywords: Governance, e-Government, Information Technology, COBIT 2019.

1. INTRODUCTION

Information Technology continues to develop and has an impact on organizations in carrying out their business processes. In the government sector, the utilization of Information Technology is maximized to increase the efficiency and effectiveness of every job and service to the public [1]. The Salatiga City Community and Civil Services (Disdukcapil Salatiga City) is one of the government agencies in Salatiga City that operates in public services. The use of IT with the aim of speeding up the flow of work processes, managing data effectively, and improving public services in government is called E-Government in the Salatiga City Community and Civil Services [2]. In its operations, the Salatiga City Disdukcapil has one information system service, namely, SIAK. SIAK is used to assist population administration information services in the government sector



by aiding employees in services related to population registration, such as creating Resident Identity Cards, Child Identity Cards, and Family Cards that comply with standard[3].

It should be noted that the Indonesian population database, part of which is managed by the Salatiga City Population and Civil Registration Department, is a database that is centrally regulated by the Ministry of Home Affairs of the Republic of Indonesia. This poses a challenge for the Salatiga Disdukcapil in maintaining population data validation. Centralization of data validation is determined centrally for security and population data regulations. This centralization is one of the gaps in measuring the quality of public services if one day the population database cannot operate. Without IT governance, organizations or institutions will face difficulties in monitoring, assessing, and evaluating implemented IT decisions [4]. IT governance depends on the comprehensiveness of IT governance applied to the organization. Therefore, it is important for organizations or agencies to conduct IT governance audits and identify priorities within the organization [5]. IT governance must be managed with quality, and maturity levels can be identified [6]. Therefore, in this research, the COBIT 2019 framework published by ISACA is used to analyze IT processes that are considered important and assess the role of information technology in the Salatiga City Disdukcapil Office. Based on the results of the IT process analysis using the COBIT 2019 framework, this will serve as a reference for the Salatiga City Disdukcapil Office to improve the organization's service needs.

Previous research has been conducted at the same organization with different regional domiciles. This research uses the COBIT 2019 framework to address frequently occurring problems that have an impact on the quality of population service governance, resulting in alignment with company goals. The alignment and the resulting domain through 11 design factors are determined based on the current and expected capability value [7]. Another study using the same method was conducted to develop an IT governance design at PT.XYZ, focusing on an important domain process. The analysis of 11 design factors revealed that 5 processes had values above 75 percent: BAI02, BAI03, BAI06, DSS02, and DSS04 [8].

This research produces a governance design with domain processes important which is the main priority of PT. DSS01 (Operations Management), DSS04 (Managed Continuity), DSS05 (Managed Security Services) [9]. The results of this research show that every company or organization requires evaluation management information technology to achieve goals and alignment with business processes. Then an evaluation is carried out aimed at taking the results of important priority processes to achieve goals in a company by utilizing information technology which is carried out through a governance audit [10].

This framework is an evolution of COBIT 5, but in COBIT 2019 there are additions to capability levels and maturity levels, as well as providing more detailed guidance on corporate or enterprise IT governance. Governance of IT (EGIT) according to individual company needs [11].

The purpose of this study is very important for the population and population registration service of the city of Salatiga in improving the public services of the society. Additionally, the implementation of good information technology governance can provide increased value for the organization through IT implementation and optimize risk by managing organizational risks and resources [12].

2. METHODS

Research conducted at the Department of Population and Civil Registration of the city of Salatiga regarding information technology governance uses primary data and secondary data, primary data is carried out through an interview process with questions that have been prepared as a data source in research, while secondary data is data that is not directly, this data is data on things related to literary studies and theoretical basis.

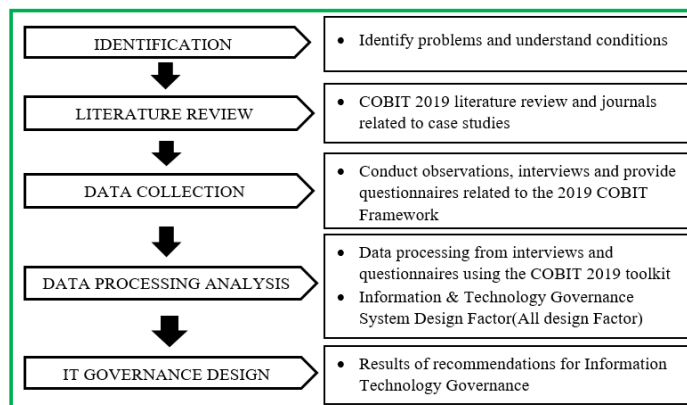


Figure 1. Research Stages

The research method at Disdukcapil Salatiga City can be seen in Figure 1 Research Stages.

1) Identification

The identification stages carried out several things, such as identifying the problems faced by the organization, then carrying out an interview process as a data collection method, then assessing how optimal the level of IT Governance capability is at the Salatiga City Population and Civil Registration Service and finding out what the organization needs in using the COBIT 2019.

2) Literature Review

This method is carried out by reviewing matters relating to the scope of the organization in accordance with IT Governance in the problems and management needs carried out to strengthen this research.

3) Data Collection

This stage was carried out by observing, interviewing and giving direct questionnaires to obtain primary case study data and secondary data to support this primary data using literature studies related to problems in organizations in managing information technology governance. Interviews and giving questionnaires were carried out with the reference of COBIT 2019 namely 11 design factors based on the COBIT 2019 toolkit that relate to this stage.

4) Data Processing Analysis

The analysis was carried out using the 11 COBIT 2019 design factors. At this stage, data processing begins with enterprise Strategy, enterprise goals, risk profile, IT related issues, thread landscape, compliance requirements, role of IT, sourcing model for IT, Implementation Methods, technology adoption strategy and finally enterprise size. After carrying out the steps with By selecting and grouping based on the COBIT 2019 Framework toolkit, all design factors will be produced that assess positive and negative domains [13].

5) IT Governance Design

The research method is to compile a summary of the output results from the analysis by considering the design value use management system and provide recommendations in the form of a governance improvement plan to manage IT Salatiga City Community and Civil Service.

3. RESULTS AND DISCUSSION

3.1 Information & Technology Governance System Design Factor

1) Design Factor 1 - Enterprise Strategy

Design Factor 1 Business Strategy Identify the type of strategy implemented by the Salatiga City Population and Civil Registration Service.

Based on the Enterprise Strategy design factors in Figure 2, it identifies a low strategic emphasis on growth/acquisition and cost leadership. This means that revenue and cost minimization are not important strategies for the organization. For the Salatiga City Disdukcapil, the main priority is providing services to the public that are innovative, stable and community-oriented in accordance with the vision and mission of the Salatiga City Disdukcapil.



Figure 2. Enterprise Strategy

2) Design Factor 2 - Enterprise Goals

Enterprise goal design factors are one of the supporting factors for achieving Enterprise Strategy. Enterprise Strategy can be realized if (a series of) Enterprise Goals are achieved.

Factor Design Enterprise Goals on Figure 3 identifies domains EG03, EG05, EG06, EG10, EG11, and EG12 which becomes a priority business goal with a score of 5. EG03 contains compliance with laws and regulations or external regulations explaining that this government organization has protection from the central government based on state law. EG05 contains a community-oriented service culture in Salatiga City public services in achieving the service satisfaction value of this organization as expected, EG06 contains sustainability and availability of services for the public in strategic planning in mature services. EG10 contains staff skills, motivation and productivity that are organizational goals. EG11 contains policies and compliance in agencies that must meet compliance requirements in organizations according to the main tasks and functions mandated by the Salatiga City Government, and EG12 contains a digital transformation program that is managed to become an important goal as currently set by the state, namely Digital Community Identity.



Figure 3. Enterprise Goals

3) Design Factor 3 - Risk Profile

The risk profile design factors identify the types of risks related to technology information currently faced by the organization, as well as indicating areas of overreaching risk specified tolerance. Understand the risks that can impact the organization and how to evaluate the possibility and impact of the risk occurring.

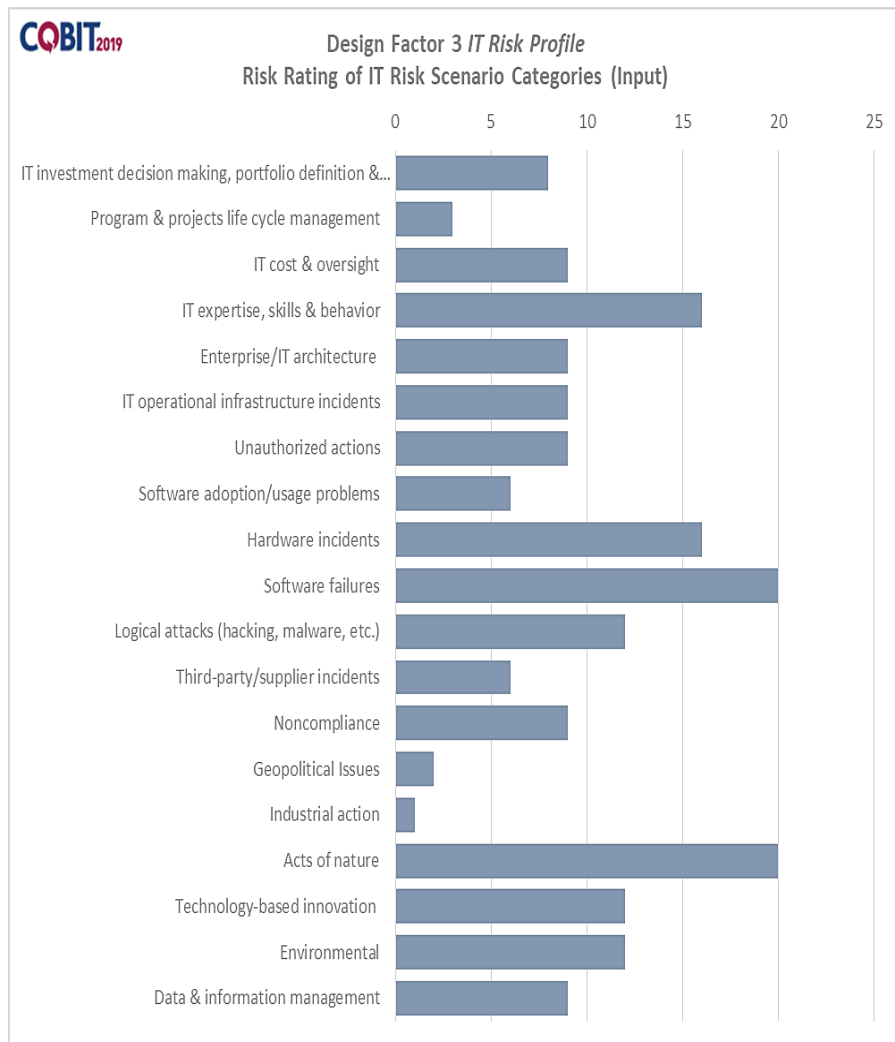


Figure 4. Risk Profile

The Risk Profile design factors in Figure 4 identify the emphasis on high scores IT Expertise, Skills & Behavior, Hardware Incidents, Software Failures, and Acts Of Nature which have an impact and possibility the risks that occur will be great at the Salatiga City Dukcapil Office.

4) Design Factor 4 - I&T-Related Issues

Design factors I&T-Related Issues on figure 5 identify about general problems within the scope of IT.

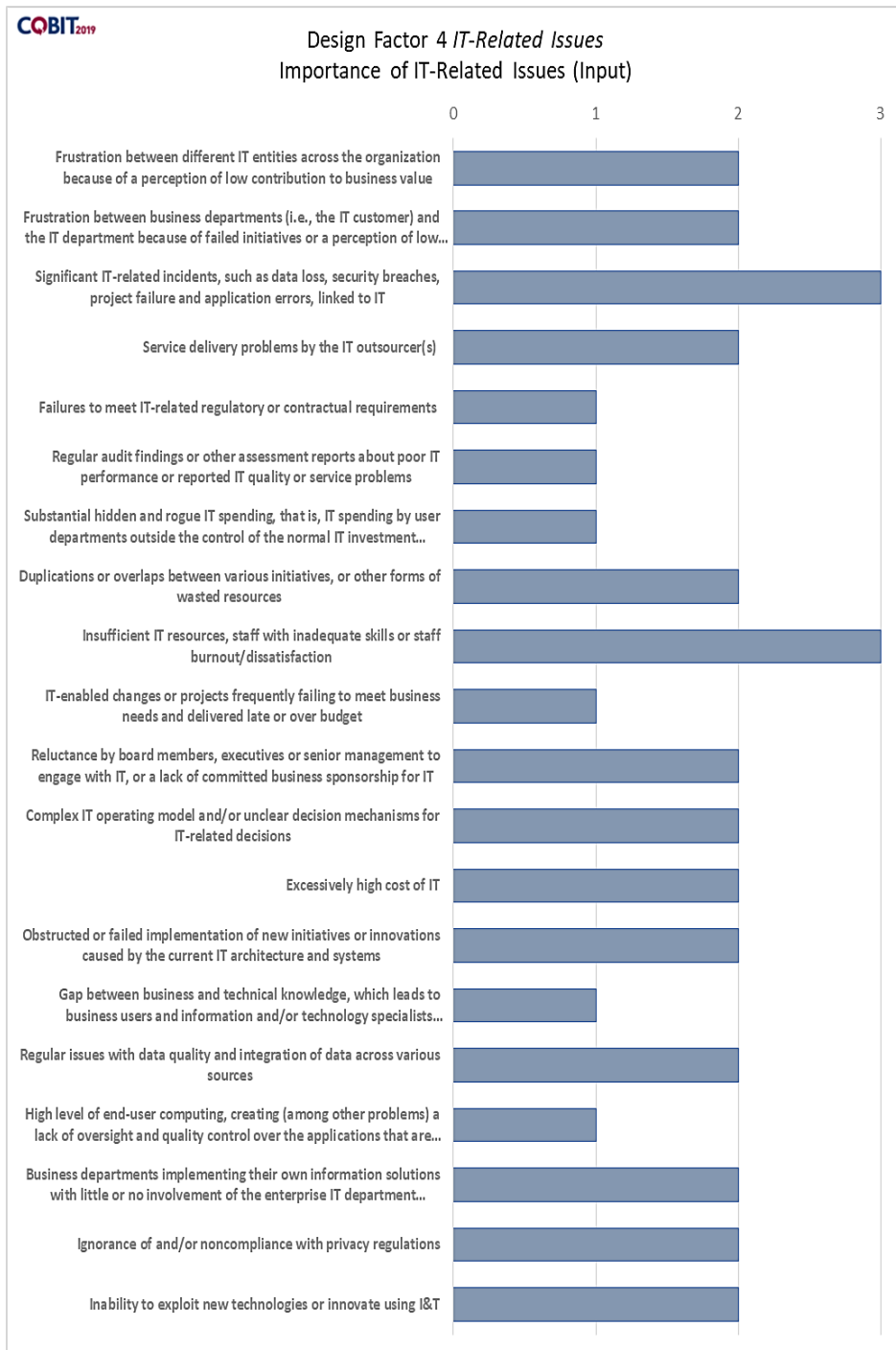


Figure 5. I&T-Related Issues

Based on findings, recorded serious events that have occurred with high and significant risks, including such as data loss, security breaches and illegal access, failure project, application errors related to IT. The second serious problem is inadequate IT resources such as staff with incompetent skills, and staff dissatisfaction with work results. Then 12 standard issues were found and 6 no problems occurred in I&T-Related Issues.

5) Design Factor 5 - Threat Landscape

In this design factor, the threats commonly faced by consumers will be identified organization during its operations.

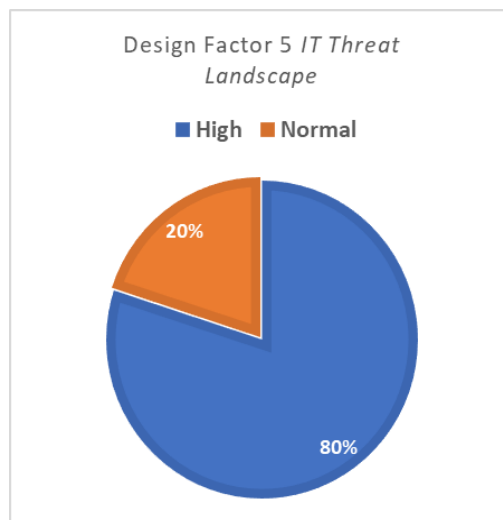


Figure 6. Threat Landscape

Design factors Threat Landscape show in Figure 6 explains the high emphasis on high threats with 80%, which indicates a high threat level such as geopolitical threats, disasters, fires, and profiles outside the institution. Then normal threats with 20% with threats that occur such as data leaks and hacking.

6) Design Factor 6 - Compliance Requirements

At this stage, an introduction to the needs and requirements is carried out must be fulfilled by the organization. The following are the results of identifying Compliance Requirements in Figure 7.

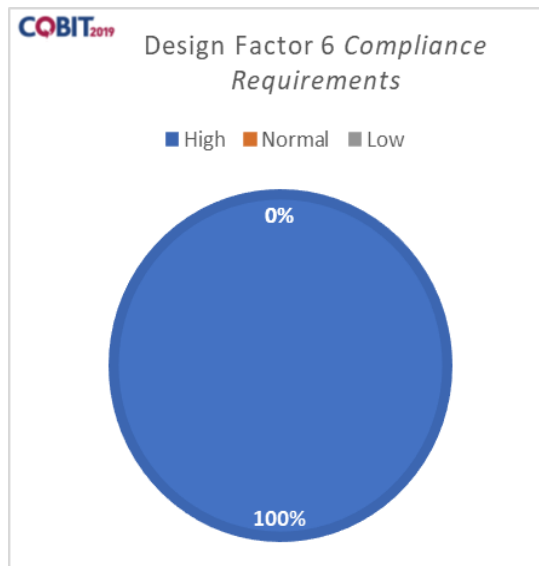


Figure 7. Compliance Requirements

Design factors Compliance Requirements in Figure 7 identify 100% high in compliance rules based on regulated government regulations.

7) Design Factor 7 - Role of IT

Design factors at this stage identify the role of IT in the organization. Following results of identifying the role of IT in Salatiga dukcapil

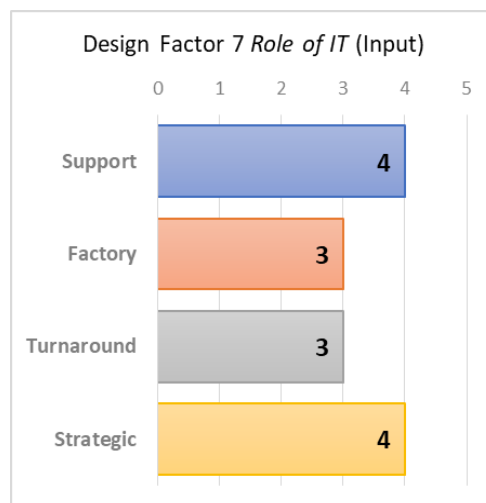


Figure 8. Role of IT

The Role of IT design factors in Figure 8 identify support as an important role as a supporter of work processes. Then strategy also has an important role, such as providing information, promotions and innovation in the services of the Salatiga City Dukcapil Office.

8) Design Factor 8 - Sourcing Model for IT

Factor design Sourcing Model for IT Figure 9 explains the information technology resource model implemented by the Salatiga City Community and Civil Service. A value of 70% insourced, this means that the Salatiga City Dukcapil Office applies an information technology resource model that is insourced or obtained from within the organization.

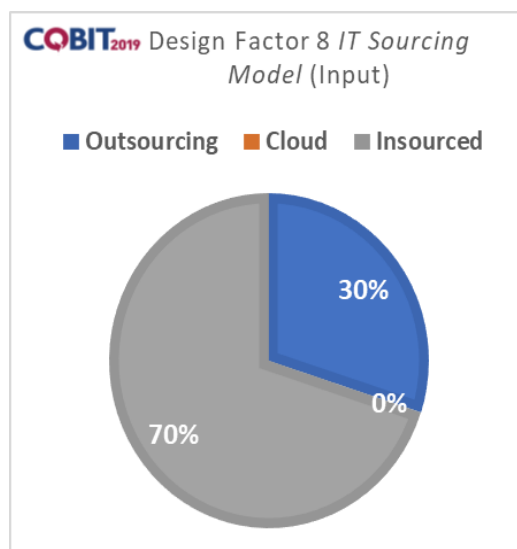


Figure 9. Sourcing Model for IT

Namely by trying to provide staff and IT services internally and owned as part of the Salatiga City Dukcapil Office. The value of 30% outsourcing is understood as technological resources such as The Community Administration Information System (SIAK) of the Salatiga City Community and Civil Service comes from the Ministry of Home Affairs through the Directorate General of Community and Civil Registration (Ditjen Dukcapil) outside the Salatiga City Dukcapil Disdukcapil.

9) Design Factor 9 - IT Implementation Methods

The IT Implementation Methods design factor identifies what methods are used in the company.

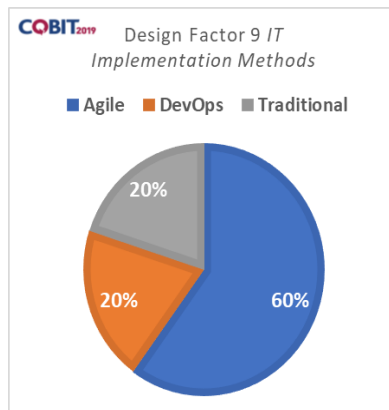


Figure 10. IT Implementation Methods

IT Implementation Methods design factors in Figure10 explains Agile 60% software implementation and development method which is based on flexible and repetitive work, where the rules or work processes have been mutually agreed upon and carried out in collaboration in a way structured, such as the use of SIAM. DevOps 20% means methods implementation combination of culture and practice and finally traditional is carried out at 20%. The method used in a more classic way is waterfall development and implementation which is applied 20% by the Salatiga City Dukcapil Office

10) Design Factor 10 - Technology Adoption Strategy

The Technology Adoption Strategy design factors in Figure 11 identify complex technology adoption strategies.

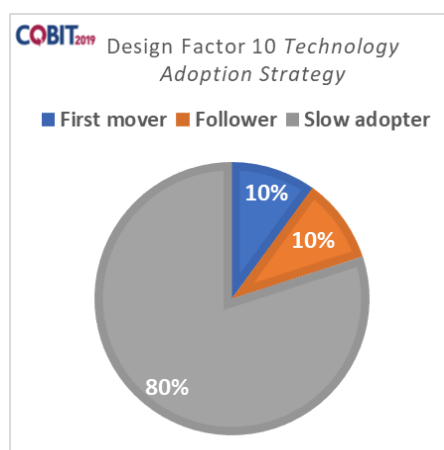


Figure 11. Technology Adoption Strategy

80% value for slow adopters explains that in general the Salatiga City Dukcapil Office is very slow in adopting technology. Regarding centralized policies from the Republic's Ministry of Home Affairs regarding the implementation of technology, this is certainly one of the reasons why the Salatiga City Dukcapil Office is relatively slow in adopting new technology.

11) Design Factor 11 - Enterprise Size

Based on the research results in Table 1, it explains that in COBIT Framework 2019, size big or small organization determined by the number of permanent employees working at that organization.

Table 1. Types of Organization

Organization Type	Appropriate Choice
<i>Large</i> (Organizations with more than 250 permanent employees)	
<i>Small and Medium</i> (Organizations with 50 to 250 permanent employees)	V

Disdukcapil The city of Salatiga has a total of 40 State Civil Servants (ASN) or Civil Servants (PNS). Based on this number, it means that the Salatiga City Dukcapil Office is included in the type of small or medium organization.

After carrying out analysis to determine goals using Design Factors (Design factors1 – Design factor 10), then the objectives regarding the process to be evaluated can be identified as shown in Figure 12. The result information in Figure 2 is obtained from the COBIT 2019 core model with each different value from 40 processes. Each value is influenced by the weight of the value that has been input into the design factors 1 to 10. The results are in the form of important processes or core models that have certain capability level objectives. Based on these results, it indicates that, if the results are positive then this process is an important process for the Salatiga City Dukcapil Office. If the resulting value is negative, then the process is a process that is not a priority for the Salatiga City Dukcapil Office.

Based on the research results obtained, Figure 12 shows the core model that has a score greater than 50, namely EDM03 (Ensured Risk Optimization) with a score of 75 which means target capability at level 4, APO12 with a score of 100 which shows the target capability at level 4, APO13 (Managed Security) with a score of 75 indicates target capability at level 4, BAI06 (Managed IT Changes) with a score of 55 indicates target capability at level 3, BAI10 (Managed Configuration) with a score of 55 indicates target capability at level 3, DSS02 (Managed Operations) with a score of 55 indicates target capability at level 3, DSS04 (Managed Continuity) with a score of 85 indicates target capability at level 4, DSS05(Managed

Security Services) with a score of 95 indicates target capability at level 4, MEA03(Managed Compliance with External Requirements) with a score of 75 indicates target capability at level 4, and MEA04(Managed Assurance) with a score of 60 indicates target capability at level 3.

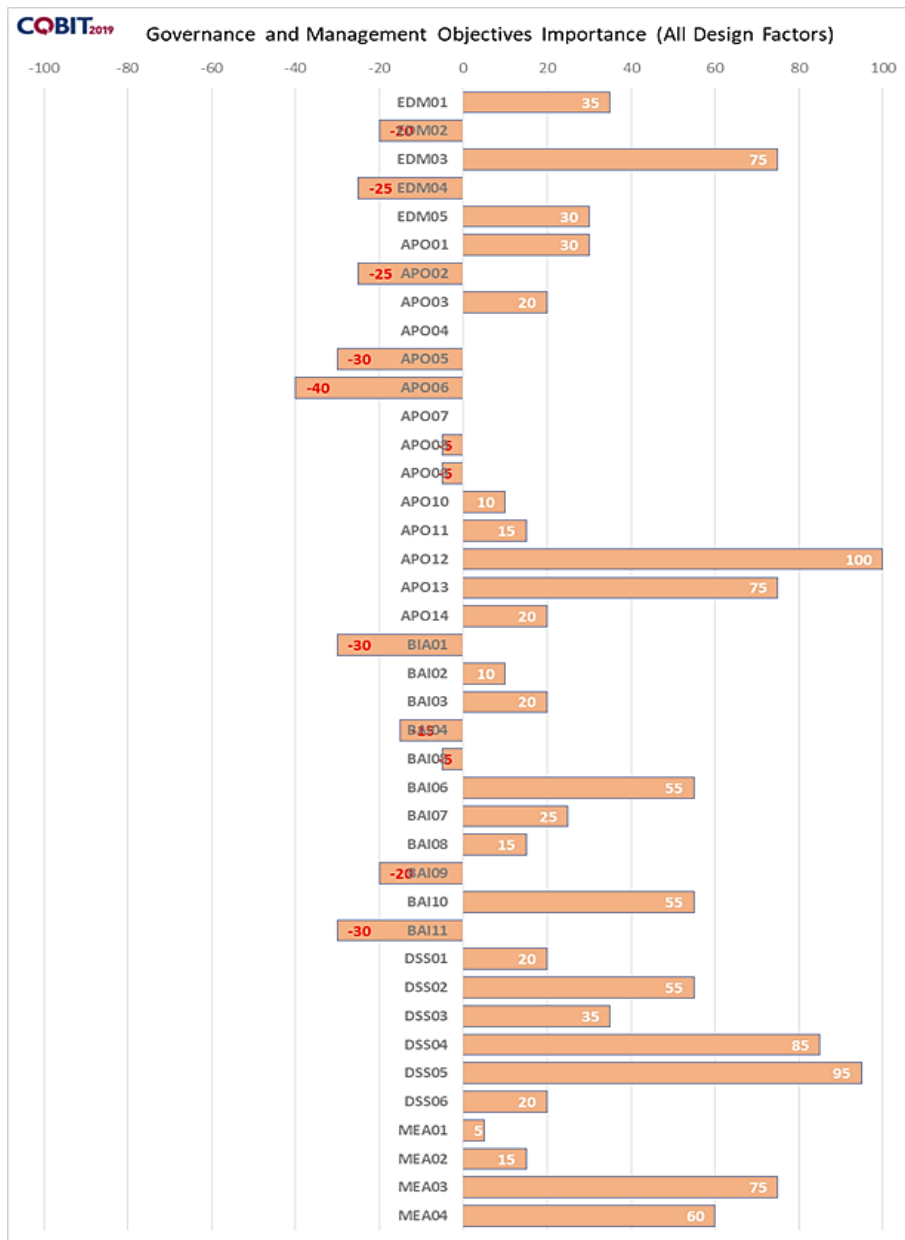


Figure 12. All design factor

The results of this research propose recommendations for the Salatiga City Dukcapil Office which can later be used as a reference in improving and enhancing the organization. The research results in Table 2 contain recommendations for what can be implemented for the Salatiga City Community and Civil Registry Office.

3.2 Recommendation IT Governance

The governance of information technology (IT) is crucial for maintaining the integrity, efficiency, and security of an organization's IT infrastructure. Effective IT governance ensures that IT investments support business goals, manage IT-related risks, and deliver value through cost-effective and innovative IT solutions. In Table 2, various recommendations are provided for different domains of IT governance, each tailored to address specific needs such as service agreements, quality management, IT changes, continuity, and performance monitoring. These recommendations aim to enhance IT security, improve quality oversight, control IT changes, maintain business continuity, and monitor performance effectively, ensuring the organization remains resilient and competitive in a rapidly evolving technological landscape.

Table 2. Results Recommendation Governance

Domain		Recommendation
AP009	Managed Service Agreements	Improve and maintain information technology security both in terms of software and hardware and monitor information technology risks to avoid and prevent IT attacks.
APO11	Managed Quality	Improve oversight, continuous monitoring and use of best practices and standards for continuous improvement and efficiency to ensure consistent delivery of technology solutions and services.
BA106	Managed IT Changes	Oversee all changes in a controlled way, counting standard changes and crisis support related to commerce forms, applications and foundation. This incorporates alter guidelines and methods, affect appraisal, prioritization and authorization, crisis changes, following, announcing, closure, and documentation.
DSS04	Managed continuity	Quickly increment selection, proceed commerce operations, and keep up asset and data accessibility at levels satisfactory to the organization within the

Domain	Recommendation
	occasion of critical disturbances (e.g. threats, opportunities, demands/claims).
MEA01 Managed Performance and Conformance Monitoring	Improve and monitor IT performance and reporting monitoring results to stakeholders to achieve organizational goals.

4. CONCLUSION

Based on research analyzing information technology governance using the COBIT 2019 framework at the Salatiga City Dukcapil Office, 10 important processes for organizations were obtained based on predetermined assessment criteria. These processes include processes that have level 3 capability targets, namely BAI06 - Managed IT Changes, BAI10 - Managed Configuration, DSS02 - Managed Operations, and MEA04 - Managed Assurance. The next process has a level 4 capability target, namely APO12 - Managed Risk, APO13 - Managed Security, DSS04 - Managed Continuity, DSS05 - Managed Security Services and MEA03 - Managed Compliance with External Requirements.

The results of this research produce recommendations for 5 domain processes to achieve capability targets in the form of improvements, namely AP009 (Managed Service Agreements) which are carried out by increasing attention to IT security aspects. For avoid and prevent IT attacks. Then APO11 (Managed Quality), is recommended to improve the quality of control and monitoring in continuous improvement. BA106 (Managed IT Changes), manages in a controlled manner business process procedures, applications and IT infrastructure that are priorities for the organization. Furthermore, DSS04 (Managed Continuity), seeks to ensure that increase availability of sustainability resources increases in the event of a significant disruption. And, MEA01 (Managed Performance and Conformance Monitoring) is sought to improve and monitor IT performance and report to stakeholders. Formake IT decisions. Dexpected from 5 process domains that became a reference in efforts to improve the Information Technology Governance of the Salatiga City Community and Civil Service.

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