

ARTICLE

Evaluation of Jakarta Province in Information and Technology Management

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Abstract: Electronic government has become an important issue in Indonesia's bureaucratic reform. Aside from the big-bang decentralization policy, e-govt has endorsed national concerns to digitize the rigid manual procedures of public services. Jakarta, as the capital city, emphasizes IT- the backbone of administration. IT is yet widely used by Jakarta to get a new shape in Jakarta's capabilities and capacities. Over two decades, passing different governors, Jakarta persistently injected IT into public administration, launching integrated IT applications to present a smart city. Despite the award of Jakarta digital services, Jakarta IT management should be evaluated. The approach used in the research to examine the symptoms of the object of study is a mixed-method approach with a sequential model. The informant selection technique uses purposive sampling. Informants' selection process by adjusting the business processes in COBIT 2019 using the RACI Chart method. The data analysis techniques used Guttman Scale. The result shows the appropriate business processes are: APO02 (managed strategy), APO03 (driven architecture), BAI05 (managed organizational change), and DSS06 (managed business process control). The study results show that the capability level is t of 4 scales as a target. The gap value of 0.25 indicates that technology and information management have been implemented and running well, but each business process needs improvement to reach the maximum level. Despite the gap between as-is and to-be, Jakarta's capability level is impressive. It reflects the persistent injection of IT with adequate support. The Jakarta province needs to pay attention to software and hardware compatible with the organization's vision and improve coordination among divisions. Training, staffing, dispatching, and rotating need qualified human resources to enhance organizational performance. DKI Jakarta Province also needs routine monitoring, evaluating problems, and documenting all business processes as a source of information.

Keywords: IT governance audit; COBIT 2019; information technology; maturity level.

1. Introduction

Electronic government has become an important issue in Indonesia's bureaucratic reform. Aside from the big-bang decentralization policy, e-govt has endorsed national concerns because of the lower public trust in bureaucracy, government officials' low performance, and the rigid manual procedures on public services. Electronic government is a vital source of the new-Indonesia era after being trapped in a 32-year authoritarian regime, especially combating three CCN, corruption-collusion-nepotism on public administration (Huda & Yunas, 2016; Napitupulu, 2017b). Increasing government officials or bureaucracy accountability through enacting reform regulation series will take time and is supposedly not adequate for sudden bureaucratic reform that is sluggish. Also, the benefits of information-communication technology contribute to and stimulate good Governance (Aritonang, 2017; Basu, 2004). Injecting ICTs into the government's work will give a significant share of its processes and lead to better administration through increasing transparency (Alma'arif & Wargadinata, 2022; Srivastava, 2015), efficiency (Masyhur, 2017), and strengthening public trust as a final goal (Dharma, 2015; Napitupulu, 2016).

President's decree number 3 of 2003 was the first milestone of the e-government initiative in Indonesia. It was adopted at local levels with the presence of their official websites. It was impressive since the number of local governments is around five hundred, with different geographical landscapes and wide social and economic gaps. Although the Central government ensures and monitors subnational e-govt by creating awards and guidance to pull it up (Napitupulu, 2017a) the result varies. Some local governments are leading but are mostly stuck at the boring virtual information. Most local governments are stagnant in the initial phase of adopting ICT (Sosiawan, 2008). In fact, E-government in Indonesia running slowly (Hermana & Silfianti, 2011; Prahono & Elidjen, 2015; Rokhman, 2011; Syamsuddin, 2011).

The end of the authoritarian regime also changed the perspective on subnational authority and local government initiatives. Jakarta, as the capital city, emphasizes ICT-the backbone of administration. ICT yet widely used by Jakarta to get a new shape Jakarta's capabilities and capacities.

Jakarta is not only the capital city; Jakarta is a business and central to the government's activities. With those symbols, Jakarta is blessed with a strong ICT infrastructure than other cities. In addition, the number of populations is around 10 million people, the largest contributor to ICT users in Indonesia.

The 2019 survey in Jakarta showed that at the household scale, the most widely used ICT tools were smartphones/smart devices, by 97.33%. Next is television, 97.26%; computers/laptops, 49.47%; and at least landline, 5.88%. The number shows that there has been a shift in non-internet ICT tools to internet-based ICT.

Individually, the number of users of ICT tools reached 96.01%. Television is an ICT tool that is the most widely used by community users of ICT tools, which amounted to 91.42%. Ownership of smartphones reached 84.63%. The least is the computer/laptop, at 39.92%, and the least is the landline telephone, at 6.99%. Jakarta's familiar with IoT; 96,01% are active internet users.

Over two decades, passing different governors, Jakarta persistent injected ICT into public administration, launching integrated ICT applications to present an ambitious, smart city. Qlue is the first prima donna digital services platform for Jakarta residents. Through this application, people can report anything and anytime through their mobile phone, damaged roads, clogged gutters, or piles of garbage, and the authorized officers will fix them directly. The level of community satisfaction with the government's response is carried out by giving an asterisk. Eighty-seven percent of residents' complaints managed four stars rating.

Though the previous Governor created Qlue, it is still used along with other social media platforms. The next Jakarta Governor created a digital platform, JAKI (Jakarta Kini – Jakarta up to date), the next and most integrated public service (Manoby et al., 2021). JAKI is an official public service and information center application; it was created

to meet the daily needs of residents. JAKI provides features that reflect citizen-design services by combining service features created by the government and the public. JAKI is projected for a city-super app and a one-stop service for Jakarta residents. JAKI comprises several features: daily-food prices, Covid-19 information, weather, survey, education, complaint, emergency contact, and JakWIFI- tracking 4.956 free hot spot locations. Jakarta is a flood-prone area; JAKI users can access the latest information about river flow and floodgate conditions in Jakarta. The public can use the flood info map to identify inundation points, complete with additional information such as water level. JAKI also provides an emergency button. Digital services and official information from all Jakarta's agencies have been integrated into JAKI; herein, Jakarta residents only need to install one application to get all. Jakarta Province, the most prominent monopoly collector and information producer, are responsible for sharing all its resources with its residents. Jaki is one of the solution alternatives to improve the relationship between the government and the people. Despite the award to JAKI, the Jakarta ICT management should keep an eye on it. This study is important to examine the level of ICT management capability in Jakarta Province since a huge budget allocation has been invested in it. Researchers do analysis conformance with company standards to COBIT 2019 Governance and Management Objective as a reference in analyzing management existing performance in the company to evaluate technology performance information and manage risk appropriately.

IT Governance focuses on information technology (IT) systems and performance and risk management (Bayastura et al., 2021). IT increased interest in IT Governance is mostly emerging due to compliance initiatives. Also, increasing recognition of the ease with which IT projects. IT governance measurement is a control tool that positively impacts an organization's performance. IT Governance ensures stakeholder needs, conditions, and options are evaluated to determine balance, agree on the achievement of Organizational objectives, set direction through prioritization and decision-making, and monitor implementation and compliance with approved directions and goals.

The Concept of Information of Technology (IT) Governance manages information technology in an organization. IT Governance incorporates good practices from planning and organizing, development and implementation, distribution and services, and monitoring system performance information to ensure information and technology can support the organization's goals and mission. One way to find out is to conduct an audit of the system. The audit is carried out to set the current state, look for drawbacks and recommend improvements to make the information system more useful in supporting the organization.

COBIT (Control Objective for Information and Related Technology) can be used as a tool that used to streamline the implementation of information systems within the company. COBIT is an IT governance framework that bridges the gap between needs and how organizations act. COBIT helps organizations find clear and precise policies controlling IT implementation. As a result, COBIT helps improve the quality and value and simplifies the IT deployment process flow implementation. COBIT consists of 4 domains, namely Planning-Organization (PO), Acquisition-Implementation (AI), Delivery-Support (DS), and Monitor-Evaluate (M). In addition, the COBIT framework compiles and applies the information systems audit model to provide input and recommendations for company management to improve information systems management in the future.

COBIT interprets as a goal that controls information and related technologies and is an open standard for control of the information technology developed and promoted by the IT Governance Institute. COBIT published by IT Governance Institute. A comprehensive tool for creating IT Governance in the Organization is COBIT, which can meet the needs of various management by bridging the gap between business risks, control needs, and IT technical issues. COBIT provides the best business reference practices that cover the entire business process organization and describe logical activities that can be managed and controlled effectively.

COBIT is a framework generally used in Organizational IT governance intended for the entire Organization (ISACA, 2018b). COBIT defines components and design factors to create and maintain systems in the most appropriate and appropriate Governance of the Organization. COBIT has undergone evolution and development from year to year, starting from COBIT 1 in 1996, COBIT 2 in 1998, COBIT 3 in 2000, COBIT 4 in 2005, COBIT 5 in 2012, and most recently, COBIT 2019.

The COBIT 2019 Framework has been used and recognized globally by organizations worldwide to help ensure proper Governance of Organizations in terms of technology and information that is effective and efficient and encourages processes, straightforward implementation to customized. In addition, the role and function of COBIT as a significant supporter of innovation and business change can be strengthened (Rofi et al., 2021). COBIT 2019 resource management mainly focuses on technology and information (ISACA, 2018b). The COBIT 2019 allows organizations to analyze IT Governance to meet compliance standards and achieve targets. COBIT 2019 is tailored to the needs of each organization.

COBIT 2019 supports Maturity Model Integration (CMMI)-based capability in the capability process scheme. The processes within each governance and management object can be operated at various capability levels, ranging from 0 to 5. Capability level is a measure to assess the implementation process and performance (ISACA, 2018b, 2018c). The capability level can be achieved by classifying levels representing several sets in the rating. The range of levels depends on the context in which the assessment is performed.

The revolution of IT plays a significant role in improving public service delivery among local governments in Indonesia. Nevertheless, government organizations have tended to use partial and incompatible tools in their IT system that fail to give proper evaluation results. While these tools differ considerably in scope and emphasis, COBIT gives holistic evaluation when it bridges provider/management – user - auditor needs. COBIT helps IT an auditor in issues control, enabling management to identify business processes and capture users' satisfaction with digital services.

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2. Methods

The approach used in the research to examine the symptoms of the object of study is a mixed-method approach with an explanatory sequential model (Creswell & Creswell, 2018). Researchers first collect and analyze data quantitatively, followed by data collection and qualitative data analysis. The informant selection technique used in this research is the purposive sampling technique.

Informants' selection process through observations by adjusting the business processes in COBIT 2019 using the RACI Chart method. RACI explains the list of informants or respondents for measuring the level of capability based on COBIT 2019. Among the four existing authorities, only those who have a responsible role (R) will use as respondents. R's, as the informants, are deemed to know and understand the business processes fully.

The data analysis techniques used Guttman Scale. The scale used one-dimensional measurements is one multi-dimensional variable. The answer obtained is an unequivocal "no or yes" answer. The Guttman scale is used in a checklist where the value of yes = 1 and no = 0.

The capability level measurement refers to COBIT 2019. The rating scale assesses whether the capability level assessment uses to the next level. Where activity checks step by step, which ensures the requirements of each level are met or not. Fully – Where the capability level exceeds 85%. (Can continue the next level assessment). Largely – Distance capability level between 50%–85%. Partially – Capability level between 15%–50%. Not – Capability level is below 15% (ISACA, 2018a).

Researchers conducted observations, discussions, and document analysis of the domains in COBIT 2019 before identifying the business processes to be measured. For example, the EDM (Evaluate, Direct, Monitor) domain analyzes the organization and implements and maintains Governance with clear authority and responsibility to achieve organizational goals.

3. Results and Discussion

3.1. Organization Goals Identification

The initial stage in conducting analysis or evaluation using COBIT 2019 is first identifying the company's goals. Discussions and interviews with agency heads and managers revealed that the organization's current focus is technology-based public services oriented to the community. IT organization mapping measures through the connectivity between organization Goals COBIT 2019 with a corporate mission. If the relationship between goals and the company is strong, then mark "P," which means primary. If there is a non-dominant relationship, the sign "S" is secondary. If not, there is no relationship, and the mark is emptied.

IT agencies integrate various government services provided by multiple Jakarta government agencies. This service integration is integrated into the JAKI Super Apps application, one application to provide all public services. The Jakarta IT agency's enterprise goals are EG05: Customer-oriented service culture. EG05 is the company's goal to prioritize a customer-oriented service culture. The alignment goals for Jakarta IT are present on the matrix.

The mapping results show 14 general IT-Related Goals columns defined in the IT dimensions of COBIT 2019, while 41 COBIT process controls are in the row. The COBIT control process consists of five dimensions. Evaluate-Direct-Monitor (EDM), EDM01-EDM06. Align Planes and Organize (APO), APO01-APO14. Build-Acquire-Implement (BAI), BAI01-BAI11. Deliver-Service-Support (DSS), DSS01-DSS06. Monitor-Evaluate-Assess (MEA), MEA01-MEA04.

The mapping result shows that the primary Alignment Goal on Enterprise Goal Jakarta' IT agency in EG08 supports and empowers business processes by integrating applications and technology.

3.2. Business Process Identification

The capability level of Jakarta IT is carried out on the business processes that are running at the company. Business processes determine through the COBIT 2019 mapping table based on the Alignment Goals to identify the company's goals. The first stage is obtaining the 2019 COBIT standard's organizational goals and mapping the related objectives with alignment goals. The second is determining based on the organization's objectives. The next stage is to determine the appropriate process domain with the alignment goals that have been selected. The process domains' results reflect the organization's focus on its IT governance.

The identification stage of the IT process is carried out after the alignment objectives are obtained. At this stage, re-matching the critical points identified with the IT process domain based on the alignment objectives obtained in the previous stage refers to the 2019 COBIT guidelines.

Based on the mapping results, there are four processes of Governance and Management Objectives that are included in the primary scale. The matching results between the critical points and the IT process domain based on the 2019 COBIT guidelines are APO02 (managed strategy), APO03 (managed enterprise architecture), BAI05 (managed organizational change), and DSS06 (Managed business process control).

These four processes are used for research scope imitation. The research will focus on EG08, which relates to supporting and empowering business processes through

integrating applications and technology owned by the Jakarta organization and under the initial interviews conducted by the researcher.

3.3. Identification of Roles and Responsibilities

RACI is an abbreviation for Responsible (R), Accountable (A), Consulted (C), and Informed (I). The RACI Chart is a matrix of all activities or decision-making powers carried out in an organization for all people or roles for each process. The RACI Chart aims to assist information technology governance in an organization/company supported by an organizational structure that understands their respective job desks well. Responsible explains who is responsible for internal activities. Accountable describes who is responsible for external activities. Consulted describes who provides input. Informed (Information) refers to the information receiver.

RACI matrix explains the list of informants or respondents for clarity to measure the capability level based on COBIT 2019. Only those with a responsible role (R) will be respondents among the four existing authorities. R's function is considered reliable in its duties and ensures that it is carried out properly. In addition, it means that the person is deemed to know and understand the business processes that have been identified.

After mapping the RACI Chart based on the role of R (responsible) in COBIT 2019 on the selected business processes, the researchers mapped the structure of the selected RACI Chart with the organization structure of the Jakarta Department of Communication, Informatics and Statistics based on Governor's regulations.

Core model evaluation is carried out by filling out questionnaires by respondents obtained through the RACI Chart. It starts from Capability Level 2. COBIT 2019 framework will reveal and ensures all business organization process involves the use of technology and information separately.

3.4. Core Model Evaluation

Core model evaluation is carried out by filling out questionnaires by respondents obtained through the RACI Chart at COBIT 2019. In the COBIT 2019 Framework: Governance and Management module, all evaluations start from capability Level 2 because COBIT 2019 framework is used to evaluate Organizations that have implemented or utilize technology and information.

Every business process that exists in the organization involves the use of technology and information. The COBIT 2019 Framework ensures that Organizations truly leverage technology and information separately. In addition, APO02 in the COBIT 2019 Framework evaluates related managed strategies.

Enterprise Goals mapping aims to match the organization's business goals, vision, and mission with the Enterprise goals in COBIT 2019. The IT-Related Goals mapping seeks to see the relationship between the organization's business goals from matching Enterprise Goals with IT-Related Goals at COBIT 2019 and mapping the COBIT process 2019 aims to find domain processes that exist in COBIT 2019 that are associated with mapped IT Related Goals. To align the company's IT and business goals based on the 2019 COBIT standard. From this mapping, the domains needed in the audit process are obtained. Based on the IT-Related Goals mapping process, the domain will conduct an information technology audit in DKI Jakarta Province.

The analysis was conducted to determine the level of activities on the audit work form. Determination of the level of each activity is done by selecting the value in each activity. Scoring of each respondent with a number from 0–5. The respondent's scoring will determine the level of IT activity in DKI Jakarta Province.

The core model evaluation analysis found four (4) dimensions DKI Jakarta Province must consider: APO, BAI, and DSS. Align, Plan and Organize (APO) address the overall organization, strategy, and support activities for IT. Build, Acquire and Implement (BAI) defines, acquires, and implements IT solutions and their integration into business

processes. Finally, deliver, service, and Support (DSS) discusses IT service operations and support, including security.

3.4.1. APO02 Managed Strategy Measurement

APO02 provides a holistic view of the latest business and IT environments, future directions, and initiatives needed to migrate to the desired future environment. Ensure that the desired level of digitization is an integral part of the future direction and IT strategy. Assess the organization's digital maturity and develop a roadmap to close the gap. With business, rethink internal operations as well as customer-facing activities. Make sure to focus on the transformation journey across the organization. Leverage the building blocks of enterprise architecture, governance components, and organizational ecosystem, including externally provided services and associated capabilities, to enable reliable yet agile and efficient responses to strategic objectives.

APO02 consists of 6 attributes. APO01.01 Understand enterprise context and direction. APO02.02 Assess the enterprise's current capabilities, performance, and digital maturity. APO02.03 Define target digital capabilities. APO02.054 Conduct a gap analysis. APO02.05 Define the strategic plan and road map. APO02.06 Communicate the I&T strategy and direction.

The measurement was conducted through interviews with purpose and selected informants based on the RACI chart. Here is the result: level 2 reached 100%, and the APO02 Business Process has met the criteria to continue its assessment to level 3. The result on level 3 is 96%. It met the criteria and continued to level 4. And at level 4, the final level, it reaches 92,8%. The result shows that the strategic management of DKI Jakarta IT agency has achieved its objectives, is well defined, and its performance can be measured quantitatively. The DKI Jakarta Province has a firm IT roadmap based on field observations. The IT Jakarta agency also involves IT experts and stakeholders, where any person or organization can collaborate by sending an email on the Jakarta Smart City page. The Jakarta IT agency also collaborates with more developed IT-cities to adopt applied IT sciences to develop the Jakarta smart city.

3.4.2. The APO03 Managed Enterprise Architecture Measurement

APO03 seeks to build a general architecture that covers business processes, information, data, application, and technology architecture layers. Its purpose is to create models and essential practices describing the underlying architecture and targets based on the organization's strategy and IT. Define requirements for taxonomies, standards, guidelines, procedures, templates, and tools, and provide links for these components. Improve alignment, increase agility, improve information quality and generate potential cost savings through initiatives such as reusing building block components. In short, APO03 is used to measure the planning strategy to determine the organization condition.

APO03.01 consist of 5 attributes. APO03.01 Develop the enterprise architecture vision. APO03.02 Define reference architecture. APO03.03 Select opportunities and solutions. APO03.04 Define architecture implementation. APO03.05 Provide enterprise architecture services.

Based on the core model evaluation formula, the capability level calculates that the APO03 Business Process has met the criteria to continue its assessment to the next level. The result on level 3 is 96,28 %. It met the criteria and continued to level 4, reaching 100% and reaching level 5. At the highest level, it only comes to 66,6%, which shows that the Jakarta IT management in the architecture domain fails to achieve the maximum level.

Even though the APO03 business process at level 4 indicates that the Jakarta province has created a data management architecture that is flexible and adaptable to society's needs and technological developments. The next step that the Province of Jakarta must take is to always develop programs and applications on an ongoing basis.

Level 4 shows that Jakarta IT management builds the proper architecture to become Smart Jakarta City. The strong architecture and IT building can be seen in the JSC Lab program. JSC Hive is a co-working space resulting from a collaboration between Jakarta Smart City and EV Hive. Those used for coordination among different agencies-divisions and as collaboration space with external parties regarding IT innovations (Rofi et al., 2021). Jakarta Province gives open space for all parties to contribute to IT Management city.

3.4.3. The BAI05 Organizational Change Management Measurement

BAI05 can maximize the likelihood of successfully implementing sustainable enterprise-wide organizational change quickly and with lower risk. Covers the complete life cycle of change and all affected stakeholders in business and IT. BAI05 consists of 7 attributes; Establish the desire to change, form an effective implementation team, communicate desired vision, empower role players and identify short-term achievement, enable operation and use, embed new approaches, and Sustain changes.

The BAI05 intends to ensure the rapid implementation of organizational change in IT management with lower risk. IT is an instrument that helps humans to create, transition, store, communicate and/or disseminate information. IT is a dynamic technology that develops very fast. Therefore, utilizing IT requires an organization that is adaptive and able to keep pace with any changes.

The goal of BAI05 is to prepare and manage resources for organizational change and reduce the risk of failure.

The measurement for all BAI05 attributes follows the COBIT 2019, from level 2 as the lowest level. The result shows it reaches 100% at level 2, on level 3 it reaches 93.3%, and on level 4 it reaches 71.4%. BAI05 business process aims to prepare and entrust stakeholders to make business changes and reduce the risk of failure, especially organizational changes.

Level 4 for BAI05 shows that Jakarta IT management and the strategic management of DKI Jakarta IT agency have reached their objectives. It is well-defined, and its performance can be measured quantitatively.

The DKI Jakarta Province has a firm IT roadmap based on researcher field observations. The IT Jakarta agency also involves IT experts and stakeholders, where any person or organization can collaborate by sending an email on the Jakarta Smart City page.

The Jakarta IT agency also collaborates with more developed IT- cities to adopt applied IT sciences to build and strengthen the Jakarta smart city (Wicaksono et al., 2021).

3.4.4. The DSS06, Managed Business Process Control Measurement

DSS06 attempts to establish and maintain appropriate business process controls to ensure that information associated with and processed by internal or outsourced business processes meets all relevant information control requirements. Identify relevant information control requirements. Manage and operate input and application controls to ensure that information and information processing meet these requirements.

DSS06 covers six attributes. DSS06.01 Align control activities embedded in business processes with enterprise objectives. DSS06.02 Control the processing of information. DSS06.03 Manage roles, responsibilities, access privileges, and levels of authority. DSS06.04 Manage errors and exceptions. DSS06.05 Ensure traceability and accountability for information events. DSS06.06 Secure information assets.

The measurement for all DSS06 domains follows the COBIT 2019 from the lowest level. At the initial stage, 91.63% of level 2. On level 3, it reaches 86.1% and on level 4 gets 75.0%.

The 75% mark means the DSS06 failed to reach level 4 and remains on capability level 3.

Level 3 on DSS06 symbolizes that the IT service process in Jakarta has been carried out well by referring to standard processes that are set and allow for achieving positive results. This is depicted in enhancements by the organization to address problems in information control and the development of overall environmental quality management. In addition, environmental control of organizations is proactively involved, including a commitment to facilities and awareness of IT security. The organization also has a responsible and accountable structure with privileges to access IT services according to the abilities and skills needed to develop technology infrastructure plans.

3.5. Determination of Capability Level

Examination of capability level is used to determine the level of maturity in Jakarta Province. Determination is done by giving a capability level questionnaire based on four domains selected in the previous importance level process and distributed to respondents who have been determined based on the RACI mapping and who has a role in carrying out the task. To define the steps for changing current conditions with conditions expected in the future. Based on the core model evaluation description, the measurement results will be presented in the form of a capability level information table accompanied by a description illustration and percentage of each business process measurement results, shown in [Table 1](#).

Table 1. Maturity Level

Business Process	Description	Measurement Result	Capability Level			
			2	3	4	5
APO02	managed strategy	92.8%			4	
APO03	managed enterprise architecture	66.3%			4	
BAI05	managed organizational change	71.4%			4	
DSS06	managed business process control	75.0%		3		

Based on the results of the analysis described in the research results in the previous chapter using the COBIT 2019 Framework, the selected business process capability level of the DKI Jakarta Provincial Information and Statistics Communications and Statistics Agency is capability level 4 in the APO02 business process (managed strategy), APO03 (managed enterprise architecture), and BAI05 (managed organizational change). It means that the process has been well defined, understood by everyone, and achieved its goals so that it can be measured quantitatively. Meanwhile, DSS06 (managed business process control) has capability level 3, where the business process has achieved its objectives by utilizing organizational assets and is organized. It is well-defined, but not all Jakarta Government officials understand it. IT Governance has been implemented and still needs some improvements to the business processes of the DKI Jakarta Provincial Information and Statistics Communication Service so that each business process can reach the maximum level of capability.

At least the achievement on levels 3 and 4 in the IT business process reveals some good points on the goodwill of Jakarta Province. IT is a smart tool for better, easier public services for Jakarta residents. In this sense, digitized public services facilitate a vast IT development most Jakarta residents use. Furthermore, Jakarta, the capital city and the Indonesian business center, needs computerizing in every business process. This obvious point must be stressed because Jakarta province, residents, private, and international person-agencies depend deeply on ICT nowadays. For many functions, computers and the internet are more effective than conventional tools. The massive IT utilization in Jakarta shows 'the international mindset' since it works in open space and connects from one to another. ICT is increasing transparency and openness in public service procedures. Utilizing advanced ICT also replaces obsolete, rigid, and inefficient processes to get better public services.

3.6. Gap Analysis

Gap analysis is carried out to determine the difference in conditions and circumstances between expected (to-be) and current ability (as-is). At this stage, the researcher compares the target capability level to be achieved with the capability level from the results of the core model evaluation of each business process. The target capability level is obtained from discussions between researchers and Jakarta IT agency officials. The target capability level is level 4, which indicates the process has achieved its goals, has been understood well by all its workers, and its capabilities have been measured quantitatively.

Table 2. IT Governance Gap Analysis

Business Process	Description	Current (X)	Target (Y)	Gap (X-Y)
APO02	managed strategy	4	4	0
APO03	managed enterprise architecture	4	4	0
BAI05	managed organizational change	4	4	0
DSS06	managed business process control	3	4	1

The gap of each business process has been measured with the expected target to be achieved. There are 3 out of 4 business processes have reached the target, but one business process has not reached the target where the gap is 1 level below the target. The gap or gap is obtained from the difference in level between the target and the actual condition. Gap analysis is carried out to make it easier for researchers to provide recommendations for improvements that need to be made by the organization. Based on Ministry regulation, the target is 4; if the gap is analyzed, it will get a value of 0.25. This value is obtained from the average target level of the selected business process capability minus the average capability level that has been measured, which is $4 - 3.75 = 0.25$.

This result can be seen from two different perspectives. Negatively, it's revealed the failure of Jakarta to reach the maximum level despite the huge investment in Jakarta digitalization or the Governor's task force which intensely focuses on Jakarta's Smart-city (Manoby et al., 2021). Beyond those caveats, it is important to notify the lookout for any achievement of Jakarta IT management. Jakarta province is moving several steps toward adopting IT to streamline the delivery of public services, engaging mutual communication or direct interaction with residents, counterparts, and other parties. Jakarta initiatives fit the development dynamic, suitable for the local context and priorities. As a result, Jakarta's achievement as the 50's top smart city in the world and the only city in Indonesia should be appreciated.

3.7. Recommendation

The recommendation on Jakarta Province IT management is found in the output process, referring to the results of the COBIT 2019. APO02 Recommendations in this section, the company has managed its strategy well. Still, it is necessary to pay attention to the need for software and hardware to minimize all existing obstacles so the business can run smoothly. APO 03- In managing the enterprise architecture, an adaptation of the new information system is needed, and training for each user by providing direction in using the system. Each field needs to optimize coordination about the technology used to align with the company architecture.

BAI 05 - Managing the Empowerment of Organizational Change Recommendations in this section on organizational change are carried out if there are HR who are no longer able to provide responsibilities in their fields because the ability of HR significantly affects the organization's performance.

DSS 06 - Evaluating controls over business processes alignment of control activities over business processes with objectives. DKI Jakarta Province needs to carry out routine monitoring and review problems that occur in the continuity of business processes, document, evaluate, and be documented as a source of information.

Over the last five years, Jakarta Province launched an ambitious program for reinforcing government public services with the help of information and technology. With the deep-expanding use of IT through super-apps, JAKI is helping Jakarta implement fully integrated public services to give convenience to all. The IT public services basis makes faster and more accurate responses to requests and queries 24 hours a day, seven days a week, 30 days a month, shortly creating a new channel between Jakarta and citizens. This, in turn, is forcing greater openness and transparency among stakeholders, all parties, all departments, and all levels than in conventional ways. A key element effective of an IT management project is the establishment of a comprehensive evaluation of how it operates. As a result, the level of IT capability has been particularly evident for Province, where Jakarta IT management has taken a strong responsibility in its job. On the other hand, The Jakarta Province has identified ensuring budgets are allocated to support the IT projects.

4. Conclusion

Based on COBIT 2019 Framework, the selected business process capability level of Jakarta Province is at level 4 in the APO02 business process (managed strategy) and APO03 (managed enterprise architecture). And BAI05 (managed organizational change). The achievement level indicates that the process has been well defined, understood by IT agency officers, and achieved its quantitative goals. Meanwhile, DSS06 (managed business process control) has capability level 3, where the business process has achieved its objectives by utilizing organizational assets and is organized. A whole business process is well defined, but not all Jakarta IT government officers understand it. The results of the study show that the capability level is three of 4 scales as a target. The gap value of 0.25 indicates that technology and information management have been implemented and running well, but each business process needs improvement to reach the maximum level. Despite the gap between as-is and to-be, Jakarta's capability level is impressive. It reflects the persistent injection of IT with adequate support in a rigid bureaucratic system.

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