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MEASURING THE GOVERNANCE CAPABILITY OF THE BYOND BY BSI APPLICATION USING COBIT 2019: FOCUSING ON THE DSS02 DOMAIN FOR STRENGTHENING MANAGEMENT INFORMATION SYSTEMS

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Abstract: *Digital technology has rapidly developed over time, particularly in the banking sector. A concrete example of this development is the emergence of mobile banking (m-banking) services. BYOND by BSI is a new m-banking application owned by Bank Syariah Indonesia, whose number of users continues to grow. Therefore, Bank BSI needs to improve the quality of its services to meet customer needs and expectations. In addition, within the context of digital business, the presence of Management Information Systems (MIS) plays a crucial role as it integrates data, facilitates decision-making processes, and supports technology-based service strategies to become more effective and efficient. This study aims to measure the capability level of the BYOND by BSI application using the COBIT 2019 framework, focusing on the DSS02 domain (Manage service requests and incidents). Data collection was carried out through questionnaires distributed to 100 respondents. The results show that the average capability level of the DSS02 domain is 3.64, which is at level 4 (Quantitative Process). Nevertheless, improvements are still needed, particularly in problem resolution and data security protection, so that the application services can be further optimized to support Bank Syariah Indonesia's digital business.*

Keywords: *management information systems, capability, byond by bsi, cobit 2019*

I. INTRODUCTION

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The development of digital technology has progressed rapidly over time, particularly in the banking sector. Today, customers demand financial services that are practical, easy, fast, and secure. To meet increasingly complex customer needs, banks provide mobile banking (m-banking) services. M-banking applications offer a wide range of financial services, such as bill payments, top-ups, transfers, investments, savings, and more [1]. Some even provide additional features like prayer time reminders. However, these applications also face significant challenges in terms of system capability, service quality, and user satisfaction.

One of the newly launched m-banking applications is BYOND by BSI, owned by Bank Syariah Indonesia (BSI). This application offers various features, including balance checks, fund transfers, investments, QRIS payments for zakat and waqf, as well as Qibla direction and prayer times. According to BSI data in January 2025, the application had been downloaded over 2 million times and had facilitated more than 15 million transactions. However, based on national media reports [2], since its launch on November 9, 2024, the application experienced several service disruptions, such as failed transfers, failed e-money top-ups, QRIS payment errors, and cash withdrawal issues. These disruptions caused inconvenience for customers using the BYOND by BSI application.

Given these issues, it is necessary to evaluate the system's capability level, which reflects how well the system supports business needs and user requirements. In this study, COBIT 2019 was chosen as the evaluation framework because it provides a globally recognized standard for IT audit and governance [3]. COBIT 2019 helps organizations optimize risk management, realize benefits, and maximize resources by implementing effective control mechanisms and improving the value of IT systems [4]. This study aims to determine the capability level of the BYOND by BSI application and provide recommendations for improvement.

II. METHODOLOGY AND MATERIALS

2.1. Information Systems

An information system is a process of collecting, analyzing, processing, and distributing information for specific purposes [5]. It transforms data into meaningful information for decision-making, transaction management, and other business processes. Information systems consist of several components—people, hardware, software, and databases—that interact to produce accurate information.

2.2. M-Banking

M-banking is an innovative service offered by banks that enables customers to perform banking transactions via smartphones [6]. Customers can access this service by downloading the bank's application, which allows them to perform financial activities such as transfers, bill payments, and investments.

2.3. Byond by BSI

The BYOND by BSI application, launched on November 9, 2024, by PT Bank Syariah Indonesia Tbk (BSI), functions as a SuperApp that replaces the previous BSI Mobile application [2]. It provides a wide range of financial, social, and spiritual features, such as fund transfers, balance checks, investments, zakat payments, Qibla direction, and prayer times.

2.4. COBIT 2019

COBIT (Control Objectives for Information and Related Technology) is a framework developed by ISACA (Information Systems Audit and Control Association) to support the governance and management of information technology and information systems within an organization [7]. This framework is designed to help organizations achieve their business objectives through system performance monitoring, risk management, and compliance with applicable regulations. COBIT 2019 is the latest version of this framework, providing principles, practice guidelines, tools, and models aimed at enhancing the value and trust in information technology within companies. COBIT 2019 is an improvement over the previous version, COBIT 5. In this version, the domains are divided into two main groups: the governance domain, which includes EDM (Evaluate, Direct, and Monitor), and the management domain, which consists of APO (Align, Plan, and Organize), BAI (Build, Acquire, and Implement), DSS (Deliver, Service, and Support), and MEA (Monitor, Evaluate, and Assess). In total, there are 40 objectives distributed across these five domains.

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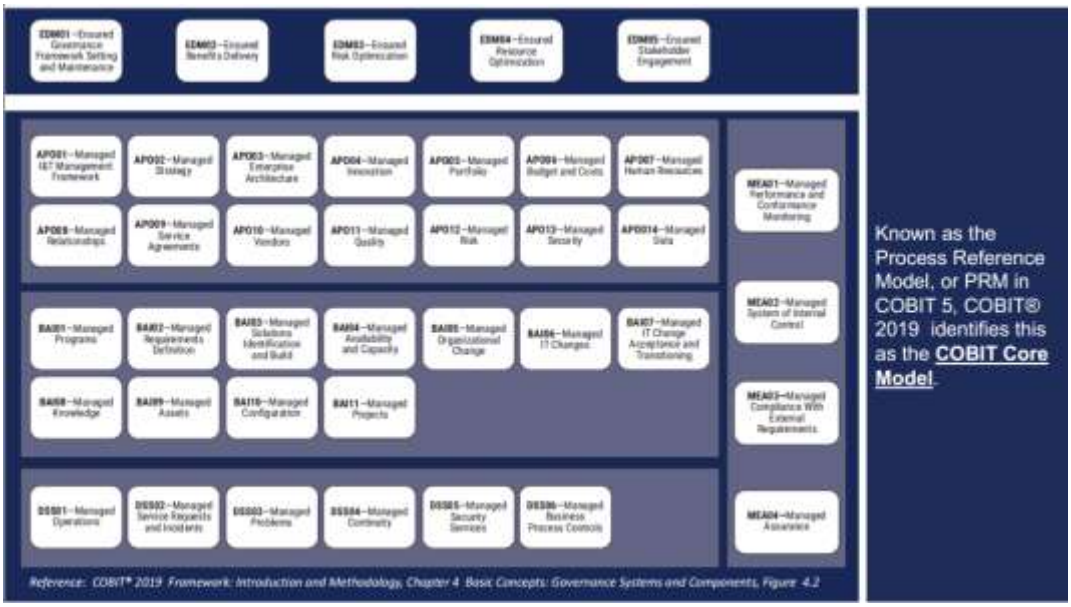

Figure 1 Domain Objectives of COBIT 2019

The DSS domain (Deliver, Service, and Support) focuses on providing reliable information technology services and delivering optimal support for users. The scope of this domain includes various activities, such as IT operations management, information security control, and arrangements related to business continuity [8]. The DSS02 domain (Manage service requests and incidents) consists of 7 subprocesses as follows [9].

Table 1 Sub Process Domain DSS02

No.	*Sub Process*	*Description*
1	DSS02.1	Define classification schemes for incidents and service requests.
2	DSS02.2	Record, classify and prioritize requests and incidents.
3	DSS02.3	Verify, approve and fulfill service requests
4	DSS02.4	Investigate, diagnose and allocate incidents
5	DSS02.5	Resolve and recover from incidents
6	DSS02.6	Close service requests and incidents.
7	DSS02.7	Track status and produce reports

2.5. Population

Population is a generalization area that includes objects or subjects with specific characteristics and traits determined by the researcher as the focus of the study, which will later serve as the basis for drawing conclusions. Meanwhile, a sample is a part of the population selected to represent the entire population in the research process [10].

2.6. Sample

A sample is a portion of the number and characteristics possessed by the population [10]. In general, a sample consists of a number of individuals selected from the population and is considered to represent the entire population. Samples are used when the population is too large for the researcher to study in its entirety

2.7. Likert Scale

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The Likert Scale is a measurement tool used to assess the attitudes, views, or perceptions of individuals or groups toward a social phenomenon [10]. This scale is often applied in questionnaires, particularly in studies that use the survey method as their approach.

2.8. Validity Test

The validity test is a process to ensure the conformity between the data reported by the researcher and the actual data obtained from the research respondents. This test is conducted by comparing the calculated r-value with the r-table value at a 0.05 significance level. If the calculated r-value is greater than the r-table value, the questionnaire item is declared valid. However, if the calculated r-value is smaller than the r-table value, the item is considered invalid [10].

2.9. Reliability Test

The reliability test is the degree of consistency and stability of data or findings. It is a method used to assess how reliable and consistent a measuring instrument is in producing accurate data. The reliability test is usually carried out using the Cronbach's Alpha method. The reliability value ranges from 0 to 1, where the closer it is to 1, the better the quality of the instrument being tested [10].

2.10. Capability Level

Capability Level is a way to measure the effectiveness of a process based on the extent to which the process has been implemented and managed consistently within an organization. [11]

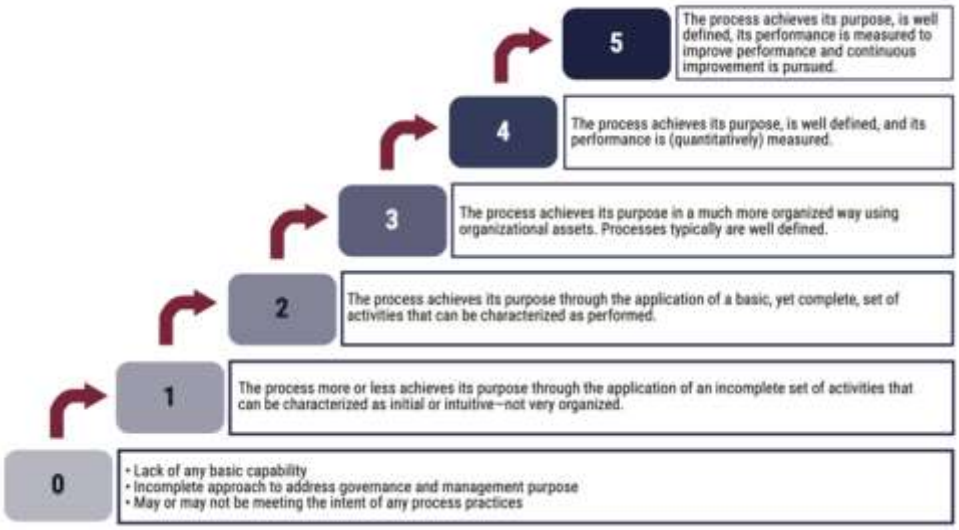

Figure 2 Capability Level Cobit 2019

Here is the explanation of the capability levels above:

a. Level 0 means the process is not running properly, or there is no certainty that the objectives can be achieved. Activities may be carried out, but without a clear pattern.
b. Level 1 means the process is carried out in an unstructured manner, relying more on instinct than clear rules. The activities performed may not yet be fully comprehensive.
c. Level 2 means the process is more directed, with basic activities carried out more comprehensively to achieve the objectives. However, standardization has not been fully implemented.
d. Level 3 means the process is well-structured and utilizes organizational assets. The process has been clearly established and is consistently applied across the organization.
e. Level 4 means the process runs effectively, is well-organized, and its performance can be measured using quantitative data for evaluation and improvement.

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f. Level 5 means the process has reached the highest level of maturity, is highly optimized, and is continuously evaluated and improved to achieve ongoing enhancement.

2.11. Gap Analysis

Gap analysis is a method or process used to identify the differences between the actual condition of an organization and the ideal condition that is expected. This process is utilized in designing implementation strategies as well as improving the organization's effectiveness in various operational aspects [12]. The calculation is as follows:

GAP = Expected Value – Actual Value

2.12. Research Framework

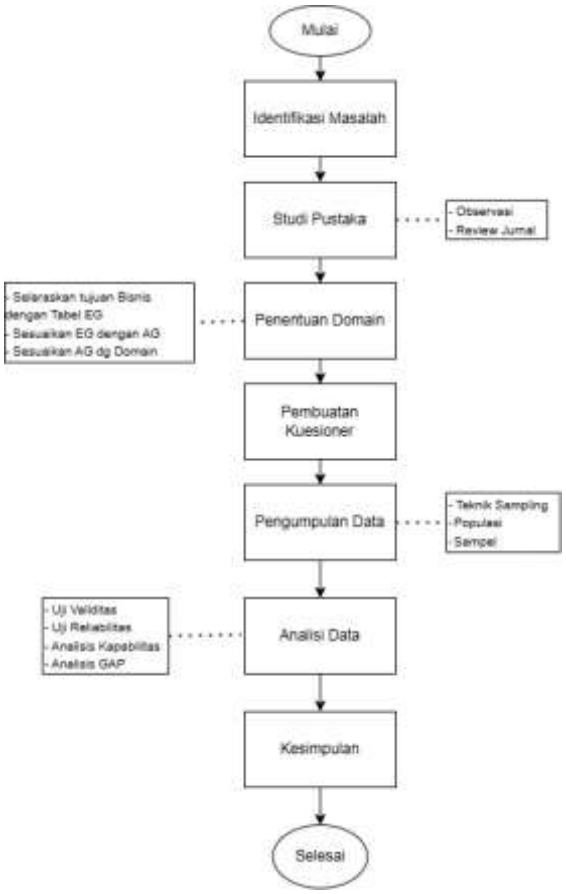

Figure 3 Research Framework

a. Problem Identification
The first step in conducting research is to determine the research object and carry out observations in order to identify several problems that need to be studied. In this case, the research object is the BYOND by BSI application, which has experienced several issues such as problems when making transfers, disruptions in topping up e-money, failures in making QRIS payments, inability to withdraw cash, and other related issues.

b. Literature Review
The next stage is the literature review, in which the researcher examines various theories related to the COBIT 2019 framework. In addition, the researcher also studies similar previous research to gather the most accurate information possible.

c. Determination of Domain

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The determination of the domain is carried out through several processes aligned with the company's objectives, vision, and mission, which are then adjusted to the enterprise goals based on the COBIT 2019 framework guidelines. After the enterprise goals are derived from the company's vision and mission, the next step is to establish the alignment of enterprise goals to alignment goals. Once the results are identified, a mapping of alignment goals to Governance and Management Objectives (or domains) is conducted, which will ultimately determine the specific domain focus to be studied.

d. Questionnaire Development
At this stage, the preparation of the questionnaire is adjusted to the results of the domain focus to be studied, which was determined in the previous stage. The questions for respondents are tailored to the process domain focus in accordance with the COBIT 2019 guidelines.

e. Data Collection
At this stage, the determination of the number of respondents is carried out through a sampling technique using the Slovin formula by considering the population of BYOND by BSI application users. Subsequently, questionnaires with the previously designed questions are distributed.

1. Sampling Technique
This study uses purposive sampling. The selection of samples with this method is based on various considerations and specific criteria that align with the research objectives [13].
2. Population
The population in this study consists of active users of the BYOND by BSI application. In this case, the researcher calculated the value based on the number of downloads and reviews on Google Play Store and Apple App Store.
3. Sample
The sample is calculated using the Slovin formula as follows.

$$n = \frac{N}{1 + N\ x\ (e)^2}$$

n = required sample size
N = total population
e = margin of error (tolerated error rate)

f. Data Analysis

1. Validity Test
The validity test is conducted to ensure accuracy and reliability in the research. Validity is determined by comparing the calculated r-value with the r-table. If the calculated r-value > r-table, then the instrument is considered valid; if the calculated r-value < r-table, then the instrument is not valid. In this study, the validity test uses a significance criterion (P-Value) of 5%.
2. Reliability Test
This process is carried out using the Cronbach's Alpha method with SPSS software. An instrument is considered reliable if the Cronbach's Alpha value is greater than 0.6. The purpose of the reliability test is to measure the consistency of results when measuring the same object.
3. Capability Level Assessment
The capability level assessment is conducted on the predetermined domain with the aim of analyzing the development of each domain in more detail. The calculation of the capability level is carried out by determining the average percentage of respondents' responses at each level.
4. Gap Assessment
This stage is an analysis to calculate the difference between the expected value and the current condition.

GAP = Expected Value – Actual Value

g. Final Result
After conducting data analysis and applying several testing instruments, conclusions will be drawn based on the test results.

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III. RESULT & DISCUSSION

3.1. Determination of Domain

At this stage, the alignment between the company's vision and mission and the COBIT 2019 enterprise goals is carried out, which will be presented in Table 2.

Table 2 Company Vision & Mission to Enterprise Goals

	Description	***Reference***
Vision	TOP 10 GLOBAL ISLAMIC BANK	EG01 (Competitive portfolio of services and products)
Mission	Providing access to Sharia financial solutions in Indonesia (Serving >20 million customers and becoming a top 5 bank by assets (500+ trillion) and book value of 50 trillion in 2025.)	EG06 (Availability and continuity of business services)
	Becoming a major bank that delivers the best value for shareholders (Top 5 most profitable banks in Indonesia (ROE 18%) with strong valuation (PB > 2).)	EG04 (Quality of Financial Information)
	Becoming the employer of choice and the pride of Indonesia's best talent (A company with strong values that empowers communities and is committed to employee development with a performance-based culture.)	EG10 (Staff skills, productivity, and motivation)

Next, after the enterprise goals are identified, they will be aligned with the alignment goals, and the results are presented in Table 3.

Table 3 Mapping Result Enterprise Goals & Alignment Goals

EG01	***EG04***	***EG06***	***EG10***
AG05	AG04	AG07	AG12
AG06	AG10		
AG08			
AG09			
AG13			

From the mapping results in the table above, the Governance and Management Objectives, or domains, can be identified [9]. Since the number of domains that can be studied is quite large, it is necessary to determine the main focus to avoid making the research too broad. Therefore, several domains most relevant to the research needs were selected, based on the background and issues identified through direct observation of the BYOND by BSI application system. Ultimately, this study focuses on the DSS02 domain (Manage Service Requests and Incidents).

3.2. Data Collection

a. Population

The population is taken from the number of reviews, which is 37.541, based on the assumption that in order to write a review, users must have downloaded the application and at least opened it or made a minimum of one transaction within it. The following is the table of reviews recorded in February 2025.

Table 4 Rating Count

	Play Store	App Store
Rating	32.588	4.953

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b. Sample
The sample is calculated using the Slovin formula as follows.

$$n = \frac{N}{1 + N\ x\ (e)^2}$$

n = required sample size
N = total population
e = margin of error (tolerated error rate)

$$n = \frac{37.541}{1 + (37.541\ x\ 0{,}10^2)}$$

n = 99,73

From these results, the figure of 99.73 is rounded up to 100. Therefore, the total sample consists of 100 respondents.

3.3. Data Analysis

a. Validity Test Results
From the 19 question items distributed to 100 respondents, the r-table value at a 5% significance level is 0.1966, which, when rounded, becomes 0.197. The data calculated using SPSS shows that the r-count is greater than the r-table, therefore the data is considered valid

b. Reliability Test Results
The Cronbach's Alpha calculation using SPSS resulted in a value of 0.960. Since this value is greater than 0.6, it can be concluded that the data is reliable.

c. Capability Test Results
Results of the DSS02 Process Assessment

Table 5 Results of DSS02 Capability Assessment

Subproses	Total Score	Count of Respondents	Average	Capability Percentage
DSS02.01	381	100	3,81	76,20%
DSS02.02	364	100	3,64	72,80%
DSS02.03	371	100	3,71	74,20%
DSS02.04	354	100	3,54	70,80%
DSS02.05	356	100	3,56	71,20%
DSS02.06	364	100	3,64	72,80%
DSS02.07	356	100	3,56	71,20%
Average Capability			3,64	72,74%

The average capability from the 100 respondents who completed the questionnaire is 3.64, which falls under the Quantitative Process level with a percentage of 72.74%.

d. Gap Test Results
The method of assessing the gap is by calculating the expected capability value minus the current capability value. The results are as follows.

Tabel 6 Gap Calculation Results

Subdomain	*Current Capability*	*Expected Capability*	*GAP*
DSS02.01	3,81	3	-0,81
DSS02.02	3,64	2	-1,64
DSS02.03	3,71	3	-0,71
DSS02.04	3,54	2	-1,54
DSS02.05	3,56	2	-1,56

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Subdomain	*Current Capability*	*Expected Capability*	*GAP*
DSS02.06	3,64	2	-1,64
DSS02.07	3,56	5	1,44

3.4. Final Results and Recommendations

After the data processing and calculations were completed, the next stage was data analysis. The following are the results of the data analysis in this study:

Tabel 7 Results of Data Analysis

Domain Process	Description	Recommendations
DSS02.01	The capability value exceeds expectations; users are satisfied with the ease of access to the Help Center feature.	Maintain the Help feature.
DSS02.02	The capability value far exceeds expectations.	Maintain this process and develop other features needed by users.
DSS02.03	Users feel that verification in handling issues is resolved quickly.	Maintain and improve this service to further enhance user satisfaction.
DSS02.04	Users feel that investigations when problems occur are conducted well, and the target capability value has been exceeded.	Maintain incident management services in the application.
DSS02.05	Efforts to resolve problems and recover from incidents are carried out effectively.	Maintain system recovery services in case of issues within the application.
DSS02.06	Problem identification and classification are considered fairly good.	Maintain this process, and if new issues arise, promptly classify them according to existing rules.
DSS02.07	The value is still far from expectations; transparency regarding the status of service disruptions remains lacking.	Provide a feature for service disruption follow-up status, such as notifications or other methods.

IV. CONCLUSION

The research and discussion on measuring the capability level of the BYOND by BSI application using the COBIT 2019 framework, focusing on the DSS02 (Manage Service Requests and Incidents) and DSS03 (Manage Problems) domains, by distributing questionnaires to 100 respondents in the Jombang, East Java area, resulted in several conclusions as follows:

a. The average capability of the DSS02 process is 3.64, which falls under the Quantitative Process level with a percentage of 72.74%.
b. Most sub-domains of the process have achieved the expected targets; however, there is one sub-domain that has not yet reached the target.
c. Improvements need to be made in the DSS02.02 sub-domain to achieve the target.

The testing of the BYOND by BSI application can also be carried out using other methods in order to compare different approaches. Since BYOND by BSI is a banking application, regular maintenance is required, and data security must be strengthened by the responsible parties, as the data is highly crucial, being related to financial matters. In addition, further development of features that are highly needed by users is necessary to ensure that user satisfaction and needs are properly fulfilled.

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