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# PERFORMANCE EVALUATION OF IIB DARMAJAYA ACADEMIC INFORMATION SYSTEM USING COBIT 5.0 FRAMEWORK ON STUDENT SATISFACTION

**Lukmanul Hakim,[1] Agung Nugroho,[2] M. Hasan Ma'ruf**
[1,2]Master of Technology Management, IIB Darmajaya Bandar Lampung
[3]Institut Teknologi Bisnis AAS Indonesia
*Email : lukmanulhakim@darmajaya.ac.id, agung.2222320001@mail.darmajaya.ac.id,hasan.stie.aas@gmail.com*

**Abstract:** *The academic information system (SIAKAD) really helps universities in processing data on student grades, courses, data on teaching staff (lecturers) and faculty/department administration which is still manual to be done with a computerized system. Thus, it is necessary to evaluate SIAKAD's performance so that we can find out the quality of the services that have been provided to students. This research requires a governance framework in the form of Control Objective for Information and Related Technology 5 (COBIT 5.0) which can provide benefits for an agency in achieving strategic goals and optimizing information technology services. Therefore, this research aims to see how the performance SIAKAD regarding satisfaction with IIB Darmajaya students and providing recommendations for improving the quality of student services. The method used in this research is a descriptive method with a quantitative approach. The evaluation results show that SIAKAD's maturity level is still low, there is a fairly large GAP between the current service maturity level and the expected performance level. The GAP in the APO.07 domain is 2.24, in the DSS.03 domain it is 2.23, in the DSS.04 domain it is 2.29, in the DSS.05 domain it is 2.18 and in the MEA.01 domain it is 2.40 . The average GAP for the entire domain is 2.27 and places the service quality of SIAKAD IIB Darmajaya in the Manage quality and needs to be strengthened to improve the quality of student services. The recommendation given is to provide easy access to student data and provide access for parents/guardians of students at SIAKAD.*

***Keywords:*** *SIAKAD Performance, COBIT 5.0, Student Satisfaction*

## 1. Introduction

In the current era of globalization, universities need to consider how information systems (IS) can help improve operational efficiency and effectiveness. SI is one of the mainstay tools for winning competition in the educational services business, helping universities in realizing and improving the quality of services to students, and also being a trigger for universities to be able to create educational processes and activities that are cheap, high quality and fast. The effectiveness of IS implementation in increasing student satisfaction and loyalty can be influenced by various factors, including the implementation of technology in the Academic Information System (SIAKAD) (Firmansyah & Dede, 2022).

According to Maritsa et al. (2021), Collaboration with business partners in terms of services can help increase the effectiveness of SI implementation by strengthening coordination between various parties to obtain student satisfaction. In this context, satisfaction can be considered an important variable in assessing the performance of systems implemented in higher education. Rapid technological innovation is able to increase regional influence so that currently the supply chain has become an important element in the business world. Not only technology, but service

also contributes to strengthening collaborative relationships between supply chain members. This is because management techniques indirectly require a university to implement IS.

There are quite a lot of universities in Bandar Lampung City and are a favorite place for prospective students to continue their studies at higher education. Darmajaya Institute of Informatics and Business (IIB) is a private university in Bandar Lampung. IIB Darmajaya is able to compete with other universities by utilizing developments in information technology and quality of service, so that it is able to become a private university that is in great demand by the people of Lampung and those from outside Lampung. The information system used by IIB Darmajaya is the Learning Management System (LMS).

As technology develops, there is a change in the information system used from using LMS to Academic Information Systems (SIAKAD). Therefore, this research is intended to see how SIAKAD's performance is able to provide satisfaction to IIB Darmajaya students. Based on the description and background that has been explained, the researcher is interested in taking the title, "Evaluation of the Performance of the IIB Darmajaya Academic System Using the COBIT 5.0 Framework on Student Satisfaction".

## 2. Research Method

### 2.1 Academic Information System (SIAKAD)

According to Taufandri et al. (2022) The Academic Information System (SIAKAD) is an information system that was deliberately created to answer the needs and demands of current developments for higher education. The SI is expected to be able to improve good service to students and lecturers. Apart from that, a computerized system can improve performance, quality, competitiveness and qualified human resources.

SIAKAD is an online academic service in the form of a system that manages academic data using computer technology which contains system output, namely academic information provided and adjusted by universities. Academic information systems are used to manage academic data using computer technology more effectively and efficiently in providing services to students(Widiyanti & Tyas, 2022).

### 2.2 Control Objective for Information and Related Technology (COBIT 5.0)

Nurlistiani et al. (2021)COBIT 5 states a framework for IT governance and management. This framework can help create optimal value from IT use by balancing existing benefits with optimizing risks and resource use. COBIT 5 allows the IT involved to be organized and managed effectively for the entire organization relating to full end-to-end business processes, as well as considering IT in accordance with the interests of internal and external stakeholders.

### 2.3 Student Satisfaction

Cahyoadi & Loisa (2019) states student satisfaction is quite an important aspect in assessing a system implemented in higher education. The existence of gadgets as a tool for obtaining information is a relatively important need to fulfill in pursuing studies. The aspect of student satisfaction in accessing SIAKAD is very important for developing information systems in higher education.

Student satisfaction as stakeholders is a very important part of higher education. In this case, an academic information system is a system specifically designed to be able to manage various kinds of academic data with many entities. Good governance of academic information systems needs to be carried out by higher education institutions to ensure the quality of the

system and the quality of the information produced, so that it can provide student satisfaction with the services provided.(Priyanto et al., 2019).

### 2.4 Methodology

The type of research used in this research is descriptive research with a quantitative approach. According to Suryawan & Prihandoko (2018), descriptive research is research that describes the characteristics of a state of the object being studied. Descriptive analysis is used to provide an overview of the data that has been obtained. Quantitative analysis is research that is used to examine certain representative populations or samples, collecting field data using questionnaires, quantitative data analysis using statistics.

### 2.5 Sample Population and Sampling Techniques

Population is the entire group of people (or institutions, events, or other objects of study) that want to be described and understood in a study. Because this is a large target group that researchers hope to generalize to. The population in this research were postgraduate students of the Management Study Program, Informatics Engineering, Technology Management IIB Darmajaya semesters 1, 2 and 3 with a total of 290 students.

### 2.6 Sampling Techniques

The sample is an element of the group that the researcher observes directly. Sampling is closely related to selecting a subset of individuals from within a population to estimate and represent the characteristics of the entire population (Firmansyah & Dede, 2022). The sample size in this study was determined using the Slovin equation as follows:

**Table 1. Distribution of Respondents**

| STUDY PROGRAM | SEMESTER | | | AMOUNT |
|---|---|---|---|---|
| | 1 | 2 | 3 | |
| Management | 72 | 8 | 33 | 113 |
| Informatics Engineering | 41 | 21 | 63 | 125 |
| Technology Management | 6 | 17 | 29 | 52 |
| Total | 119 | 46 | 115 | 290 |

Source: Data processed, 2024

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

Information:

n = number of elements / sample members

N = number of elements / members of the population

e = error level (5%)

So the sample size used is

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

$$n = \frac{290}{1 + 290(0{,}05)^2}$$

$$n = \frac{290}{1{,}725}$$

$$n = 168{,}11$$

$$n = 168$$

The number of samples for each section using the Proportionate Stratified Random Sampling technique is as follows:

ni=Ni/N n

Information:

ni = number of sample members according to stratum

n = total number of sample members

Ni = number of population members according to stratum

N = total number of members of the population

So the number of sample members based on study program is:

Management =113/290 168= 65.46 = 65

Informatics Engineering =125/290 168= 72.41 = 72

Technology Management =52/290 168= 30.72 = 31

ni= 65 + 72 + 31 = 168

Total sample in this study was 168 student respondents who had used SIAKAD IIB Darmajaya.

### 2.7 Validity Test

Prasetya (2021), states the validity test is used to determine whether a questionnaire is valid or not. A questionnaire is said to be valid if the questions in the questionnaire are able to reveal what will be measured. The significance test is carried out by comparing significance with the research error rate, if sig < α (0.05) and r calculated > r table, then the variable is valid. Meanwhile, if sig > α (0.05) r count < r table, then the variable is invalid.

### 2.8 Reliability Test

Prasetya (2021), states reliability tests are used to determine the level of stability and consistency of measuring instruments used by researchers to collect data. A questionnaire is said to be reliable or reliable if a person's answers to statements become consistent or stable over time. The indicator for the reliability test is Cronbach Alpha, if the Cronbach Alpha value is > 0.60, it shows that the instrument used is reliable.

## 3. Results and Discussion

### 3.1. Results

#### 3.1.1 Current Condition Maturity Level Test (performance)

Determining the maturity level for current conditions (performance) is carried out by filling out a capability level questionnaire which is given to respondents and has been determined, with the results of the capability level assessment as follows:

**Table 2. Capability Level Current Condition (performance)**

| Domain | Process | Average Respondent | Amount SubProcess | Average Process |
|---|---|---|---|---|
| APO 07 | APO.01.01 | 2.26 | 2.26 | 2.26 |
| DSS03 | DSS03.01 | 2.12 | 2.12 | 2.12 |
| DSS04 | DSS04.06 | 2.12 | 2.12 | 2.12 |
| DSS05 | DSS05.02 | 1.91 | 9.44 | 2.36 |
| | DSS05.03 | 2.47 | | |
| | DSS05.04 | 2.44 | | |
| | DSS05.06 | 2.62 | | |
| MEA01 | MEA.01 | 2.21 | 4.27 | 2.14 |
| | MEA.02 | 2.06 | | |
| **Amount** | | | 20,21 | 11.00 |
| **Average** | | | 4.04 | **2.20** |
| **Capability Value (Expected)** | | | | |

Source: Data processed, 2024

#### 3.1.2 Maturity Level Test Expected Conditions (Expect)

Determining the maturity level for expected conditions is carried out by filling out a capability level questionnaire which is given to respondents and has been determined, with the results of the capability level assessment as follows:

**Table 3. Capability Level Expected Conditions (Expect)**

| Domain | Process | Average Respondent | Amount SubProcess | Average Process |
|---|---|---|---|---|
| APO.07 | APO.01.01 | 4.50 | 4.50 | 4.50 |
| DSS03 | DSS03.04 | 4.35 | 4.35 | 4.35 |
| DSS04 | DSS04.06 | 4.41 | 4.41 | 4.41 |
| DSS05 | DSS05.02 | 4.68 | 18.18 | 4.54 |
| | DSS05.03 | 4.50 | | |
| | DSS05.04 | 4.56 | | |
| | DSS05.06 | 4.44 | | |
| MEA.01 | MEA.01 | 4.62 | 9.09 | 4.54 |
| | MEA.02 | 4.47 | | |
| **Amount** | | | 40.53 | 22.35 |
| **Average** | | | 8,11 | **4.47** |
| **Capability value (expectations)** | | | | |

Source: Data processed, 2024

### 3.1.3 GAP Analysis

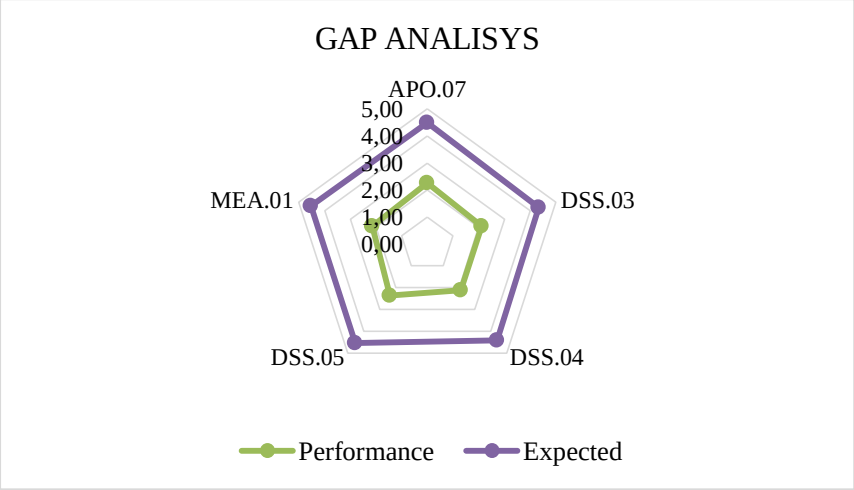
The average gap in all process domains studied was 2.27. It requires adjustments to each process domain, so the author will provide recommendations for each process studied so that recommendations for improvement are right on target. The difference in the gap between the current process domains and the expected governance can be depicted in table 22 as follows:

**Table 4. GAP Analysis**

| Domain COBIT | Process | Maturity Level | | GAP |
|---|---|---|---|---|
| | | Performance | Expected | |
| APO.07 | MHR | 2.26 | 4.50 | 2.24 |
| DSS.03 | M.P | 2.12 | 4.35 | 2.23 |
| DSS.04 | MC | 2.12 | 4.41 | 2.29 |
| DSS.05 | M.S.S | 2.36 | 4.54 | 2.18 |
| MEA.01 | MEA | 2.14 | 4.54 | 2.40 |
| **GAP Average** | | | | **2.27** |

Source: Data processed, 2024

Information:
MHR: Manage Human Resources
MC: Manage Continuity
MSS: Manage Security Services
MP: Manage Problems
MEA: Monitor, Evaluate, Assess




Source: Data processed, 2024

### 3.2. Discussion

Based on the results of the SIAKAD evaluation using COBIT 5.0, it shows that there is still a gap between the current service quality and the expected service quality. The results of the gap analysis show that of the 5 domains used to measure service quality, there is still an average

gap of 2.27. Thus, it can be said that SIAKAD has not been able to provide satisfaction to IIB Darmajaya postgraduate students in semesters 1 to 3, because it has not provided the quality of service that students expect.

After knowing that the current level of SIAKAD service is still not as expected, it is necessary to improve the management of each domain. Next, the Key Performance Indicators (KPI) and Critical Success Factors are determined from the governance processes in the SIAKAD service information system based on the COBIT 5.0 Framework as follows:

1. Domain APO-07 (Manage Human Resources)
   a. Critical Success Factors (CSF)
      Actions that must be taken are to maintain adequate staff, periodically check IT personnel, and maintain the skills and competence of IT personnel.
   b. Key Performance Indicators (KPI)
      The competence of skilled IT personnel can reduce dependence on one individual who performs important job functions in achieving desired goals.
2. Domain DSS-04 (Manage Continuity)
   a. Critical Success Factors (CSF)
      The need for training, planning and reviewing information system performance.
   b. Key Performance Indicators (KPI)
      Provide internal and external parties with training on procedures and user roles and responsibilities if a disruption occurs.
3. Domain DSS-05 (Managed Security Service)
   a. Critical Success Factors (CSF)
      Carry out network management, ensure device security, manage user identity (access rights), collect relevant data and anticipate risks appropriately.
   b. Key Performance Indicators (KPI)
      IT services in business must be protected to maintain customer (stakeholder) security.
4. Domain DSS-03 (Manage Problems)
   a. Critical Success Factors (CSF)
      Identify problems, resolve problems or obstacles in IT and make continuous improvements.
   b. Key Performance Indicators (KPI)
      Identify and provide sustainable solutions to overcome the causes of problems that occur, ensure IT personnel know the plans that will be developed, to prevent future incidents.
5. Domain MEA-01 (Monitor, Evaluate, and Assess)
   a. Critical Success Factors (CSF)
      Approaching stakeholders, managing performance and suitability of personnel competencies, implementing performance.
   b. Key Performance Indicators (KPI)
   c. Monitoring and validating measurements in previous business policies through existing SOP.

From the entire discussion and recommendations above, there are 2 main things that must be improved in services to students. The following are the main recommendations to provide satisfaction to students.

1. Improving the quality of services to students such as student data and administration in lectures
2. Add features or services for access by parents/guardians of students, so that student progress can be known by parents/guardians.

## 4. Conclusion

In accordance with the results of the data analysis that has been carried out, this research concludes the following results: SIAKAD's performance is still low because there is a fairly large GAP between the current level of service maturity and the expected level of performance. The GAP in the APO.07 domain is 2.24, in the DSS.03 domain it is 2.23, in the DSS.04 domain it is 2.29, in the DSS.05 domain it is 2.18 and in the MEA.01 domain it is 2.40 . The average GAP for the entire domain is 2.27 and places the service quality of SIAKAD IIB Darmajaya in the Manage quality and needs to be strengthened to improve the quality of student services.

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