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Information Systems Audit at The Language Center of Muhammadiyah University of Sidoarjo

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Abstract. This research conducts an information systems audit at the Language Center of Muhammadiyah University Sidoarjo using the COBIT 5 DSS domain framework. The audit aims to evaluate system reliability and efficiency amidst operational issues such as restricted website access and TOEFL certificate printing failures. Data collection involved interviews with unit leaders and technical observations. Results show maturity levels ranging from 2.1 (DSS03 - Problem Management) to 4 (DSS06 - Business Process Controls). Critical gaps include the absence of a ticketing system and backup automation. Recommendations focus on implementing centralized incident management and cybersecurity training. The study provides a governance model for optimizing language service systems in higher education institutions.

Keywords: COBIT 5 Framework, DSS Domain, Information System Audit, Maturity Level

1 Introduction

Information system audits are a critical necessity in higher education and other institutions such as hospitals [1] to identify technical and functional vulnerabilities that hinder institutional services. Ideal practices are often hampered by issues such as limited access, vital function failures, and inconsistencies between digital systems and administrative needs. At the Language Center of Muhammadiyah University Sidoarjo (UMSIDA), observations confirmed two systematic problems:

(1) Inefficient access to the tesbahasa.umsida website, which only operates via campus Wi-Fi access, making it difficult for external users, and (2) Failure to print TOEFL certificates online (a fatal error appears when the Print Certificate button is clicked), even though physical certificates must be attached to student hearings [2] as legally valid documents. These two issues reinforce the urgency of a system audit to assess infrastructure compatibility, feature reliability, and alignment with academic regulations.

Previous studies have explored the audit of education information systems using specific frameworks, but there is still a gap in the context of language services. Purwaningrum et al. (2021) [3] used a literature study and extracted the essence from books and scientific papers according to their needs, resulting in 10 searches, 3 journals with the title "information system audit" and discussing the full information system audit process, while the other 7 journals were titled "information system audit" but discussed maturity levels. From this, it can be concluded that there are still differences in studies with the same title of information system audit. Kuncoro et al. (2024) [4]. Based on the COBIT 5 framework but taking from the subdomains APO01, BAI01, DSS01, MEA01, and EDM01 in the goods or services information system, all domains have reached the expected target level [5]. Meanwhile, the research by M. A. Alkaromi et al. (2024) [6], service quality analysis using the ITIL V3 (Information Technology Infrastructure Library version 3) framework [6], has not directly addressed language service issues in higher education institutions. However, it has been tested on the academic student web system of Amikom University Purwokerto and has been found to be at Maturity Level 3, which means it is at the Defined level in the service operation domain, specifically in problem management. The Service Operation Problem Management domain aims to minimize or prevent incidents and their consequences so that incidents do not recur and can be handled properly. Even so, the current condition shows that the academic student web system has successfully achieved good operational standards and is able to provide clarity and efficiency in the problem handling process. Thus, there are three main gaps: (1) the lack of holistic evaluation using an audit framework that covers the user service domain (DSS), as also mentioned in the study of stakeholder needs in higher education by Adikara & Pambudi [7], (2) limited studies that integrate technical aspects (such as infrastructure compatibility) with specific administrative requirements (e.g., certificate validity), and (3) the absence of research leading to integrated solutions for language services in the campus environment. In view of this, there is a gap that has not been widely studied,

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namely the absence of a specific evaluation of language services in higher education using the DSS domain of the COBIT 5 framework. This study aims to test the maturity level used at the UMSIDA Language Center, as well as to compile recommendations for improvement based on a gap analysis between the actual and ideal conditions. With this audit, it is hoped that the information system used will meet the required performance standards [8], in terms of reliability, service speed, and accuracy of information provided to users. Therefore, the author chose the title "Information System Audit at the Language Center of Muhammadiyah University Sidoarjo" to focus on evaluating IT governance through the COBIT 5 approach.

2 Method

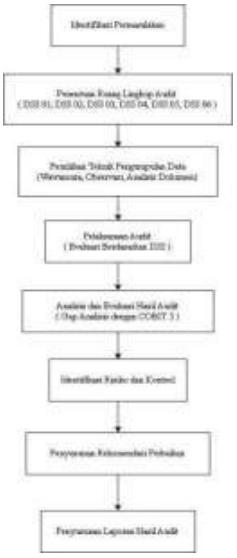

Figure 1. Research Procedure Flowchart

2.1 Research Procedure

This research was conducted through a number of systematic steps, as shown in Figure 1.

A. Problem Identification

The first stage began with exploring the problems that arose in the use of the language center information system at Muhammadiyah University Sidoarjo. The main problems found included:

a. Access to the website can only be done through the university's local internet network (Wi-Fi LAN), so students must come to campus and cannot access it through personal connections such as mobile data or home Wi-Fi.
b. TOEFL test result certificates cannot be printed, even though this physical document is an important requirement for attending proposal hearings and graduations.

B. Determining the Scope of the Audit

From the COBIT 5 framework, which covers 6 subdomains [9], [10], namely:

a. DSS01 – Service Operations
b. DSS02 – User Request and Incident Management
c. DSS03 – Managing disruptions and analyzing root causes of problems
d. DSS04 – Ensuring Services
e. DSS05 – Maintaining Service System Security
f. DSS06 – Business Process Control

C. Data Collection Techniques

Data was collected through three methods, namely:

a. Interviews with the Head of the Language Center using a structured questionnaire consisting of 62 questions.
b. Direct observation of the certificate access and printing functions on the tesbahasa.umsida website.
c. Analysis of documents such as system logs, relevant IT policies, or previous reports.

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D. Audit Implementation

The audit was conducted to evaluate whether the information system has optimally supported services. This evaluation includes:

a. Language Center information system: Identification of systems and features used in language testing services.
b. Identifying relevant parties: Analyzing the roles and responsibilities of staff in system management.
c. Setting audit objectives: To improve service quality and operational efficiency at the Language Center of Muhammadiyah University Sidoarjo.

E. Analysis and Evaluation of Audit Results

Audit results are analyzed by comparing conditions in the field with COBIT 5 standards. The technique used is gap analysis, to determine the extent of the difference between the actual situation and the expected level of maturity.

F. Risk and Control Identification

The study also identified key risks, such as failure to print TOEFL test results and limited website access. Furthermore, an evaluation was conducted on the effectiveness of the controls that had been implemented to address these issues.

G. Recommendations

Based on the findings and analysis, recommendations were formulated to improve the security, accessibility, and efficiency of IT services at the Language Center.

H. Preparation of Audit Report

The final stage was the preparation of an audit report covering the main findings, identified risks, and proposed solutions.

This audit was conducted in April 2025 with the language test service system (tesbahasa.umsida.ac.id) as the object of study. All subdomains in the DSS COBIT 5 domain (DSS01 to DSS06) were analyzed, with the main respondent being the Head of the Language Center.

To explain the division of responsibilities among parties in IT management, a RACI-based task distribution model is used as a tool to ensure transparency and prevent duplication of responsibilities, as suggested by Weill and Ross (2004) in their book "IT Governance: How Top Performers Manage IT Decision Rights for Superior Results" [11]. The maturity level of each subdomain is analyzed on a scale of 0-5 based on the model by Van Grembergen and De Haes (2020) in the book "Enterprise Governance of IT" [12] through the following calculation:

$$Maturity\ LevelSubdomain = \frac{\sum Skor\ Pertanyaan}{Jumlah\ Pertanyaan}$$

The target maturity level to be achieved is Level 4 (Managed and Measurable). This level reflects indicators of well-established service management that can be evaluated periodically.

2.2 Data Collection Techniques

This study uses several data collection methods used in research:

Table 1. Data Collection Techniques

Number	Method	Instrument	Data Source
1	*Interview*	Structured questionnaire (62 questions)	Head of the Language Center
2	Observation	Technical testing of access and print functions	Website tesbahasa.umsida.ac.id
3	Documentation	IT Policy, Incident Log	Internal archives

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3 Results and Discussion

This section presents the results of the information system audit process at the Language Center of Muhammadiyah University Sidoarjo, which includes interview results, maturity level analysis, and technical testing of the tesbahasa.umsida website. Based on a review of works related to the research subject, it was found that the application of COBIT 5 in the DSS area has a significant influence on improving decision quality and data management effectiveness [13].

3.1 Audit and Interview Results

The evaluation was conducted using the COBIT 5 approach, specifically the Deliver, Service, and Support (DSS) domain. Through interviews and assessments of the six DSS subdomains, maturity scores for each process were obtained, as shown in Table 2 and visualized in Figure 2.

Table 2. Summary of *Maturity Levels* and *GAP Analysis*

No	Operations	Maturity Domain (Level) obtained	Rounding	The Targeted	Difference from target	Max Maturity Level	GAP Against Max Maturity Level
1	DSS01 – Manage	3	3	4	1	5	2
2	DSS02 - Managing Requests Services and Incidents	2.9	3	4	1	5	2
3	DSS03 – Managing Problem	2.1	2	4	2	5	3
4	DSS04 - Managing Continuity n Service	3.36	3	4	1	5	2
5	DSS05 - Managing Security Services	3.36	3	4	1	5	2
6	DSS06 – Managing Control Business Process	4	4	5	1	5	1

Overall, the average assessment results show a process maturity level of 3, meaning that it is structured. This means that most processes have been established and documented, but still require improvement. The weakest area is DSS03 (Managing Issues) with the lowest maturity level, which is 2.1 (rounded up to Level 2). This gap is due to the absence of a structured problem reporting mechanism, in contrast to the study by Yulia et al. (2024) [14], which successfully implemented a ticketing system in libraries. High dependence on DSTI for DSS01 also hinders routine maintenance, in contrast to integrated governance such as at BMKG [15].

Conversely, DSS06 (Managing Business Process Control) shows the highest maturity level, namely Level 4. This indicates that business processes such as test registration and test scheduling have been well digitized. The high level of maturity in this process greatly supports the achievement of a good vision, mission, and service objectives, as well as facilitating the handling of risks inherent in every business process (ISACA, 2012).

To clarify the roles of stakeholders in the governance process, a RACI Diagram (Table 3) is used. This diagram maps the responsibilities, accountabilities, consulted parties, and informed parties for each activity in the DSS domain.

Table 3. RACI Table for the DSS Domain to Clarify Roles at the UMSIDA Language Center

Center Head		IT Staff	Si staff	Students
Execute Procedures Procedures (DSS01)	A Operational	R	C	I
Handling Service Requests	A (DSS02)	R	R	C
Performing Root Cause Analysis (DSS03)	A Problem	R	C	I

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Testing the Disaster Recovery Plan	A (DSS04)	R	C	I
Handling Security Incidents	A (DSS05)	R	C	I
Determining Access Rights User (DSS06)	A	R	C	I

Description:

a. R (Responsible): The party that carries out the task
b. A (Accountable): The party fully responsible for the results
c. C (Consulted): The party who is consulted or discussed with
d. I (Informed): The party that needs to receive information about the implementation

Based on gap analysis and the RACI Diagram, several key issues have been identified:

a. High dependence on DSTI hinders the autonomy of the Language Center.
b. Procedures are not documented, especially in the problem handling section.
c. The backup and ticketing systems are not yet optimal.

As a priority recommendation to improve the performance of the Language Center in the DSS COBIT 5 domain, the following is suggested:

a. Implementation of a centralized ticketing system (e.g., Zendesk) to improve processes DSS02 and DSS03.
b. Developing a schedule for self-backup training using software such as Duplicati for relevant staff.
c. Integration of VPN for access to the tesbahasa.umsida website outside the university's local network, providing flexibility of access to users.

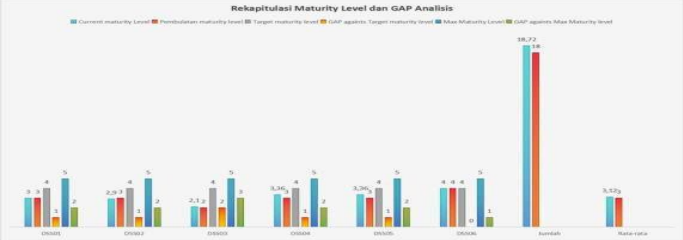

Figure 2. Visualization of *maturity level* recapitulation and GAP *Analysis* from audit and interview results

3.2 Technical Testing Results

After the audit and interview stages, technical testing was conducted on the tesbahasa.umsida website. This testing focused on website access and TOEFL certificate printing functionality.

3.3 Website Access (tesbahasa.umsida)

Website access testing using an external network (the researcher's home Wi-Fi) showed interesting results:

a. The website was successfully accessed via an external network (see Figures 3-4: Display of the tesbahasa.umsida login page accessed via the researcher's home Wi-Fi). This contradicted the initial assumption that access was only possible via campus Wi-Fi.

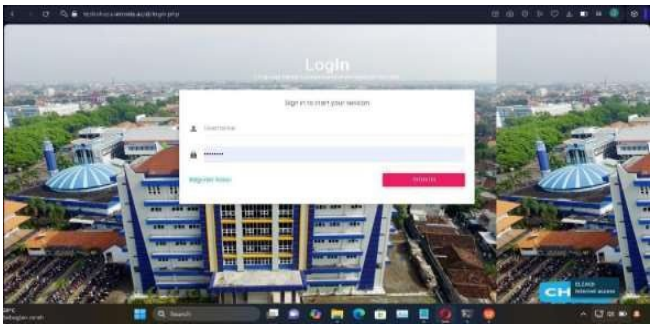

Figure 3. Login page of *tesbahasa.umsida* accessed via the researcher's home *Wi-Fi*.

The tesbahasa.umsida login preview shows that users must have an account, then enter their username and password correctly, followed by clicking the SIGN IN button. If users do not have an account, they can click the Register Now! button to create an account.

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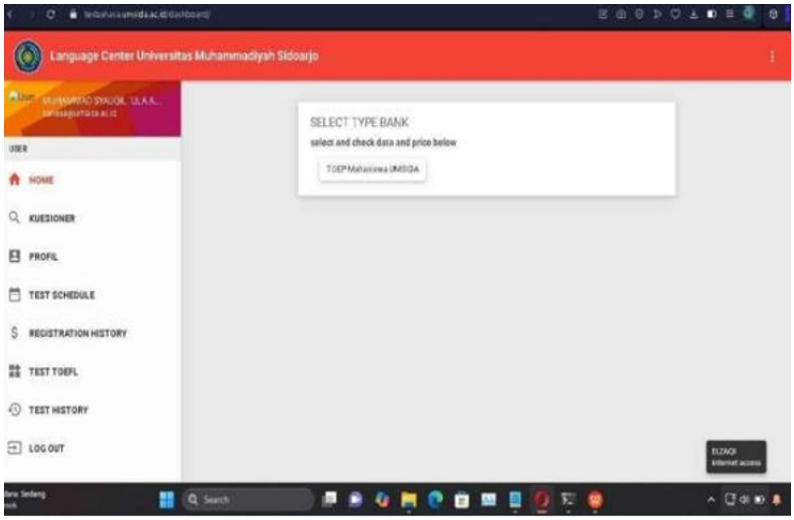

Figure 4. The Dashboard of Tesbahasa.Umsida After Logging in, Accessed using the Researcher's Home Wi-Fi.

In Figure 4, the display on the tesbahasa.umsida dashboard after a user logs in, followed by the appearance of the options HOME, QUESTIONNAIRE, PROFILE, TEST SCHEDULE, REGISTRATION HISTORY, TOEFL TEST, TEST HISTORY, LOG OUT. The text reads "SELECT TYPE BANK". and the TOEP option for UMSIDA students, indicating that the logged-in user is a student.

a. The system successfully validated the login input (username/password) correctly (Figure 3).
b. User access rights (students) have been expanded as needed, as shown in Figure 4: Display on the tesbahasa.umsida dashboard after logging in, accessed via the researcher's home Wi-Fi.

The results of this technical testing show that there are no restrictions or limitations on access to the tesbahasa.umsida site by DSTI or the UMSIDA Language Center from external networks. Thus, user access rights have been expanded as expected.

3.4 TOEFL Certificate Printing Functionality

Although access to the website was successful, a serious obstacle was found in the TOEFL certificate printing functionality:

a. The certificate printing feature (Figure 5-6) encountered a fatal error when accessed (Figure 7): Click "Print Certificate" → A new tab appears → Fatal error

This feature should display a PDF document or print preview of the TOEFL results, but instead fails to respond to user requests.

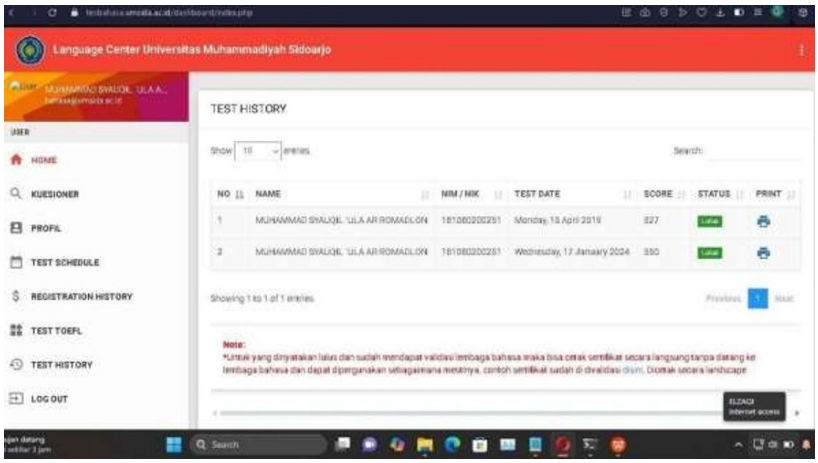

Figure 5. *Test History* Display, Accessed Via The Researcher's Home Wi-Fi.

Figure 5 shows the Test History display, which details a user's test history, followed by the TOEFL test history serial number, the user's full name, the user's student ID number, detailed information about the TOEFL test date, the TOEFL test score, the TOEFL test pass/fail status, and a feature to print the TOEFL test certificate.

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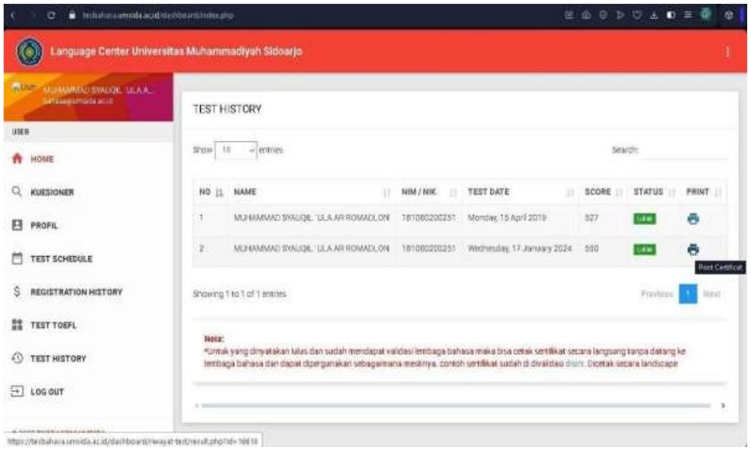

Figure 6. *TOEFL History* Display When Printing a *TOEFL* Certificate

In Figure 6. Display on the TOEFL Test History, when the researcher points the mouse cursor at the blue printer icon, followed by the appearance of the words "Print Certificate," it indicates that the TOEFL test results certificate can be printed.

When the user clicks "Print Certificate," a new tab appears but displays the message "Fatal error" (see Figure 7. Display when clicking "Print Certificate," which opens a new tab but displays the message "Fatal error").

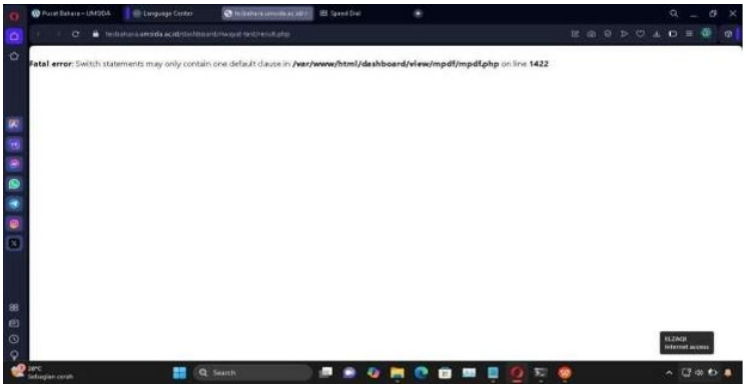

Figure 7. Display when clicking 'Print Certificate', then a new tab appears, but displays the message "*Fatal error"*

The impact of this issue is critical: users cannot obtain a physical TOEFL certificate. This threatens the validity of documents for academic purposes, such as requirements for proposal hearings or graduation, considering that the physical form of the certificate is often a formal requirement that must be met and recognized its validity.

4 Conclusion

Based on the results of the audit conducted at the Language Center of Muhammadiyah University Sidoarjo, it can be concluded that the information system audit at the Language Center of Muhammadiyah University Sidoarjo shows that evaluating the maturity level of the system plays a crucial role in improving service quality. The main focus of this audit was on the registration, payment, scheduling, and test implementation processes, as well as the ease of accessing the website and printing TOEFL certificates. With this audit, operations at the Language Center have become more coordinated, enabling each section to support each other and speed up the flow of information. This has had a positive impact on providing optimal service to users, as well as facilitating the evaluation and monitoring of performance in real time.

To overcome the obstacle of TOEFL certificate printing and improve service efficiency, it is recommended that the system be equipped with a feature to automatically send TOEFL test result certificates to students' email addresses. Certificates can be sent directly from a previously registered email database. That way, participants can access, download, and print their certificates independently without relying on the direct printing system from the website, regardless of their location.

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