Audit Graduation Information System (SIMUDAPAPI) in Udayana University using COBIT 5 in Deliver, Service, and Support Domain

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Abstract Udayana University have a graduation system that need to be assessed to get a good measure of the capability level, an audit based on COBIT 5 based on Delivery, Service, and Support that contain 6 processes conducted to obtain the results. SIMUDAPAPI(Sistem Informasi Wisuda Paperless Integrated) got best capability level DSS02 (2,76) shows the highest capability level, Which means the system able to handle incident and providing quick solutions, and the lowest achieved by DSS06 with 2,5. The gaps still have not been filled and there will be a required changes to improve SIMUDAPAPI Udayan University.

***Index Terms*—COBIT 5, Graduation, IT Audit, Management Information System.**

Note: There should no nonstandard abbreviations, acknowledgments of support, references or footnotes in in the abstract.

I. Introduction

Udayana University has a vision to become a world class university in 2025. To do so, improvement in all line of services need to be improved.

Since 2015, Udayana University began integrating IT system that's running inside the institutions. The integration process use IMISSU as a single sign on module and connect every systems in Udayana University.

One of them, serve college students in their gradution processes. This system is called SIMUDAPAPI (*Sistem Informasi Wisuda* Paperless Integrated). Until now there never was an audit about this system to find out how effective and efficient the services provided by the graduation system. To obtain the information about this, an audit has to be done to get an accurate measure.

COBIT 5 is become one of the comprehensive standards for company to measure the capability level of Information Technology inside a company. COBIT 5 also provide help after the measurement to achieve their goals through good governance and effective management of information technology.

II. Purpose Of Paper

We hope with this research we could help Udayana University to have a good measure how good their graduation system was, and what required to improve them.

III. Literature Review

A. Audit

Audit in broad meaning is evaluating an organization, system, process, or product. An audit usually done by a group of competent people with an objective view and not taking any side to improve quality, performance, safety, security, and services that the company offered[1].

In information technology scope, audit examines the control structure and business process inside a company, which may or may not computerized, to validate the organization's information assurance practices according to A. Carlin(2007)[2]. K. Budiarta(2016) pointing that an IT audit focuses on the computer-based aspects of an organization's information systems and modern systems employ significant levels of technology[3].

We can conclude that an IT Audit is doing examination

with several specific domains, that related to business goals and process focused on the computer-based, to get exact measurements of business processes that require improvements, so the company can reach their business goals.

B. COBIT 5

One of framework that used to assess qualities of business process and control, Cobit 5 is a framework that developed by ISACA. The first version of COBIT released in 1996, originally consists from a set of control objectives. ISACA keeps improving COBIT since then by releasing COBIT 2 in 1998, followed by adding management guidelines in 2000 as COBIT 3 released. In 2007, ISACA aware of the need for more information and communication technology governance component as released in COBIT 4. In 2012 COBIT 5 released, where ISACA found the needs where IT governance and IT management need to be assessed separately[4].

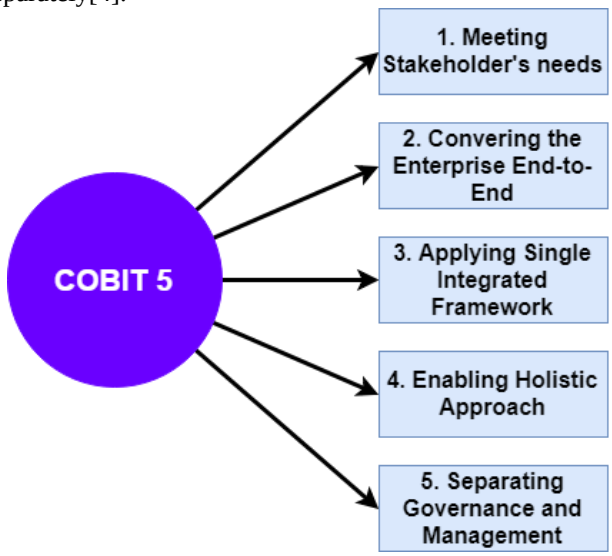

Fig. 1. COBIT 5 Key Principles

There are 5 key principal in COBIT 5, according to figure 1, ISACA made it clear to separate governance and management, where governance is the responsibility of the board of directors or stakeholders under the leadership of a chairperson. to ensure that stakeholder needs, conditions, and options evaluated and fulfilled, ISACA made a clear separation between governance and management in COBIT 5.

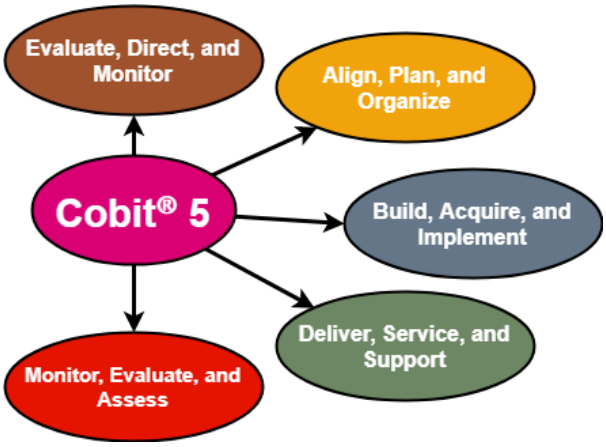

Fig. 2. COBIT 5 Domains

Cobit 5 described there are 5 domains with a total of 37 processes that need to be assessed. According to figure 2, there are,

1) Evaluate, Direct, and Monitor (EDM) This domain focused on the Governance control to assess the stakeholder needs. This domain focused in ensure governance framework setting and maintenances, ensure benefits delivery, ensure risk optimization, and ensure stakeholder transparency.
2) Align, Plan, and Organize (APO) This domain focused on the management control strategy, including manage IT management framework, strategy, human resources, and quality of services provided.
3) Build, Acquire, and Implement (BAI) This domain focused on auditing the management control tactical, including how the company to manage programs and projects, how organization change enablement, managing charges, knowledges and also finding solutions and identifications.
4) Deliver, Service, and Support (DSS) This domain focused on auditing the management control operational, including how the company manage daily operations, managing requests and incidents, managing problems.
5) Monitor, Evaluate, and Assess (MEA) This domain consists of monitoring and evaluating certain processes. There are monitor, evaluate and assess Performance and Conformance, system of internal control, compliance with external requirement.

COBIT's five domains will be assessed to determine to capability level of each domains that hoped to make a good use of it. There are several level of capability levels according to ISO and IEC, that will be described in table 1.

TABLE I
CAPABILITY LEVELS

Level	Capability Level	Description
0	Non-Existence	The process is not yet performed,
1	Performed	The process exists and achieves its own purpoeses, the performace of the process is just an attribute
2	Repeatable	The process and the outcomes are es , controlled, and maintained.
3	Defined	The previous level is now implemented with a defined process that allows the achievement of the outcomes.
4	Managed	This level allows the achievements of the process outcomes, this level has process management and process control as attributes
5	Optimized	This level has process innovation and optimization as attributes to allow relevant achievements, for current and projected goals.

IV. RESEARCH METHOD

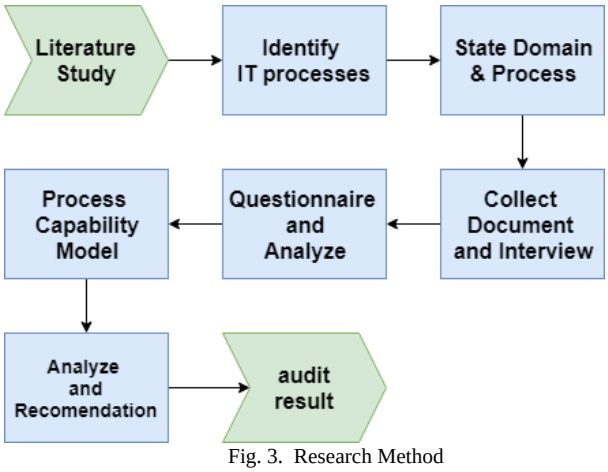

Fig. 3. Research Method

In figure 3, there are 8 steps which described the steps that this research takes to complete the audit process,

1) Literature Study, by doing research for references, from the fundamental of audit until the latest research that related to this research.
2) Identify IT processes, from what the company business goals, process, IT system requirements, services, security, and stakeholder needs.
3) State Domain and Processes, using COBIT 5 focused on DSS domain.
4) Collect Data and Interview, search the data and interviews with documents that already exist.
5) Questionnaire and analyze, creating a questionnaire according to COBIT 5 DSS and company business goals, the questionnaire answered by system operators and technicians that work in Udayana University that handle the graduation information system (SIMUDAPAPI).
6) Process Capability Model, this process is performed after data collected and processed, data analysis consisted of analysis capabilities that exist today, the expected level of capability and analyze the gap that happening between level target and level reached.
7) Analyze and Recommendation, give the results of audits that have occurred in SIMUDAPAPI of Udayana University and provide recommendations based on the values obtained.
8) Audit Result, delivering the results to stakeholder, so they can take actions based on the score they achieved and recommendation we provided.

V. ANALYSIS AND RESULTS

A. *Analysis Questionnaire Result*

With the questionnaire returned with answer, we started collecting the information from questionnaire by grouping the questions according to the IT process respectively. We then determined the conditions in level of activities to find the capabilities by summarizing its.

B. *Process Capability Level Rating Process*

There are 6 processes that measured in this researched that are divided into 38 sub-processes according to Deliver, Service, and Support (DSS) domain of COBIT 5. There are manage operations, manage service requests and incident, manage problems, manage continuity, manage security services, and manage business process control.

1) DSS01 Manage Operations
   Co-ordinate and execute the activities and operational procedures required to deliver internal and outsourced IT services, including the execution of pre-defined standard operating procedures and the required monitoring activities.
2) DSS02 Manage Service Requests and Incident
   Provide timely and effective response to user requests and resolution of all types of incidents. Restore normal service; record and fulfil user requests; and record, investigate, diagnose, escalate and resolve incidents.
3) DSS03 Manage Problems

Identify and classify problems and their root causes and provide timely resolution to prevent recurring incidents. Provide recommendations for improvements.

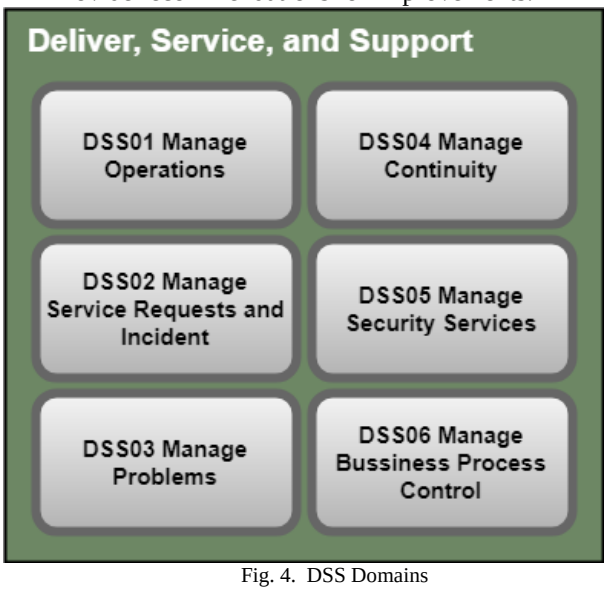

Fig. 4. DSS Domains

4) DSS04 Manage Continuity
   Establish and maintain a plan to enable the business and IT to respond to incidents and disruptions in order to continue operation of critical business processes and required IT services and maintain availability of information at a level acceptable to the enterprise.
5) DSS05 Manage Security Services
   Protect enterprise information to maintain the level of information security risk acceptable to the enterprise in accordance with the security policy. Establish and maintain information security roles and access privileges and perform security monitoring.
6) DSS 06 Manage Business Process Control
   Define and maintain appropriate business process controls to ensure that information related to and processed by in-house or outsourced business processes satisfies all relevant information control requirements. Identify the relevant information control requirements and manage and operate adequate controls to ensure that information and information processing satisfy these requirements.

Based on calculation results from 6 IT processes of DSS domain, the capabilities level depicted in figure 5.

1) The Process DSS01 - Manage Operation reach 2,63 capability level. With lowest in managing outsourced IT services (2,1). Which is means SIMUDAPAPI Udayana University able to handle operation IT services according to plan. In advance improvement, we would like to suggest in using outsourced IT services to handle some services to enable UNUD internals to improve services and supervision.
2) The Process DSS02 - Manage Service Requests and Incidents, reach 2,76. Which means the system able to handle incident and providing quick solutions. We would like to suggest Udayana University to define incidents the often and may be happening to increase services and improve user experiences.

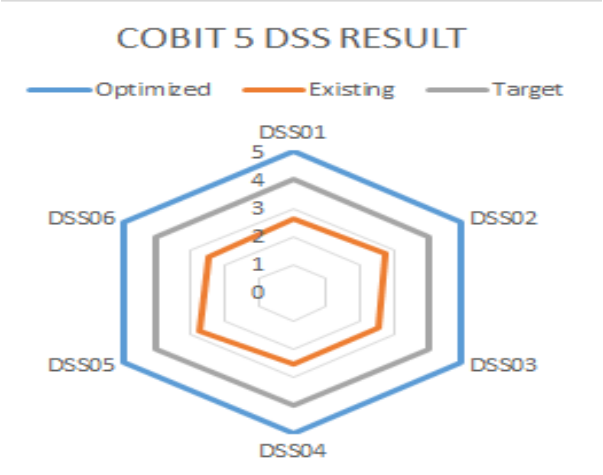

Fig. 5. DSS Results

3) The Process DSS03 - Manage Problems, reach 2,56. We would like to suggest to add helpdesk and FAQ to aid users when they found problems.
4) The Process DSS04 - Manage Continuity, reach 2,53. To improve services continuity, we would like to suggest to create a resume from the current and past graduations, to improve the future graduation process and services. From the data we found from the interview, we found out that Udayana University need to improve staff's skill. We would like to suggest staff mutations from one department that has skill to teach other staffs.
5) The Process DSS05 - Manage Security Services, reach 2,74. We would like to suggest a cooperation with IT outsourcing in security to secure the system, and hold a training for the IT staff for security.
6) The Process DSS06 - Manage Business Process Control, reach 2,5. From the interview, we found out that we lack of backup storage devices to ensure the services will keep running well. We also like to suggest improvement in infrastructure to ensure better services.

VI. Conclusion

Based on audit process that has been done, using 6 processes from COBIT 5 in Delivery, Service, and Support. They are consisted of DSS01 Manage Operations, DSS02, DSS03 Manage Problems, DSS04 Manage Continuity, DSS05 Manage Security Services, DSS 06 Manage Business Process Control. DSS02 shows the highest capability level, Which means the system able to handle incident and providing quick solutions, and the lowest achieved by DSS06 with 2,5. The gaps still have not been filled and there will be a required changes to improve SIMUDAPAPI Udayana University.

VII. SUGESTION

To improve service of SIMUDAPAPI in the future, we would like to suggest improvement of human resources and infrastructures according to our analysis results. We also would like to suggest improvement in registration process and adding queue for graduation registration, ensuring all student to be able to be registered in the system.

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