

Evaluation of The Human Resource Information System With COBIT 5 and ITIL V3 (Case Study: Pharmaceutical Company)

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Abstract— The use of IT in the company is needed to monitor the performance of technology so that it can run in accordance with predetermined business goals. Human Resources Information System or what is known as HRIS is an information system that resolves problems related to human resource management in a company. A quality information system illustrates the key to success in obtaining good HRIS capabilities and services. Many companies in Indonesia have used HRIS, one of which is PT Bintang Toedjoe which uses HRIS to process and store employee data. This research was conducted to integrate the MEA domain COBIT 5 framework and the ITIL CSI domain, and then evaluate the HRIS maturity level. The result of this research is that the MEA01 process can be integrated with the Management Information process. HRIS maturity level and the recommended solutions to improve the HRIS application of the MEA01 process and Management Information on Pharmaceutical Company.

Keywords— COBIT 5, HRIS, Monitor-Evaluate-Assess (MEA), Continual Service Improvement (CSI).

1. INTRODUCTION

The fast growth of IS / IT has brought people into the information age [1]. IS / IT is an interest that can be owned and brings maximum benefit [2]. Almost all companies have used technology to carry out their business processes to achieve their goals and strategies [3], one of which is in the field of human resources. Increasingly, human resource information to be managed causes the emergence of high problem complications, resulting in the emergence of a combination of human resource management and information technology that triggers the use of the Human Resource Information System (HRIS) [4].

Every company certainly needs real time data from each level of management in the company [5], then compiling and managing the data becomes an information system [6]. The most important information system in companies today is the use of Human Resources Information Systems (SISDM / HRIS) [7]. HRIS is a system for collecting, storing and analyzing information about human resources in an organization which is integrated with one another [8].

PT. Bintang Toedjoe is a Pharmaceutical Company domiciled in Jakarta. For next sentence Pharmaceutical Company will be shortened to PhCo is a company that follows technological growth, seen from the application of HRIS technology which of course makes it easier for employees to the board of directors of PhCo. To maximize the use of HRIS, it is necessary to have an assessment to ensure that the HRIS implementation procedure is running properly which is used for daily business support activities. In addition, this assessment is intended to make improvements to HRIS in order to get good feedback from users regarding the use of HRIS.

Based on the description above, in this study the authors conducted an HRIS evaluation in PC in the Monitor, Evaluate, Assess section using the COBIT 5 framework and the ITIL framework. COBIT 5 consists of measures, indicators and processes to optimize the development of information technology used to measure the capability level of each IT process [10], while ITIL is a framework that focuses on IT services for system improvement from the business and user side [11]. COBIT and ITIL provide a top-to-bottom approach that looks at the constraints of system implementation from a business perspective [12], [13].

Before evaluating HRIS, the authors integrated the COBIT 5 and ITIL frameworks. COBIT focuses on explaining "What should be done", while ITIL focuses on "How to do it" [14], [15]. By integrating COBIT and ITIL, it will further strengthen HRIS for a more effective use in the application of human resources [16]. This study aims to integrate the COBIT 5 and ITIL V3 frameworks so that they can assist management in measuring the maturity level of the Human Resource Information System.

2. LITERATURE STUDY

2.1 COBIT 5

COBIT framework was developed by ISACA as an auditing standard for researching, and developing a correct and internationally accepted IT governance control framework for adoption by companies [17]. The six levels of the COBIT 5 Process Capability Model can be seen in table 1.

Based on table 1, is a process capability assessment model to identify a certain level of process capability.

Table 1. COBIT 5 Process Capability Model [18]

Level	Description
Index 0: Incomplete Process	Unsuccessful such a process fails to achieve the objectives of the process.
Index 1: Performed Process	The process that is implemented fulfills the objectives.
Index 2: Managed Process	Implement the process to the settings and carry out defining, controlling and maintaining work products accordingly.
Index 3: Established Process	The process is implemented using a defined process and is able to achieve process results.
Index 4: Predictable Process	Limits that are used to run the process so that it gets the best process results.
Index 5: Optimizing Process	The process of meeting current and future organizational goals.

2.2 Human Resource Information Systems (HRIS)

Human Resources Information System (HRIS) is the concept of utilizing Information Technology (IT) development and its characteristics to effectively manage the functions and applications of human resource management [19]. The implementation of HRIS makes the role of HRD more strategic and will create better service process standardization so that it can provide more accurate information services for employees [20].

2.3 ITIL V3

Information Technology Infrastructure Library (ITIL) is a collection of concepts and practices for the management, development and operation of IT services [21]. The ITIL framework is intended to improve the efficiency of IT operations and the quality of customer service. Practically ITIL defines the form and function of the use of information technology as a means for storage, communication or processing of information [22].

2.4 Integration COBIT 5 & ITIL V3

The following is a table related to COBIT 5 guidance which is used to integrate COBIT 5 and ITIL V3. Based on Table 2, related guidance on COBIT 5 of the 3 COBIT 5 domains, there is 1 domain that can be integrated with ITIL V3, namely MEA01. Integration of COBIT 5 and ITIL V3 based on related guidance to the COBIT 5 Enabler. MEA01 can be integrated with ITIL V3 in the domain Continual Service Improvement.

Table 2. Related Guidance COBIT 5 [23]

Related Guidance	Related Standard	Detailed Reference
MEA01	ISO/IEC 20000	-
	ITIL V3 2011	<ul style="list-style-type: none"> • CSI • The 7-Step Improvement Process
MEA02	-	-
MEA03	-	-

3. RESEACH OF METHODS

The methodology used in this study includes several stages as shown in Figure 1.

Based on Figure 1, it is known that this research starts from:

1. Determination of the Research Model using the COBIT 5 and ITIL framework. Conducting a COBIT 5 and ITIL analysis focused on HRIS and a process assessment based on these frameworks.
2. Literature Study. Collecting library data by looking for theoretical references from journals, books on HRIS.
3. Interview. Obtain information from sources by conducting direct interviews to the place where the research was conducted. Before conducting the interview, the writer prepared a list of questions related to the domain to be asked by the interviewees.
4. Domain Selection and Integration. The author uses COBIT 5 with the Monitor-Evaluate-Asses (MEA) domain and the ITIL V3 framework with the Continual Service Improvement (CSI) domain, which then carries out the integration process of the two domains.

5. Recommendations for improvements based on COBIT 5 and ITIL V3. Recommendations given for HRIS are based on MEA and CSI domains.

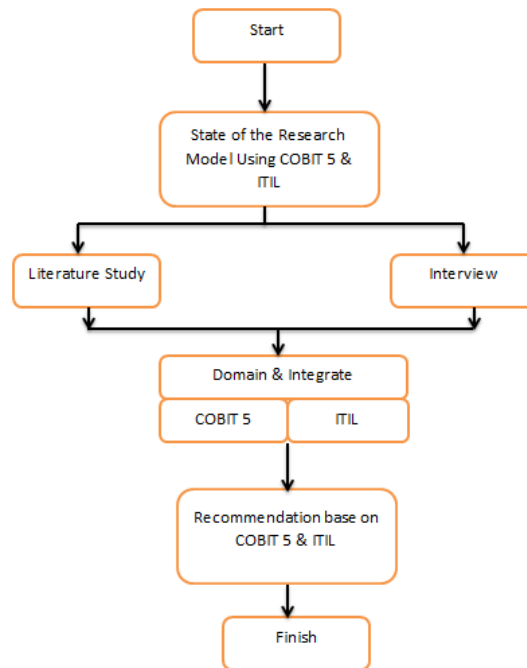


Figure 1. Research Stages [22]

4. ANALYSIS AND DISCUSSION

4.1 Mapping COBIT 5 & ITIL V3

MEA COBIT 5 domain mapping, consisting of:

1. Establish a monitoring approach.
2. Monitor, evaluate, and assess the internal control system.
3. Monitor, evaluate, and assess compliance with external requirements.

Mapping the ITIL domain to CSI, consisting of:

1. Pre-requisites
2. Intent Management
3. Process Capability
4. Internal Integration
5. Products / Output
6. Quality Control
7. Management Information
8. External Integration
9. Customer Interface

4.2 Integration of COBIT 5 & ITIL V3

To integrate COBIT 5 with ITIL V3, IT-Related Goals COBIT 5. The processes discussed based on the mapping of COBIT 5 to IT-Related Goals are MEA01, MEA02 and MEA03 which are tailored to organizational goals. 17 information technology objectives are described according to COBIT 5 and grouped using the IT Balance Scorecard (IT BSC). Mapping based on IT is described using a primary scale (P) which describes an important relationship, while the secondary scale means that there is still a strong but less

important relationship, where the goal of IT is secondary support for company goals. To determine this relationship, P or S is based on the COBIT 5 process. IT is in the IT Related Goals internal dimensions, namely information security, processing infrastructure and applications. The following is a mapping of the MEA domain on the primary / secondary scale IT-related Goals.

Table 3. Domain Based Selection IT-Related Goals

COBIT 5 Domain Process (MEA)	IT-Related Goals
MEA01	P
MEA02	S
MEA03	S

Based on the mapping carried out in table 3, it is found that the MEA01 process domain determines the primary value monitoring approach, MEA02 monitors, evaluates, and assesses the internal control system with secondary value and MEA03 Monitor, evaluate, and value compliance with external requirements that are of secondary value. The MEA01 process is related to HRIS which can be integrated with ITIL V3 because MEA01 has a primary value. The following is the integration of the COBIT 5 framework with ITIL V3 referring to the related guidance from the COBIT 5 framework from table 4.

Table 4. Integration of COBIT 5 and ITIL V3

COBIT 5	ITIL V3	Description
MEA01 (Monitor, Evaluate and Assess Performance and Conformance)	Stage 4 (Management Information)	MEA01 focuses on collecting, validating and evaluating business, IT and process objectives and metrics. Monitor process performance, goal conformity, and approval metrics, systematic and timely reporting.
		Management Information focuses on the governance of the process and ensures that sufficient and timely information is generated from the process to support the necessary management decisions.

Based on table 4, the integration process of COBIT 5 and ITIL V3 shows that the MEA01 Monitor, Evaluate and Assess Performance and Conformance process has a relationship with the 4 Management Information process. So, after the author gets the results of the integration, it will be described in the findings and HRIS maturity level.

4.3 Findings of MEA01 and Stage 4 CSI Pharmaceutical Company

The following are the findings of MEA01 and Stage 4 CSI at PhCo:

MEA01.01 Establish A Monitoring Approach

The results obtained from this MEA01.01 sub-process are:

1. The company has established a framework for monitoring HRIS.
2. The company has a framework for monitoring IT contributions to HRIS.
3. HRIS framework has been integrated with company management.
4. The company has a service to define the scope, methodology and process to be followed to measure HRIS services.

MEA01.02 Set Performance and Conformance Targets

The results obtained from this MEA01.02 sub-process are:

1. The expected targets in HRIS are in accordance with the performance targets.
2. The HRIS program is already running according to organizational goals.
3. The HRIS program is already running according to stakeholder goals.
4. The applied HRIS program runs better than the attendance that was previously implemented.

MEA01.03 Collect and Process Performance and Conformance Data

The results obtained from this MEA01.03 sub-process are:

1. Using HRIS can be done on time and accurately.
2. The data collection is in accordance with the stakeholder criteria.
3. Data collection is carried out according to the planned approach.
4. There is IT documentation on the performance of HRIS services.
5. The company can collect attendance data accurately using HRIS.
6. Data collection and assessment of HRIS data are based on industry best practices.

MEA01.04 Analyze and Report Performance

The results obtained from this MEA01.04 sub-process are:

1. In the HRIS monitoring process, attendance is monitored in a timely manner and improves quality and policies.
2. The process of monitoring HRIS services is carried out regularly.
3. Evaluating performance against targets is done regularly.
4. The company uses a balance scorecard to record the HRIS targets.
5. The balance scorecard method is appropriate and integrated with the current HRIS monitoring system.

MEA01.05 Ensure The Implementation of Corrective Actions

The results obtained from the MEA01.05 sub-process are:

1. There has never been a problem with HRIS due to an internet connection that hinders the data processing process at the Head Office.
2. The company checks regularly if there is an abnormality / problem with HRIS.
3. Analysis has been carried out to find the cause of the problem with the HRIS service.
4. There is an HRIS documentation done to report evaluations and suggest improvements to existing problems.
5. Each division has an assignment that is responsible for fixing problems in HRIS.

Stage 4: Management Information

The results obtained from the 4 CSI sub-process are:

1. The HRIS process has documented or implemented control procedures.
2. The company has an effective communication structure.
3. The information generated from HRIS can support the necessary management decisions.

4.4 HRIS Maturity Level

HRIS maturity measurement results are determined from the integration of the COBIT 5 and ITIL V3 processes. The results of the integration of the two frameworks are obtained by the MEA01 domain and Management Information, so that the following results are described for the maturity measurement / mapping of the 2 domains can be seen table 5.

Table 5. Mapping Process Attributes MEA01

Sub-proses	PA 1.1	PA 2.1	PA 2.2	PA 3.1	PA 3.2	PA 4.1	PA 4.2	PA 5.1	PA 5.2
MEA01.01	F	F	F	F	F	N	N	N	N
MEA01.02	F	F	F	N	N	N	N	N	N
MEA01.03	F	F	F	F	F	N	N	N	N
MEA01.04	F	F	F	F	F	N	N	N	N
MEA01.05	F	F	F	F	F	F	F	N	N

Based on Table 5, the MEA01.01 sub-process has reached the capability level 3 because it has fully achieved PA 1.1 to PA 3.2. Sub-process MEA01.02 has reached capability level 2 because it has fully achieved PA 1.1 to PA 2.2. Sub-processes MEA01.03 and MEA01.04 have reached the capability level 3 because it has fully achieved PA 1.1 to PA 3.2. Sub-process MEA01.05 has reached capability level 4 because it has fully achieved PA 1.1 to PA 4.2. After mapping the process attributes, the capability level analysis is then performed.



Figure 2. HRIS Maturity Level

Based on Figure 2, HRIS maturity can be seen from the MEA01 process and Management Information. The MEA01 process is known that the average level of capability is 3. In MEA01.01, it reaches PA 3.2 and has a capability level of 3. For MEA01.02, it reaches PA 2.2 and has a capability level of 2. MEA01.03, reaches PA 3.2 and has a level capability 3. MEA01.04, reaching PA 3.2 and having a capability level of 3. MEA01.05, reaching PA 4.2 and having a capability level of 4.

Table 6. Analysis Gap COBIT 5 and ITIL V3

Proses	Average Level Capability	Expected Level	Gap
COBIT 5 MEA01	3	4	1
ITIL Management Information	3.33	4	0.67

Based on table 6, the average capability level for the MEA01 process is 3 with the expected level to be achieved is level 4 Predictable Process. In the Management Information process, the average capability level is 3.33 with an expected level of 4. The gap to be achieved with MEA01 is 1, while the gap to be achieved with Management Information from ITIL V3 is 0.67. The results of the average MEA01 and Management Information processes are not much different. The COBIT 5 assessment is based on a conceptual area to determine whether the company's needs are supported by IT, whereas ITIL is used to improve IT processes to meet company goals. It can be seen from Figure 2, that PhCo is supported by qualified information technology services ranging from the HRIS hardware aspect, monitoring frameworks and data collection processes. From a CSI perspective, it is based on improving HRIS services to meet company goals. This can be seen from the value of 3.33, because PhCo has conducted problem analysis, monitoring methods, handling and documentation. After analyzing the gap, the authors then analyzed the results of the gap analysis to make recommendations on the MEA01 process and Management Information.

4.5 Recommendation for HRIS

4.5.1 MEA01 Establish A Monitoring Approach

MEA01 according to the measured process generally consists of 5 processes, namely: 1) Taking a monitoring approach, 2) Setting performance and conformity targets, 3) Collecting and processing performance and conformity data, 4) Analyzing and reporting on performance, 5) Ensuring implementation of actions corrective. Based on this process, it is found that 4 processes have been fulfilled, namely the processes at point 1, 3, 4 and 5. While the process at point 2 is at level 2. To reach the expected maturity level, it is recommended that several activities need to be carried out:

1. Supervise the scope, methodology, and processes for measuring IT solutions.
2. Integrate the framework with the company's performance management system on a regular basis.
3. Measuring the HRIS standard performance targets on a regular basis.
4. Establish standard data collection processes and conduct benchmarks based on industry best practices.
5. Supervise HRIS performance using a predetermined standard of monitoring methods.
6. Maintain procedures for handling HRIS problems, from finding the causes of problems, documentation to assigning the responsible party to fix them.

4.5.2 Stage 4: Management Information

The recommendation at stage 4 is to optimize the results of the information generated adequately and in a timely manner resulting from the process to support the necessary management decisions.

5. CONCLUSION

The conclusions obtained from this study include:

1. The results of the integration of the MEA COBIT 5 domain with the ITIL CSI domain show a relationship between the MEA01 process and Management Information.
2. Overall, the HRIS maturity level with the COBIT 5 framework has reached a capability level of 3, which means that HRIS process standards have been implemented effectively and efficiently.
3. With the ITIL framework, HRIS improvements have met the company's goals. This can be seen from the value of 3.33, because Pharmaceutical Company has carried out problem analysis, monitoring methods, handling and documentation, although it is necessary to improve the results of the information so that it is delivered adequately and on time.

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