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Cobit maturity level at PT KAI DAOP 8 Surabaya

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ABSTRACT: COBIT maturity model is to measure the state where the enterprise currently is, decide where it needs to go, and to measure the progress against that goal. The COBIT maturity model is measuring how well IT processes are managed. The specific models consist of a textual description of the target state for each level. Maturity levels designated by six levels from 0 through 5, there are 0 Non-existent, 1 Initial/Ad Hoc, 2 Repeatable but Intuitive, 3 Defined Process, 4 Managed and Measurable, 5 Optimised.
This paper focus at PT Kereta Api Indonesia (KAI) Daop 8 Surabaya. PT KAI Daop 8 Surabaya is one of the Indonesian railway operations area, under the environment of PT Kereta Api Indonesia (Persero) headed by an Executive Vice President (EVP). The result of this paper is maturity level at PT KAI Daop 8 Surabaya for internal perspective is at Level 3 (3 Defined Process—Procedures have been standardised and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalisation of existing practices), and for Customer Perspective is at Level 4 (4 Managed and Measurable—Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way).

Keywords: cobit, maturity level, pt kai daop 8 surabaya

1. INTRODUCTION

Along with the development of technology IT needs are increasingly used in assisting companies in solving problems experienced, moreover many companies budgeted funds for IT investment [18]. On the contrary sometimes IT is used on the company does not provide a balanced benefit to the business [1]. In the 1980s and 1990s there was much research on the effects of IT on the productivity of the company, where the study shows that IT has no significant effect on business productivity [6,] [7], [8], and [10]. Brynjolfsson [5] argues that there is a contradiction between the remarkable advances in computer application and the relatively slow development of productivity at the economic level as a whole. It is often known as Solow Productivity Paradox. Called Solow because based on the expression Solow (1987), "You can see the computer age everywhere but in the productivity statistics".

IT Productivity Paradox [5] is when IT implementation in IT companies does not have a positive impact expected by the company, in other words that the company's investment in IT is useless but consumes company's budget.

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In this case can be concluded in good governance, the role of IT Governance is very important as guideline in IT implementation. IT Governance has 5 pillars, there are Strategic Alignment, Value Delivery, Resource Management, Risk Management, and Performance Measurement. Companies that use IT as an enabler must implement IT Governance in order for business processes to proceed as planned. To find out if the company has successfully implemented the IT Governance one of them is through the audit. From the audit results will be known how the implementation of IT in the company.

Control Objective for Information and Related Technology (COBIT) can be used as a tool used to streamline the implementation of IT Governance, i**.e.** as a management guideline by applying all the domains contained in COBIT 4.1 [11]

2. METHODOLOGY

Steps for IT/IS audit are audit Subject, audit scope, pre-audit plan, audit evidence collection, evaluation, and audit report [16]. Audit Subject is Determine or identify the unit or location audit. In this research took location at PT KAI Daop 8 Surabaya. Audit Scope in this research is Identified systems specifically, functions or organizational units to be included the scope of examination. Defining the scope and purpose of the audit based on the results of the most high-risk IT risk level by taking into account the direction of the management. Function to be examined is academic information system.

2.1 Audit Evidence Collection

Identify and select the audit approach to examine and test the internal controls. This paper use Cobit 4.1 as framework to measure IT Governance at PT KAI Daop 8 Surabaya, that focus on Customer Perspective at Business Goal 4 – Improve customer orientation and service, and Internal Perspective at Business Goal 14 – Manage business change. Each Business Goal has IT Goal which link to its IT Processes. This research mapping can be seen in Figure 1.

Data collection is instrument of audit to collect the evidence. A list of employees will be interviewed as the criteria in RACI chart (Responsible, Accountable, Consulted, Informed) provided by COBIT 4.1. The data used as a comparison literature that may affect research. The question posed is based on Maturity Model contained in COBIT 4.1. Organize according to the conditions and circumstances. Identification of evaluation procedures on test the effectiveness and efficiency of the system, evaluation of the strength of the documents, policies and procedures are audited. Here's an example of a working paper COBIT 4.1, as can be seen in Figure 2.

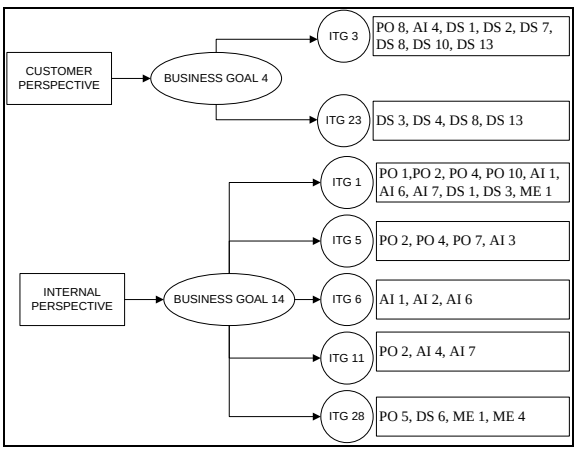

Fig 1. Research Mapping on Cobit 4.1 Business Goal

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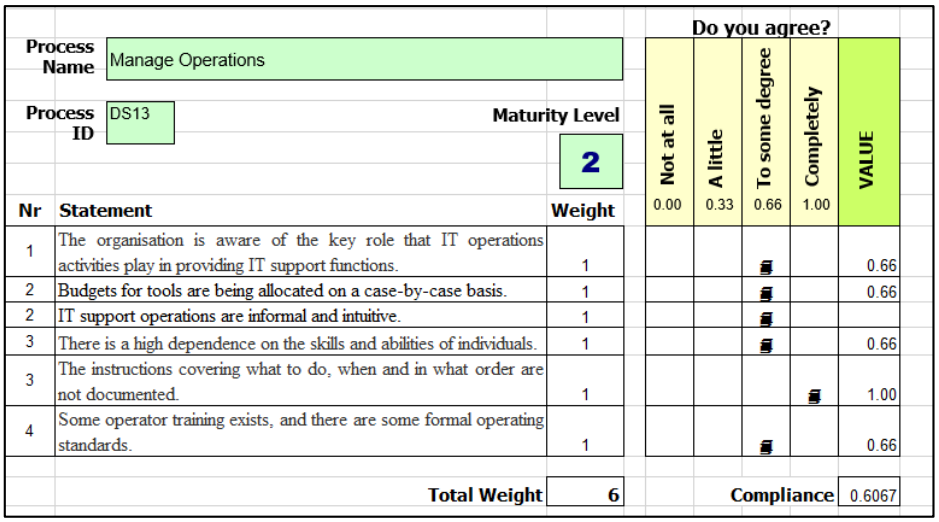

Process Name	Manage Operations							
Process ID	DS13	Maturity Level	2					
				Do you agree?				
Nr	Statement	Weight		Not at all	A little	To some degree	Completely	VALUE
				0.00	0.33	0.66	1.00	
1	The organisation is aware of the key role that IT operations activities play in providing IT support functions.	1				■		0.66
2	Budgets for tools are being allocated on a case-by-case basis.	1				■		0.66
2	IT support operations are informal and intuitive.	1				■		
3	There is a high dependence on the skills and abilities of individuals.	1				■		0.66
3	The instructions covering what to do, when and in what order are not documented.	1					■	1.00
4	Some operator training exists, and there are some formal operating standards.	1				■		0.66
		Total Weight	6			Compliance		0.6067

Fig 2. Working Paper Maturity Level DS13 Level 2

Next step is Maturity Level Determination. Data collection from the interviews that already translate to working paper (Figure 1) will be used to calculate the level of maturity. Next will be measured contribution of each level of maturity and totalized to obtain the value of IT process maturity in question. Compliance is obtained from level 0 to level 5. Normalize give you an idea of how much influence the compliance of the overall IT process maturity. Normalize the value derived from the value compliance each level divided by total compliance. While the Contribution value obtained by multiplying the value of compliance to normalize the value, and the total of the contribution is the value of the level of maturity. For the assessment of the level of maturity Domain Plan and Organize, as can be seen in Table 1.

Table 1. Maturity Level DS13 Level 2

Level	Compliance	Normalize	Contribution
0	0.660	0.229	0.151
1	0.550	0.191	0.105
2	0.607	0.211	0.128
3	0.371	0.129	0.048
4	0.364	0.126	0.046
5	0.330	0.115	0.038
sum	2.882	Maturity Level	0.515

Measurement scale of maturity level resulting in decimal value does not use round up result [14]. Suppose the value of 2.853 will not be rounded to 3 or located at level 3, as this is not a mathematical problem and the value of rounding, but the fulfillment of the requirements of each level in the Maturity Model.

2.2 Audit Report

Reports objective, constructive and accommodating explanation audit have to be prepared. Results of the evaluation of the implementation of information systems audit will contain findings based on the due diligence carried out as well as recommendations to improve the existing processes. The format of the report will vary in each organization so that there is no standard format in preparation. The final report of the audit should present an overview of today's organizations then allows the management to take the necessary steps [14].

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3. RESULTS AND DISCUSSION

Results of the interviews conducted, the results obtained maturity level of each process. This paper does not display all of the IT processes for assessment, but representation of each domain. Here are the results of assessment Maturity Level:

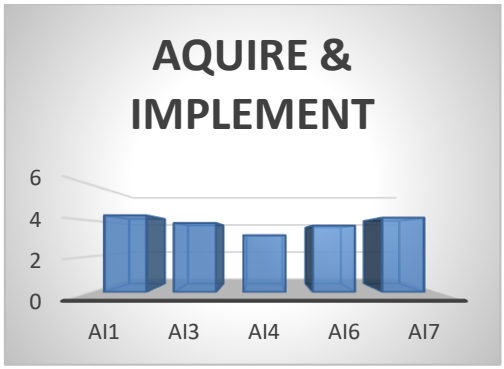
3.1 Domain Plan and Organise (PO)

Maturity Level calculation results for domain PO can be seen in table 2 and graphically can be seen in Figure 3a.

Table 2. Maturity Level Domain PO

Domain	Score
PO1	4.467
PO2	4.424
PO4	3.99
PO5	4.654
PO7	4.104
PO8	3.096
PO10	4.018

(a)



(b)

Fig 3.
(a) Maturity Level Domain PO; and
(b) Maturity Level Domain AI

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3.2 Domain Acquire and Implement (AI)

Maturity Level calculation results for domain AI can be seen in table 3 and graphically can be seen in Figure 3b.

Table 3. Maturity Level Domain AI

Domain	Score
AI1	4.289
AI3	3.862
AI4	3.181
AI6	3.716
AI7	4.153

3.3 Domain Deliver and Support (DS)

Maturity Level calculation results for domain DS can be seen in table 4 and graphically can be seen in Figure 4a.

Table 4. Maturity Level Domain DS

Domain	Score
DS1	3.25
DS2	4.188
DS3	3.927
DS4	4.253
DS6	4.524
DS7	4.181
DS8	3.914
DS10	4.444
DS13	4.116

(a)

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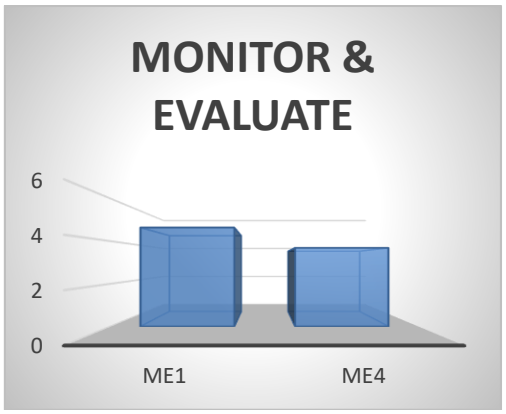

(b)

Fig 4.
(a) Maturity Level Domain DS; and (b) Maturity Level Domain ME

3.4 Domain Deliver and Support (DS)

Maturity Level calculation results for domain DS can be seen in table 5 and graphically can be seen in Figure 4b.

Table 5. Maturity Level Domain ME

Domain	Score
ME1	4.635
ME4	3.685

Figure 5 shows that from audit information system the Maturity Level at this research is at Level 4 (Managed and Measurable), which means Status of the Internal Control Environment is – There is an effective internal control and risk management environment. A formal, documented evaluation of controls occurs frequently. Many controls are automated and regularly reviewed. Management is likely to detect most control issues, but not all issues are routinely identified. There is consistent follow-up to address identified control weaknesses. A limited, tactical use of technology is applied to automate controls.

Establishment of Internal Controls – IT process criticality is regularly defined with full support and agreement from the relevant business process owners. Assessment of control requirements is based on policy and the actual maturity of these processes, following a thorough and measured analysis involving key stakeholders. Accountability for these assessments is clear and enforced. Improvement strategies are supported by business cases. Performance in achieving the desired outcomes is consistently monitored. External control reviews are organized occasionally.

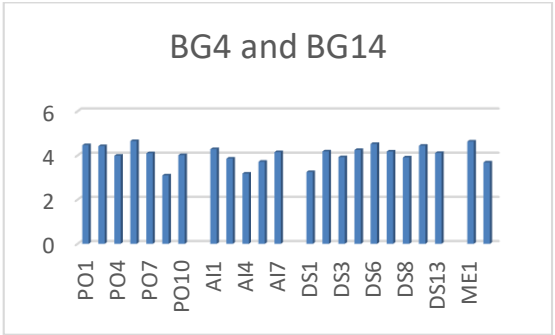

Fig 5. Maturity Level Customer Perspective (BG4) and Internal Perspective (BG14)

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4. CONCLUSION

The result of this paper is maturity level at PT KAI Daop 8 Surabaya for internal perspective (BG14), and for Customer Perspective (BG4) is at Level 4 (4 Managed and Measurable—Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way).

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