MATURITY LEVEL DELIVERY VERIFIER OF THE MEASUREMENT PROCESS FOR LEARNING ORGANIZER

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Abstract- Udiklat at X company is one of the units engaged in organizing learning (delivery) wherein the activity, there are administrative documents related to a maturity the level that must meet standards. The process of measuring, evaluating, and increasing the activities of the learning organizers is carried out by the verifier with a manual. This study aims to design a Maturity Level of information system design that can facilitate the implementation of the business process of organizing learning (delivery). This research resulted in a Maturity Level Delivery of information system design that helps the business learning processes. Maturity level delivery of information system expected to facilitate planning, the search of training titles, management of training plans, and evaluating the implementation of learning accompanied by maturity level charts that can identify which indicators should be improved and maintained for the next learning year.

Keywords: maturity level, organizing learning, verivier.

I.   INTRODUCTION

[1] says that it is essential for organizations to improve quality and maintain a competitive advantage in the face of pressure. Many researchers have developed a maturity model to help organizations including the model used as an evaluation and comparative basis for improvement [2] and information approach models to enhance the ability of specific areas within the organization [3]. Maturity models have developed in many domains since the concept of measurement maturity was introduced to the Capability Maturity Model (CMM) of the Software Engineering Institute (SEI) - Carnegie Mellon. The same thing that runs at company X.

Udiklat is a unit that is engaged in organizing learning for company X employees in the central Sumatra region. In the learning implementation activities, many administrations must meet. These administrative documents are then stored for verification every month. These documents also needed in audit activities. At present, these documents made and stored in hardcopy. The required documents scanned and sent via File Transfer Protocol (FTP) to be verified by verifiers.

In one week of learning activities, there are generally at least five learning titles. Each learning title has its document in each of the planning, preparation, implementation, pre-implementation, and reporting criteria. The form of hardcopy documents and a large number of records are also undeniable often causing these documents to become unstructured and even lost. Plus verification is done cumulatively every month to do the search for materials for each learning title and scan the document takes quite a long time.

On the other hand, verifiers often experience confusion in processing, storing, and organizing incomplete documents. Documents are usually not distinguished for each title, while verification is done per each title. This results in the performance of the learning organizers considered to be reduced. To measure, evaluate, and improve learning organizer activities, X Udiklat company uses the Capability Maturity Model (CMM). However, this process is carried out by verifiers by means of manually using a spreadsheet and not integrated with a central database. Softcopy documents sent by participants via FTP are also not mapped in the database.

So, the research question is How does the Capability Maturity Model measure the performance of Maturity Level Delivery?

II.   LITERATURE REVIEW

2.1.   *Capability Maturity Model Integration (CMMI).*

CMMI is a framework that defines what organizations should do to change the organization's internal processes, intending to improve quality and performance. CMMI can also help organizations to detect and achieve measurable business goals, build high quality products, increase customer satisfaction and ensure the organization works as professionally as possible [4].

2.2.   *Learning*

Learning following the National Education System Law No. 20 of 2003 is defined as "The process of interaction of students with educators and learning resources in a learning environment." In other words, learning can be created from the interaction between learning participants (students) with instructors or lecturers (educators) conducted by delivering learning material (learning resources) and supported by means and pre-learning facilities (learning environment) to transfer knowledge.

2.3.   *Evaluation*

According to [5] evaluation is a process in planning, obtaining, and providing information that is needed to make alternative decisions. Meanwhile, according to [6] is an activity to collect, understand, and report the results of an analysis of specific programs/objects. From the above understanding, it can be concluded that evaluation is an activity or process of collecting, analyzing, presenting information, and evaluating systematically and continuously as a basis for making decisions to update the program.

2.4.   *Maturity*

Maturity *c*an be defined as a specific process that identifies, regulates, measures, and controls the growth of an entity/organization. Maturity can also be interpreted as a condition in which the organization is perfect and complete in achieving its organizational goals from the initial state to the final rule. The maturity model is a technique that has been proven to be assessed in measuring different aspects of a process or organization [7]. In general, the maturity model consists of five levels [4], namely Level 1 Initial or Chaotic, Level 2 Managed, Level 3 Defined, Level 4 Quantitatively Managed, and Level 5 Optimizing.

2.5.   *Maturity Level Delivery*

Maturity Level Delivery is the Maturity Level in the business process of Organizing Learning at X Company. Maturity Level Delivery is a measure of the maturity level of the Organization resulting from a Learning Implementation activity that has been carried out by the Unit [8]. The maturity criteria are the results that must be achieved and are the process level of the maximum implementation results that have realized.

III.   LEARNING EVALUATION

This study uses learning evaluation with four levels. There are four levels of learning evaluation carried out, namely:

1)   Level 1 measures the satisfaction of learning participants with the implementation of learning.

2)   Level 2 measures Knowledge, Skill, and Attitude of learning participants after participating in learning.

3)   Level 3 measures changes in the behavior of learning participants at work, whether the learning participants apply the knowledge gained during learning or not.

4)   Level 4 measures the impact that learning participants have on organizational performance

IV.   RESULT AND DISCUSSION

The organization of learning currently has a KPI target related to the maturity of the learning process. At present, it is known as Maturity Level Delivery as a result of measuring maturity level in delivery learning material or in organizing learning. In Maturity Level Delivery, 7 indicators are assessed by the weight of each symbol adjusted to the needs (table 1).

Table.1. Seven Indicators

Indicator	Weight (%)
Learning Process	20
Results of Organizing Learning	20
Qualification for the Management of Learning Organization	10
Timeliness of Organizing Learning	15
Timeliness of Call for Learning Participants	15
Cost Efficiency in Organizing Learning	10
Timeliness of Issuance of Learning Implementation	10

Each indicator refers to 5 levels of maturity based on the concept of Capability Maturity Model Integration theory that is adjusted back to the needs of the company so that it becomes,

1)   Level 1 Initial or Chaotic, If the value of Maturity Level is ≥ 1.00 and ≤ 1.99

2)   Level 2 Managed, If the Maturity Level value is 2.00 and 2.99

3)   Level 3 Defined, If the Maturity Level value is 3.00 and ≤ 3.99

4)   Level 4 Quantitatively Managed, If the value of Maturity Level is 4,00 and 4,99

5)   Level 5 Optimizing, If the value of Maturity Level $= 5$

The concentration used in Maturity Level Delivery at Udiklat at X Company to determine a process evaluation preparation and evaluation of results has been achieved at a certain level called Qualification. The following is the calculation process for each indicator:

A.   Maturity Level of Organizing Learning

$$ML = \sum_{7}^{1} c \, x \, b \tag{1}$$

c = criteria; b = weight; $b_1 = 20\%$; $b_2 = 20\%$; $b_3 = 10\%$; $b_4 = 15\%$; $b_5 = 15\%$; $b_6 = 10\%$; $b_7 = 10\%$

Indicator calculation with an example,

$c_1 = 2$; $c_2 = 2$; $c_3 = 3$; $c_4 = 4$; $c_5 = 3$; $c_6 = 5$; $c_7 = 3$.

Then,

$$L = (2 \; x \; 20\%) + (2 \; X \; 20\%) + (3 \; x \; 10\%) + (4 \; x \; 15\%) + (3 \; x \; 15\%) + (5 \; x \; 10\%) + (3 \; x \; 10\%)$$

$$ML = 2,95$$

Maturity Level value of 2. (Level 2, Managed)

B.   Evaluation of Learning Implementation Process
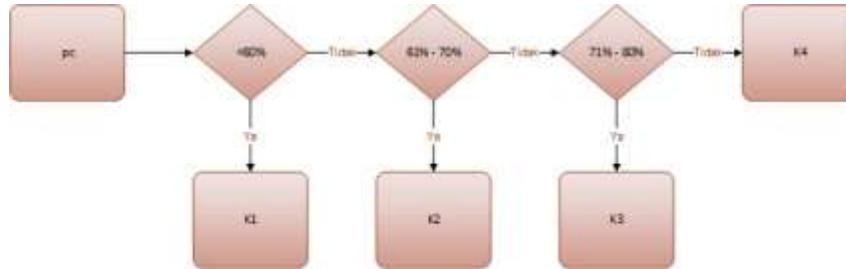
$$pc = \sum_1^1 \frac{l-y}{l \; l} x \; 100\% \tag{2}$$

Figure 1. Process Flow Calculation Calculation Process Checklist
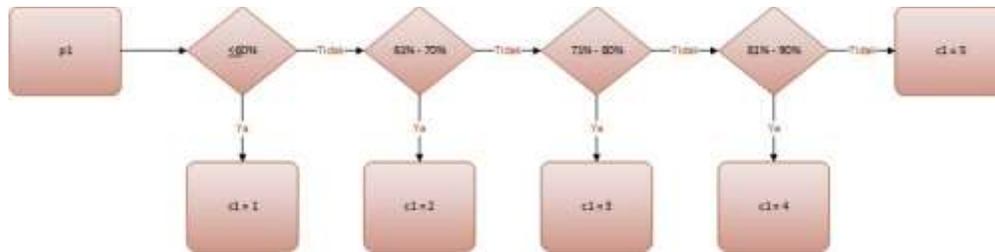
$$p1 = \sum_n^1 \frac{k4}{n} x \; 100\% \tag{3}$$

Fig. 2. Process Flow Calculation Qualification Process Evaluation

c1 = Criteria 1; p1 = Percentage of process evaluation qualifications; pc = Percentage of checklist fulfilled; l = Number of checklists; y = Number of checklist not fulfilled; n = Number of learning; k1 = Qualification 1; k2 = Qualification 2; k3 = Qualification 3; k4 = Qualification4.

The calculation of indicators with an example of y = 3, then,

$$pc = \frac{10-3}{10} x \; 100\%$$

$$= 70\%, 70\% = k2$$

C.   Learning Outcomes

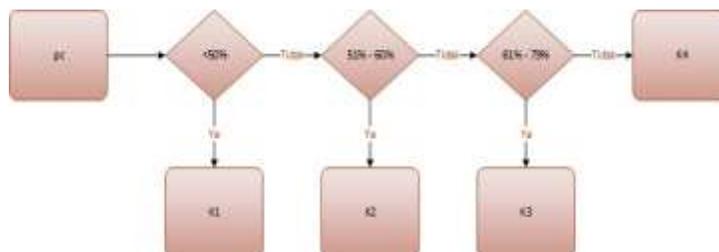$$pc = \sum_1^1 \frac{l-y}{l \; l} x \; 100\% \tag{3}$$

Fig. 4. Process Flow Calculation Calculation Result Checklist

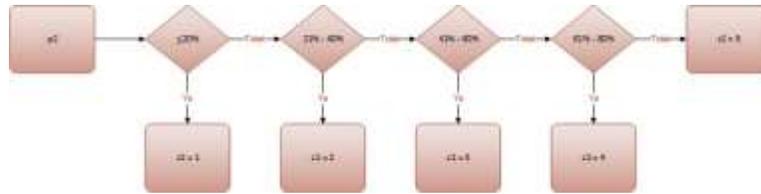$$p2 = \sum_{n}^{1} \frac{k4}{n} x\ 100\% \tag{4}$$

Fig. 5. Process Flow Calculation of Qualification Evaluation Results

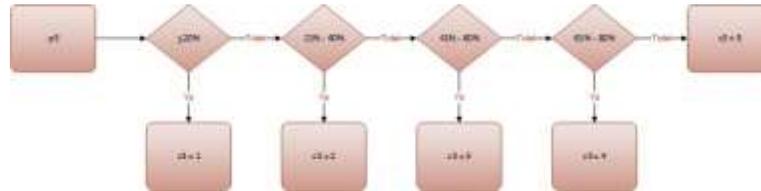$$p3 = \frac{a-s}{a} x\ 100\% \tag{5}$$

Fig. 5. Learning Process Qualification Process Flowchart

c3 = Criteria 3; p3 = Percentage of qualifications for learning managers; a = Number of employees; s = The employee is not certified; Indicator calculation with an example of y = 2, then

$$pc = \frac{8-2}{8} x\ 100\% \tag{6}$$

$$= 75\%,\ 75\% = k3$$

D.   Timelines of Implementation
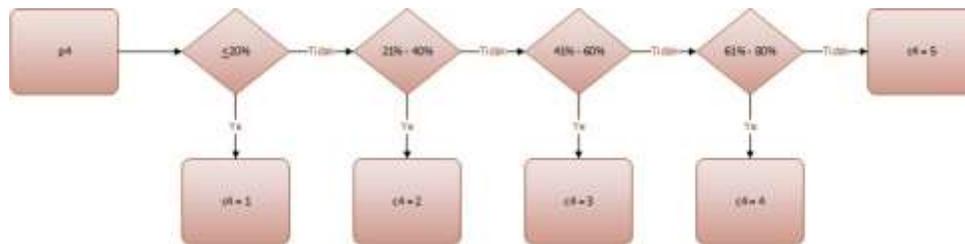
$$p4 = \frac{n-t}{n} x\ 100\% \tag{7}$$

Fig. 5. Process Flow Calculation of Timeliness of Implementation

c4 = Criteria 4; p4 = Percentage of qualifications for the timeliness of learning; n = Number of learning; t = Learning is not timely. Indicator calculation with an example, n = 10; t = 2, then

$$p4 = \frac{10-2}{10} x \ 100\% \tag{8}$$

$$= 80\%, p4 = 80\%, c4 = 4$$

E.　Timeliness of Calling Participants

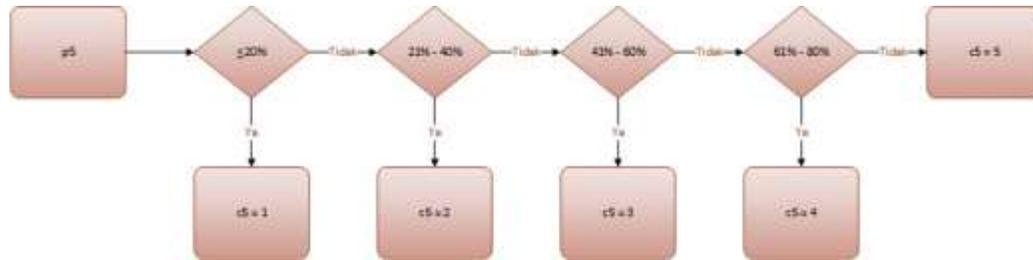$$p5 = \frac{n-u}{n} x \ 100\% \tag{9}$$

Figure 7. Process Flow Calculation of Timeliness of Participant Calling

c5 = Criteria 5; p5 = Percentage of qualifications for punctuality in learning participants; n = Number of learning; u = Call is not on time. Indicator calculation with an example, n = 10; u = 5, then

$$p5 = \frac{10-5}{10} x \ 100\% \tag{10}$$

$$= 50\%, p5 = 50\%, c5 = 3$$

F.　Cost Efficiency of Organizing Learning
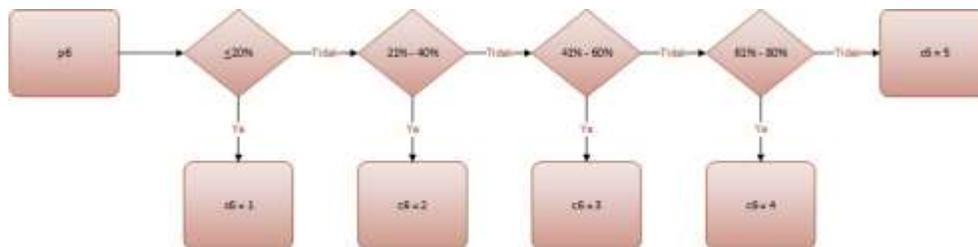
$$p6 = \frac{n-v}{n} x \ 100\% \tag{11}$$

Figure 8. Process Flow Calculation of Implementation Cost Efficiency

7. Timeliness of Certificate Issuance

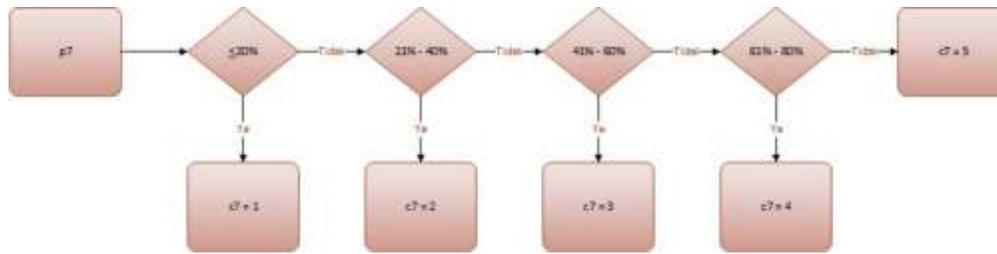$$p7 = \frac{n-w}{n} x \ 100\% \tag{13}$$

Figure 9. Process flow Calculation of the Timeliness of Certificate Issuance

c7 = Criteria 7; p7 = Percentage of qualifications for the accuracy of certificate issuance; n = Number of learning; w = Certificate issuance is not timely

Indicator calculation with an example, n = 10; w = 4, then

$$p7 = \frac{10-4}{10} x \ 100\%$$ (14)

$$= 60\%, p7 = 60\%, c7 = 3$$

Following table assessment of Udiklat Maturity Level Delivery, which has verified as of April 2018 (Department of Learning Implementation of Udiklat, 2018). Realization Value is the result of verification (table 2).

Table. 2. Udiklat Maturity Level Delivery

Indicator	Target	*Self Assessment*	Realization Value
Learning Process	3.5	4.0	2.0
Results of Organizing Learning	3.5	4.0	2.0
Qualification for the Management of Learning Organization	3.5	3.0	3.0
Timeliness of Organizing Learning	3.5	5.0	4.0
Timeliness of Call for Learning Participants	3.5	4.0	3.0
Cost Efficiency in Organizing Learning	3.5	5.0	5.0
Timeliness of Issuance of Learning Implementation	3.5	4.0	3.0

At present, the realization value has given to Udiklat through the performance team. However, there is no opportunity to appeal values. So that reduces performance for Udiklat. Besides, the time for granting the results of the verification is quite long.

V.   CONCLUSION

1.   From repeated analysis of information systems, the initial hypothesis has not been tested through usability testing of prototypes with users. The design of this information system is the first step in implementing the information system so that it can facilitate the planning of training and evaluation of learning in Udiklat by reducing the

documentation process of organizing learning that is classified as complex so that it also expected to minimize job redundancy.

2. The information system provides convenience in finding training titles, managing training plans, and evaluating the organization of learning.

3. The number of documents that must be printed such as training lists, LNA results, monthly rendiklat, annual rendlatlat, and each Maturity Level evaluation, information systems can reduce the number of documents written by an average of 35 pages significantly in one learning year.

4. Through the analysis and design of information systems, evidence documents can be linked to evaluation indicators so that data is more integrated.

5. The maturity level graph makes it easy for employees to identify signs that must be improved and maintained for the next learning year.

In the future, we will test Prototype version 0.1 first with the user, then make improvements and repeat the design process until the initial hypothesis is fulfilled.

VI. ACKNOWLEDGMENT

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