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Business Process Analysis and Improvement on Training Management in Government Training Institution (Case Study of Institution XYZ)

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Abstract. The target indicators for the success of training conducted by the XYZ institution in 2018 are achieved in un-ideal conditions. The target of the average Competency Gap Index (CGI) value is achieved by reducing the measurement parameters of the work competency standard (SKK). This condition is a fact that the success of the training in the XYZ institution still lacks in its achievements. Based on the explanation of the problem, this study will apply the concept of Business Process Management (BPM) to conduct an analysis of the business process of conducting training in the XYZ institution to identify the possible problems that occur in the business process. This study aims to analyze and modeling the current business process of training program (as-is). The research methodology uses literature studies and data collection from interviews, observations, and supporting documents. The results of this study are proposed business processes (to-be) which are recommendations for improvement in current business processes (as-is). The business process is modeled used the standard modeling of Business Process and Notation (BPMN) version 2.0.

Keywords: Business Process, Business Process Model and Notation (BPMN)

1 Introduction

One of the important factors in supporting the success of organization is quality of human resources (HR) that are highly competitive. HR that has high quality and competitiveness is a necessity for every organization to be able to compete in the globalization era. Increasing knowledge and skills is a necessity to increase their competencies that needed by business nowadays. According to Elnaga and Imran [1], improvement of HR knowledge and skills can be fulfill by joining in the training program.

Training is a process to teach certain knowledge and expertise that aims to improve the skills and abilities of HR in performing their duties and responsibilities better (Mangkuprawira, 2011). According to Rivai et al. (2015), training is a systematic process in a relatively short time to change the expertise, skills and behavior of HR which will become a valuable asset for the organization. Training could give a positive impact on improving the quality of HR and contribute to the achievement of organizational goals [2].

The benefits of training in improving the quality of human resources is a consideration for the government to play an active role in organizing training programs. One of the government institution that carry out the training functions is the XYZ institution which organizes agriculture training to provide agricultural knowledge and skills to agricultural

officers (apparatus) and farming communities (non-apparatus). The aim of this training program is to produce agricultural human resources that are capable of better managing and processing agricultural resources. Considering the benefits of agricultural training in XYZ institution, the training process must be carried out properly and correctly. The training process must be free from problems that potentialy to become obstacles in supporting the success of increasing the competency of trainees.

Information gathered from early observations at XYZ institution is that there are problems in the training process. One of identified problem is a delay in the provision of training instruments. In addition, the delays in the supply and incompatibility of practice materials in learning activities are found in the current training process. The practice material cannot be available on time so that it interferes with the course of learning activities. Another problem that can be identified is the achievement of performance indicators of training success that obtained by not referring to predetermined parameter values. Performance indicators of training success are shown by the average value of the Competency Gap Index (CGI) of trainees. The average CGI score was obtained from all CGI values in each training by measuring the discrepancy of the trainee's competency value to the work competency standard (SKK) which set at 85 points. However, the SKK value used today to achieve the target CGI average value had to be reduced to 81 points for apparatus training and 80 points for non-apparatus training. The decline in the SKK value standard is a fact that the XYZ institution failed to reach the target of the CGI average performance indicator in ideal conditions.

The emergence of these problems is an indication that the training process has obstacles in its execution. The studies conducted in this study is try to solve the problems that arise in the training process at XYZ institution by improving current business processes. Andersen (2007) revealed that the performance level of most processes in an organization shows a tendency to decrease downward over time unless an attempt to maintain its condition. Therefore, an evaluation of business processes in organizations that aim to improve and maintain business processes needs to be done to get qualified business processes.

By recognizing and understanding the running business processes will help organizations to manage and improve business processes in organizations [5]. Organizations need to identify the problems that occur in the current business process (as-is) and determine the improvement steps to improve business processes [6]. Modern organizations must be able to manage business processes properly in order to be able to improve organizational performance [7]. According to Dave [8], organizations must be able to monitor, measure and improve business processes on an ongoing basis in order to survive in today's business world.

Management of business processes in organizations can adapt the Business Process Management or BPM framework that has been widely studied and used by researchers and practitioners [9]–[12]. According to Rosemann and Brocke [13], BPM is the best way to manage and improve business processes within the organization. BPM is able to provide the ability to identify problems in business processes so that they can determine the right steps for improvement. BPM is not only about designing, developing, and implementing business processes, but also considers the interactions of all processes, analyzing and optimizing them (Havey, 2005; ABPMP, 2013). BPM has been widely used in previous research in helping organizations to solve problems and improve business processes in organization (Corradini et al., 2011; Haddad et al., 2011; Andellini et al., 2017). Several BPM implementation show that the BPM framework can be an alternative solution as a guide to identify problems and improve business processes at XYZ institution.

This study is intended to explore the problems that exist in the as-is business process on training process at XYZ institution and produce improvement recommendations through several stages according to the BPM framework.

2 Study Literature

2.1 XYZ Institution

XYZ Institution is one of the government unit that carry out the training function for officer and civil society especially in agricultural sector. This government unit is under the ministry responsible for developing agricultural HR competencies in Indonesia. XYZ institution has the main duty to implement and develop technical training, functional training and entrepreneurship in agriculture.

2.2 Average Value of Competency Gap Index (CGI)

The average value of CGI set as a benchmark for the success of training in the XYZ institution is below 22 points. The average CGI value is the XYZ institution's performance target which is measured based on the CGI value obtained from all training. The CGI value in a training is calculated based on the discrepancy between the SKK values against the competency values obtained by the training participants. The calculation of the competency value of trainees uses several parameters, including the progress of practice, mastery of the training material and assessment of attitudes and behavior. Practice progress parameters are obtained through calculating the value of the post-test evaluation against the value of the pre-test evaluation. The training material mastery parameters are obtained by using an evaluation form filled in by the participants. While the parameters of attitudes and behavior of participants were obtained through the assessment carried out by instructor during the learning activities.

Measurement of average CGI value is carried out after all training has been completed at the end of the year using the calculation formula below.

Participant's Practice Progress

$$Practice\ progress = posttest\ value - pretest\ value \tag{1}$$

Competency Value of Trainees

$$a = 70\% \times \frac{practice\ progress + training\ material\ mastery}{2} \tag{2}$$

$$b = 30\% \times attitudes\ and\ behavior \tag{3}$$

$$Competency\ value = a + b$$

Value of CGI

$$CGI = SKK - Competency\ value \tag{5}$$

Average CGI Value

$$Average\ CGI\ Value = \frac{Total\ CGI\ value\ for\ all\ training}{Total\ training} \tag{6}$$

2.3 Business Process Management (BPM)

Business Process Management or BPM is a set of methods, techniques and tools for finding, analyzing, redesigning, implementing and monitoring business processes [14]. Meanwhile, according to Weske [15] BPM includes concepts, methods, and techniques to support the design, administration, configuration, validation, and analysis of business processes. BPM is the best way to manage the design of business processes and develop business process management capabilities in organizations that serve a variety of purposes

and contexts [13].

The BPM framework used in this study refers to BPM that proposed by Dumas et al. [14] that consists of several stages, namely process identification, process discovery, process analysis, process redesign, process implementation and process monitoring and controlling. The stages of BPM work carried out in this study include process identification to identify as-is business processes, process discovery to develop models of as-is business processes, process analysis to identify problems and process redesign to redesign business processes. The BPM framework is not adapted until the process implementation stage because the conditions and situations of the organization are needed to accept change and actively engage in the management of change when implementing business process changes in the organization [16]. This requires a long period of time because the XYZ institution is a government organization that has special characteristics in accordance with directives from the central government.

2.4 Quality Evaluation Framework (QEF)

Measurement of business process quality can be done by examining the quality of business process components. The quality of business process components is examined by identifying relevant quality factors and then measuring the quality of process components using appropriate assessment metrics [17]. The framework for measuring the quality of business processes by examining the quality of business process components has been proposed in the previous research, namely the Quality Evaluation Framework (QEF). QEF provides the ability for organizations to measure business process performance using business process models by determining quality factors in each component of business processes according to the measurement needs desired by the organization.

The stages of activities carried out on the QEF framework in measuring the quality of organizational business processes are as follows:

1. The organization determines non-functional requirements that have not been met in the current business processes.
2. Identify business processes related to previously defined non-functional requirements.
3. Determine quality factors, measurement metrics and measurable targets to measure the quality of business process components.
4. Taking sample data the size of the quality of business process components based on real conditions in business processes that are running and measuring the quality of business process components using predetermined measurement metrics.
5. Compare the results of measuring the quality of business process components with quality targets that have been previously set.

3 Methodology

The methodology used in this study consists of six stages, which are: Literature Study, Requirement Analysis, Implementation, Testing, Result Analysis, and Conclusion. It is shown in Figure 1.

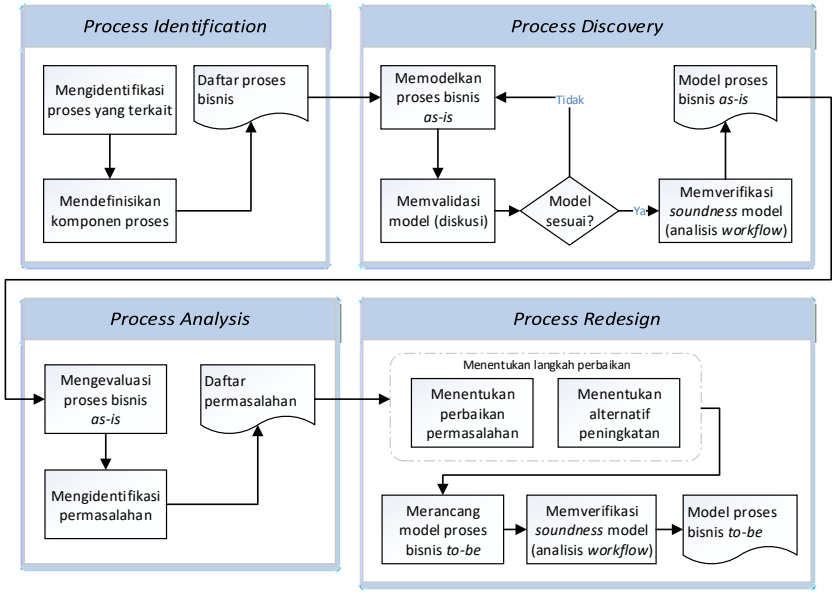

Figure 1. Research Methodology

The first stage is process identification to identify the current business process (as-is). This stage is the first step in the BPM framework to get a complete picture of business processes that are useful for understanding business processes in XYZ institutions. In order to obtain the required data, several data collection techniques are used such as observation and interviews. The next stage is process discovery that performs as-is business process modeling based on data that has been obtained at the process identification stage. The as-is business process model was prepared with the aim of facilitating the understanding of the process flow in the XYZ institution. Understanding the organizational process flow is expected to help XYZ institutions in analyzing the problems in business process so that the determination of improvement steps can be done properly.

The third stage is process analysis carried out to analyze the as-is business process by using business process models that have been generated at the process discovery stage. Activities at this stage include evaluating the current business processes and identifying problems that exist in the business process. The final stage of this research is the process redesign that sets recommendation steps for improvements to the as-is business process. Recommendations for business process improvements are obtained by determining alternative corrective steps that can be proposed to be applied to business processes in the XYZ institution. The steps to improve business processes include alternative correction to the problems that were discovered previously and alternative improvements with the aim of improving current business processes.

4 Result

4.1 Problems Identification

Problem identification in current business processes is done by evaluating current business processes. Evaluation of business processes is using the as-is business process model that has been prepared previously. The evaluation approach of business processes

relies on following two main steps: (i) evaluating business process related to supporting the achievement of CGI average value target; (ii) business process evaluation in terms of the quality of business process components using the QEF framework. Those approach was carried out in this study with the hope of obtaining problems both in terms of the effectiveness of business processes towards the achievement of the CGI average value target and non-functional problems based on QEF quality factors.

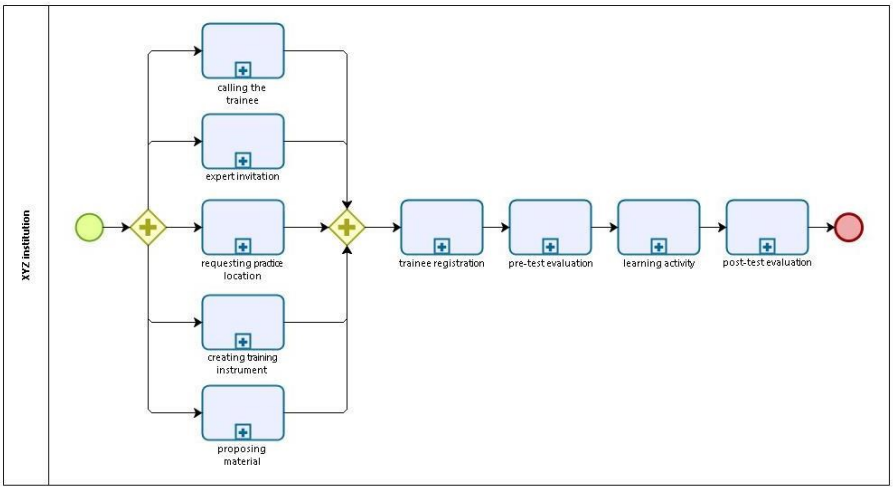

Figure 2. Model of Training Process

Based on results of business process evaluation related to the support of achieving CGI average value target, the following problems can be described:

1. The current training program business process does not prioritize the achievement of CGI values even though one of the measurement parameters of CGI values (progress of training) is used as a benchmark for the success of a training.

2. Evaluation of the CGI value of a training not included as part of the training process but rather as an evaluation of the XYZ institution's performance in measuring the average CGI score at the end of the year (Figure 2). This condition results in a delay in anticipating if the CGI average target is not reached.

While evaluating the quality of business processes using the QEF framework can provide an overview of the quality of process components in business processes. Activities that are not able to reach the specified quality factor size indicate that there are obstacles and problems in their execution. Problems in the business process that can be identified through the QEF framework can be described as follows:

1. Quality factor of activity timeliness
   The documents that require inspection by officials require a long time to examine (example : draft official letter signed by head office – Table 1).
2. Quality factor of input timeliness
   Pre/post test instrument and training materials are late received by evaluation and training officers.

3. Quality factor of Authority
   Material for training program is not examined by person who submitted the proposal.

Table 1. Evaluation of Activity "check and validate letter concept"

No	Quality Factor	Calculation	Sample data (minutes)		Average (minutes)	Target (minutes)
1	Activity Timeliness	T(a) = - D(a) D(a) = RT(a) - UT(a) T(a) → Timeliness of an activity D(a) → Delay of an activity RT(a) → Response Time of an activity UT(a) → dUe Time of an activity	1	RT(act5)= 12.00 / UT(act5)= 09.30 D(act5) = 12.00 - 09.30 = 150 T(act5) = - 150	- 156	- 30
			2	RT(act5)= 11.00 / UT(act5)= 09.00 D(act5) = 11.00 - 09.00 = 120 T(act5) = - 120		
			3	RT(act5)= 11.30 / UT(act5)= 09.30 D(act5) = 11.30 - 09.30 = 120 T(act5) = - 120		
			4	RT(act5)= 13.30 UT(act5)= 10.00 D(act5) = 13.30 - 10.00 = 210 T(act5) = - 210		
			5	RT(act5)= 13.30 UT(act5)= 10.30 D(act5) = 13.30 - 10.30 = 180 T(act5) = - 180		

The target time needed to respond the documents to be reviewed is 30 minutes, but the average time from 5 samples show that the time to respond the input is more than the target set (156 minutes). This condition indicates that this activity may have problems or obstacles in its execution.

4.2 Improvement Recommendation

Improvement steps that can be applied to current business processes covering steps to fixing the problem of achieving performance indicators average CGI value in business process and improvement steps for problems based on business process evaluation with QEF.

4.2.1 Alternative Improvement of Achieving Average CGI Value

An alternative step to improve business processes in supporting the achievement of the average CGI score is to evaluate the achievement of the CGI score in each ongoing training. The measurement of the CGI value is proposed to be part of the training operation business process to support the achievement of the CGI average target set in the end. The evaluation

of the achievement of CGI values in each training can be realized by adding a new business process that executed after post-test evaluation has been completed. The CGI evaluation business process aims to examine the CGI values during the training activities. If the resulting CGI value does not meet the average of CGI value target (less than 22) then it is necessary to run a check flow of the CGI value measurement parameters as shown in Figure 3.

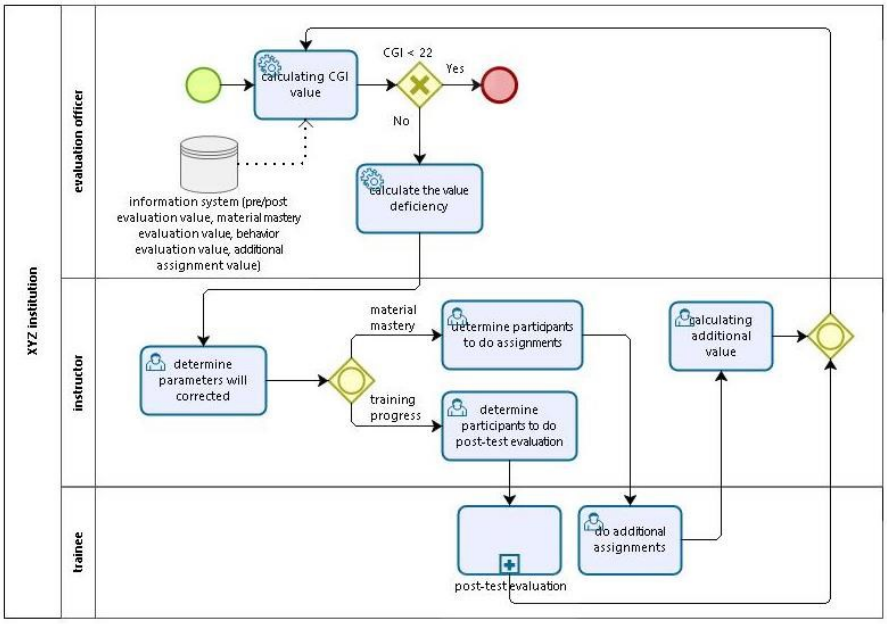

Figure 3. Business Process of CGI measurement

4.2.2 Alternative Improvement for problems identified by QEF

This section will present alternative improvement steps that can be applied to current business processes to fix the problems that have been identified through evaluating the quality of business process with QEF. The improvement steps are determined based on the category of improvement of the Streamlining tools method by observing the conditions of the problems that occur with the appropriate scope of improvement.

The alternative improvement steps to resolve the document check delay problem as shown in table 1 are as follows:

1. Process cycle-time reduction

   Time arrangement for the implementation of the activity of checking the concept letter by kabag umum is expected to reduce the delay. The concept letter could be examined in accordance with the time set. The time proposed for conducting the letter concept inspection activities is divided into 2 time periods 11.00 - 12.00 and 15.00 - 16.00. This time period is assurance that kabag umum provides time to examine and validate the concept letters during that time period. Thus, the concept letter as input to the activity of " memeriksa dan mengesahkan konsep surat " must be available before that time period.

2. Simplification

   The next improvement step for this problem is to accelerate the flow by balancing the workload on examining the concept letter carried out by kabag umum. In the current business process, examination of the concept of letters in the second stage is carried out by the general head of eselon 3. To expedite the flow of letter concept checks, other echelon 3 officials can be proposed to replace the role of kabag umum as reviewer of concept letter
3. Upgrading

   Knowledge enhacement of electronic mail service technology (e-mail) can help in solving problems in document checking by kabag umum when outside the city. Kabag umum can still check the document by utilizing an email service as a medium for sending documents over the internet. The concept letter can be accessed and inspected by the kabag umum without having to be in the office.
4. Automation and/or mechanization

   The use of information technology can be proposed in the form of information systems for electronic files management. This information system is used to store documents electronically and at the same time can be used as a media for checking and validating the concept letters using digital signatures. This information system can provide convenience in overcoming the problem of distance that allows the concept of letters examined by actors who are outside the office. In addition, the existence of an electronic document storage function can provide convenience for document archiving activities for XYZ institutions.

5 Conclusion

The BPM framework used as a reference in improving business processes in this study shows that the concept of BPM can be used by government organizations to execute business processes improvements. BPM can be used to explore the problems that occur in the organization's business processes and provide solutions that are possible to implement as shown in the application of BPM concept in the XYZ institution.

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