Business Process Improvement (BPI) with Enterprise Resource Planning (ERP) Financial & Control (FICO) and Procurement Modules Using SAP S/4 HANA to Handle Non-Banking Processes in Case Study: PT Bank Mantap

Sasmito Budi Utomo*, Eka Widya Yuliani, and Nita Wulandari
Department of Informatics Management, Politeknik Manufaktur Astra, Jakarta 14330, Indonesia
*Corresponding Author
E-mail: sasmibu@gmail.com

Abstract. PT Bank Mantap is a private bank that manages pension funds in Indonesia. Currently, banking and non-banking process are handled by the Core Banking application. However, in the non-banking process, it is just limited in making a journal, the other non-banking processes are still done manually, so it takes a long time. This is causes various problem, such as the results of calculation of transaction data are less accurate, the process of making journals takes a long time, information between Finance and Procurement department is not integrated and the purchase request form is not standardized. From those problems, PT Bank Mantap has difficulty analyzing its financial data. Therefore, PT Bank Mantap conducts Business Process Improvement (BPI) by improving existing business processes by implementing Enterprise Resource Planning (ERP) Finance & Controlling (FICO) and Procurement modules using SAP S/4 HANA. It is the latest generation of the business suite from SAP that can help customers to simplify the company business process in an integrated environment. The results of this implementation can solve the problems encountered in which business processes become more effective, integrated, and the calculation results of transaction data become more accurate.

Keywords— BPI, ERP, FICO, Procurement, SAP S/4 HANA, business suite

1. Introduction

1.1. Background
Enterprise Resource Planning (ERP) system is an integrated information system that is used to support business processes and resource management within an organization [1]. According to AMR Research, ERP system sales increased dramatically in 2004 reached 23.6 billion dollars [2]. Market growth rate remained stable in 2005, and the end of 2009 the ERP software sales reached 24.5 billion dollars. One of the leading ERP vendors is System Application and Products in Data Processing (SAP). According to the official SAP website [3], for 46 years since it was founded, SAP users have reached 404,000 companies spread throughout the world.
PT Bank Mantap is a private bank that manages pension funds and MSMEs in Indonesia [4]. As a financial institution, data processing and decision making must be done accurately and in real-time. Currently, MANTAP bank has a Core Banking application to manage banking and non-banking transactions. In banking transactions, all transaction needs such as credit, current accounts, deposits, interest income, and interest expenses can be handled by the Core Banking application.

However, non-banking transactions handled by the Core Banking application are limited to journal making. Other non-banking processes are still carried out manually so that it takes a long time, which causes several problems. The first problem is the results of the calculation of transaction data are less accurate because the calculation process is done manually using a spreadsheet. The second problem is the length of the journal making process. Based on the results of interviews with clients, the journaling process takes 5 minutes. The third problem is that the information between the Finance and Procurement sections is not integrated. This causes differences in information between the two parts so that it requires adjusting information. In addition, it takes quite a long time to distribute purchase information from the Procurement department to Finance because it is sent by electronic mail. The fourth problem is that the purchase request form is not standardized which results in the admin having to reconfirm the form sent by the office making the purchase request. According to client information, this process takes 10 minutes.

1.2. Related Studies
Before this study was conducted, there were many studies that discussed solutions to problems contained in the process in the field of Finance and Procurement. One of them was carried out by Konstantinos Metaxiotis and Konstantinos Liagkouras entitled The Current State of ERP in the Banking Sector [5]. The study has discussed ERP implementation in the banking sector which has made business processes more efficient. Then, the study conducted by Carolin with the title ERP Usage in Banking which has discussed the implementation of Business Process Improvement (BPI) [6] uses ERP in non-banking activities to support organizational effectiveness [7]. Other a study also conducted by Irshad Ahmad and Salman Azhar entitled Implementation of ERP Systems in the Construction Industry which has discussed ERP implementation as a solution to problems related to information integration and improving decision-making abilities [8].

Based on the above studies, a solution is found by improving business processes (BPI) supported by ERP products, one of which is SAP [9]. BPI is done to improve the accuracy of the transaction data calculation process, speed up processing time, make it easier for users to record purchase requests, adjust information between Finance and Procurement, and reduce wastage. Therefore, choosing how to use BPI by implementing SAP can be used as a solution in dealing with existing problems.

1.3. Formulation of the problem
The problems found in PT Bank Mantap in the Finance and Procurement section are:

a. How do you get rid of the calculation process that is now done manually?
b. How do you minimize the process of keeping a journal?
c. How do you adjust information received between the Finance and Procurement departments?
d. How do you minimize the processing time for the forms used in the procurement process?

Based on the above problem formulation, what is the right way to solve the problems faced at PT Bank Mantap?

Based on references from the results of the study in Section 1.2 and client requests through several interviews, the solution to be taken to solve the problem is by implementing BPI with ERP Finance & Controlling (FICO) and Procurement Modules [10] using SAP S/4 HANA.

1.4. Objective
The purpose of this study is to prove that the implementation of BPI can solve the existing problems faced at PT Bank Mantap.
2. Stages and Methodology

2.1. Stages
The study process is carried out with the following stages:

1. Formulation of the problem.
   This stage has collected data through literature studies and several interviews with clients. Some literature studies are done by studying the theory and previous studies as a reference to solve existing problems [11]. Several interviews were conducted with meetings with related parties to find and add detailed information [12].

2. Research design.
   At this stage, the study objectives and the stages to achieve them were determined.

3. Propose a hypothesis.
   This stage proposed a hypothesis based on the problems formulated and the objectives that had been determined.

4. Make a plan of activities.

5. Perform BPI design
   At this stage, a BPI design was made based on several related studies, which were offered as solutions. It also is carried out by improving activities in existing business processes by implementing the ERP module for FICO and Procurement using SAP S/4 Hana.

6. Testing Results.
   After the BPI is completed, several tests are carried out to prove that the BPI that has been done can be a solution to the existing problems or not.

7. Make conclusions and suggestions.
   Then, the conclusion will be drawn from the test results about whether the BPI that has been done is able to solve the problem or not. If it is not able to be a solution it will be advisable to conduct further studies to obtain the right solution.

2.2. Business Process Improvement (BPI)
Business Process Improvement (BPI) [6] is a systematic methodology developed to assist organizations in making significant progress on how to operate their business processes. BPI provides a system that will help simplify and streamline operations and ensure that the process will produce good results.

In this case study, BPI will be carried out with an ERP system implementation [13]. The ERP system combines planning, reporting and analysis of all bank assets in one process. ERP systems provide a range of services that can be a tool for monitoring all financial accounting transactions in real-time. Based on studies that have been done before, ERP system implementation in the banking sector enables information exchange between divisions to be faster and more efficient as evidenced by an increase in bank income of approximately 3.29% [14].

Based on references from journals and client requests, it can be suggested that the best solution is to implement ERP using SAP S/4 HANA. Therefore, BPI is carried out in the process of calculating transaction data, journalizing, information integration between Finance and Procurement, and the purchasing process. BPI will be carried out with the implementation of the SAP FICO and Procurement system.

The improvement with the FICO process is to change the process of recording transactions and making journals into one SAP process. In this case, BPI will eliminate the calculation process carried out manually and the process of entering the transaction value into the Core Banking application for journal making.

Whereas in the Procurement process, BPI is carried out by creating a standard format for purchase forms and integration by SAP. They will eliminate the process of reconfirmation to the office that sent it. In addition, the integration will eliminate the purchase information notification process carried out by the Procurement section to the Finance section via electronic mail.
2.3. System Implementation Methodology

The steps to do BPI use the 4D method which is a combination of waterfall and scrum methodology. The use of this method is based on the standard methodology used by PT Bank Manta. The steps to conducting BPI use the 4D method which is a combination of the waterfall and scrum methodology. The 4D method consists of 7 stages which are divided into 6 stages of implementation and 1 umbrella activity. The implementation phase consists of the stages of preparation, designation, design, development, construction, to completion, then the monitoring & control phase is called the umbrella activity because it is carried out continuously during the 6 stages of implementation [15]. The concept of the 4D method can be seen in Figure 1. In addition, this method is oriented towards completing a short project (deliverable-oriented) and taking a disciplined approach to project management. Of all the steps in this 4D method, this study only used 2 steps, namely the Design and Develop steps.

![Figure 1. 4D method [15]](image)

The activities carried out in the two steps are as follows:

- **Design**
  In the design phase, documentation will be carried out for the project's technical design and solutions. In addition, this stage will also explain in more detail about the system requirements needed by the customer. Documents produced at this stage, namely Business Blueprint and Environment Specification & Design.

- **Develop**
  At this stage, the development of solutions based on functionality and technical design that has been carried out in the previous stage will be carried out. At this stage application software is also tested and documented. The documents produced at this stage are the User Acceptance Test (UAT) and System Configuration.

3. Discussion and Results

Based on the discussion in Section 2.2, BPI will be carried out with SAP implementation. It will configure SAP with the 4D method. Implementation results will be compared with business processes prior to BPI to see the test results so that solutions can be tested. The study is carried out only at the Design and Develop stage and carried out within a period of 4 months, namely from May to June 2019. The general description that has been defined will be used as a reference at a later stage. Below is an explanation of the design and development stages carried out in research.

3.1. Design

This stage produces Business Blueprint and Environment Specification & Design documents. Business Blueprint explains in detail the business processes that will be carried out. It consists of several parts, namely: business process implementation, enterprise structure, global settings, and detailed
requirements and design. The business process contains the SAP system flow which is implemented and explained in detail based on the needs of the system functions. In the Enterprise Structure, the Company Code, Business Area, Chart of Accounts (CoA), Chart of Depreciation (CoD), Plant, Purchasing Organization, Purchasing Group, and Storage Location (SLoc) are designed. The Global Setting will be designed Document Types, Key Posting, and Value Added Tax. Whereas the Detail Requirement and Design will carry out a detailed design for transaction master data, reports. Detailed master data designs, namely Internal Order, Assets, Materials, and Vendors. Design detailed transactions, namely CAPEX Budget Allocation, Asset Acquisition, Depreciation, Asset Sales, Asset Transfer, Reverse Asset Documents, Asset Retirement, ADP Settlement, Purchase Requisition (PR), Purchase Order (PO), Goods Receipt (GR), Invoice Receipt, and Goods Issue (GI). Then for the detailed design of the report, namely Un-posted Assets, Asset Balances, Budget/Actual/Commitment, Asset Acquisition, Asset Retirement, Asset Data, Materials, and Monitoring Purchasing.

3.2. Develop

This stage produces the System Configuration and User Acceptance Test (UAT) documents. System Configuration represents detailed information about the system configuration that has been done. This document is based on Business Blueprint documents. The configuration can be divided into two modules, namely FICO and Procurement. Each configuration followed its Path or its Tcode. The Configuration System for the FICO module was configured to define Enterprise Structure-Definition, Enterprise Structure-Assignment, Controlling, GL Accounting, and Asset Accounting. For example, the configuration of Enterprise Structure-Definition is done for the Company, Company Code, and Business Area. Table 1 is a configuration and Path/Tcode table in the Enterprise Structure-Definition.

| No. | Configuration       | Path/TCode                                                                 |
|-----|--------------------|-----------------------------------------------------------------------------|
| 1   | Define Company     | SAP Customizing IMG ➔ Enterprise Structure ➔ Definition ➔ Financial Accounting ➔ Define Company |
| 2   | Define Company Code| SAP Customizing IMG ➔ Enterprise Structure ➔ Definition ➔ Financial Accounting ➔ Edit, Copy, Delete, Check Company Code |
| 3   | Define Business Area| SAP Customizing IMG ➔ Enterprise Structure ➔ Definition ➔ Financial Accounting ➔ Define Business Area (OXO3) |

In the Procurement module, the configuration was grouped into 3 namely Enterprise Structure Definition & Assignment, General Logistics, and Material Management. In the General Logistics section, the grouping is not subdivided. As for material management, the grouping was divided into four parts, namely: Purchasing, Inventory Management & Physical Inventory, Valuation & Account Assignment, and Logistic Invoice Verification. For example, the configuration of Enterprise Structure Definition & Assignment was done to define the Level of Assessment, Installation, Main Storage Location, Maintenance Location for Assets, and Maintenance Purchasing Organization. Table 2 is a configuration and Path/Tcode table in the Procurement module.

| No. | Configuration       | Path/TCode                                                                 |
|-----|--------------------|-----------------------------------------------------------------------------|
| 1   | Define Valuation Level| SAP Customizing IMG ➔ Enterprise Structure ➔ Definition ➔ |
3.3. Testing

After the configuration is complete, then the test scenario is carried out. The test is conducted with the client using the method of running the system based on the business process flow and according to the procedures and test cases on the User Acceptance Test (UAT) document. There are 46 functions tested in the UAT document, which are 4 master data functions, 32 transaction functions, and 10 report functions. However, this paper will only show test simulations with only a few activities taken at random.

From this case study, the study found that the BPI conducted in each process can handle all the problems that occur at PT Bank Mantap. A solution has been made by BPI to focus on implementing the SAP FICO and Procurement system. In addition, to get the best test results there are a number of things that are of concern during the testing process, namely:
1. Determine the scope of the business processes handled,
2. Do a comparison of the processes carried out in the manual and repair,
3. Record the test time on the manual process and repairs,
4. Calculate the time difference in the manual process and repairs, and
5. All of the results are placed in a table (Table 3 and Table 4).

The results of this study are presented in Table 3 which shows the comparison of the time needed in the case of making a journal, recording the purchase request data, purchasing documents release and making a report.

| No. | Activities                        | Estimated Time (Minutes) | Difference Time (Minutes) |
|-----|-----------------------------------|--------------------------|---------------------------|
|     |                                   | Before | After |                     |
| 1   | Journal Making                    | 5      | 1     | 4                     |
| 2   | Recording of Purchase Request Data| 10     | 3     | 7                     |
| 3   | Purchase Document Release         | 960    | 480   | 480                   |
| 4   | Report Making                     | 2      | 0.17  | 1.83                  |
| Total|                                 | 977    | 484.17| 492.83                |

In addition to testing the time, the test cases are also used to test the use of paper before and after the repair process. The results can be seen in Table 4.

| No. | Activities     | Amount of Paper (Sheets) | Difference (sheet) |
|-----|----------------|--------------------------|--------------------|
|     |                | Before | After   |                     |
| 1   | Asset Report   | 2      | 0       | 2                   |
| 2   | Procurement Report | 2      | 0       | 2                   |
| Total|                | 4      | 0       | 4                   |
Seen from tables 3 and 4, the solutions provided can reduce processing time and eliminate paper requirements.

The results obtained from the testing process of the SAP FICO and the Procurement System configurations are as follows:
1. The system provides facilities for automatic transaction calculations that will eliminate errors and make it easier for users to make transactions.
2. The system can reduce the time the journal process is carried out by the Finance department.
3. The system can present real-time information to the Finance and Procurement department.
4. The system can reduce purchase time by standardizing PR and PO forms.

4. Conclusions and Suggestions

4.1. Conclusions
Based on this study, a solution was found that BPI with the ERP implementation of the FICO & Procurement module using SAP S/4 HANA was able to overcome the problems found in PT Bank Mantap.

4.2. Suggestions
Based on the explanation of the study presented in chapter 3, the study was only carried out at the design and developing stages. It is recommended that all stages of the system implementation need to be completed so that the system can be used.

5. References
[1] Hasibuan Z.A. and Dantes, G.R., “Priority of Key Success Factors (KSFS) on Enterprise Resource Planning (ERP) System Implementation Life Cycle”, Journal of Enterprise Resource Planning Studies, 2012: Vol. 2012 (2012), Article ID 122627. IBIMA Publishing.
[2] Hestermann, C., Anderson, R. P., Pang, C. “Magic Quadrant for Midmarket and Tier 2-Oriented ERP for Product-Centric Companies”. Gartner RAS Core Research Note G00163386.
[3] S. SE, “SAP: A 46-year history of success.” [Online]. Available: https://www.sap.com/corporate/en/company/history.2011-present.html#2011-present. [Accessed: 17-Aug-2018].
[4] P. B. M. Taspen, “Sekilas Perusahaan,” 2017. [Online]. Available: https://www.bankmantap.co.id/article/60-Sekilas-perusahaan. [Accessed: 10-Sep-2018].
[5] K. Metaxiotis, “The Current State of ERP Systems in Banking Sector”, International Research Jurnal of Electronics and Computer Engineering, vol. 3, no. 1, pp. 23–26, 2017.
[6] H. J. Harrington, Business Process Improvement. McGraw-Hill Edu, 1991.
[7] C. Fuß, “ERP Usage in Banking: An Exploratory Survey of the World ’ s Largest Banks,” no. March, pp. 1–20, 2007.
[8] I. Ahmad and S. Azhar, “Implementation of Enterprise Resource Planning ( ERP ) Systems in the Construction Industry,” vol. 40671, no. August 2014, pp. 1–9, 2003.
[9] Margaret Rouse, “SAP,” 2018. [Online]. Available: https://searchsap.techtarget.com/definition/SAP. [Accessed: 30-Aug-2018].
[10] S. N. Padhi, SAP ERP Financials, and FICO. USA: David Pallai, 2011.
[11] N. Walliman, RESEARCH METHODS. London: Routledge Taylor & Francis Group, 2011.
[12] C. R. Kothari, Research Methodology: Methods and Techniques, 2nd Editio. New Delhi: New Age International Publisher, 2004.
[13] T. Rogers, “BPI and ERP: Why They Need to Go Together?,” 2015. [Online]. Available: https://ultraconsultants.com/bpi-and-erp-need-go-together/. [Accessed: 13-Sep-2018].
[14] C. V. B. C. Ranganathan, “ERP Investments and the Market Value of Firms : Toward an Understanding of Influential ERP Project Variables,” Information System Research, 2006. [Online]. Available: https://pubsonline.informs.org/doi/abs/10.1287/isre.1060.0084. [Accessed: 30-Aug-2018].
[15] AGIT, “Methodology for technical proposal software package implementation,” pp. 1–67, 2017.
[16] I. Sap and M. S. A. P. Finance, “Business Requirement Definition For ‘ Implementasi SAP S / 4 HANA Untuk Modul SAP Finance & Controlling dan Procurement ,’” pp. 1–28, 2018.