Modelling and Mapping University Business Process Level 2

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Abstract

In an attempt to manage university business process in an integrative manner, we have shown in our previous study that resulted in modelling and mapping university business process level 0 and level 1. This research paper aim to go further in modelling and mapping University Business Process University in Indonesia to level 2. Using SIPOC diagram, ADLI dimension and excellence indicators from the Malcolm Baldrige Criteria for Performance Excellence (MBCfPE), we manage to model and map 51 (fifty-one) processes of level 2 in a simple but inclusive form. This integrated business process result has been possible by utilizing QPR Process design and analyser software. Further study still needed to map and model the process to the next level as necessary so that it will be detail enough to develop Standard Operating Procedures (SOP) that will be ready to connect to dashboard performance management system.

Keywords:
Business Process, Business Process Modelling, Malcolm Baldrige, SIPOC Diagram

Introduction

Business processes have become a dominant and popular topic in various literature (Davenport 1993), but organizational resistance to change is often miscalculated which is the cause of reengineering failures of the program (Davenport, 1965). As a consequence, each time talking about the process, it is always analogies with reengineering and streamlining the organization (Rumler, 2004). Recently, our ability to measure and improve process performance has increased greatly as a result of increased utilization of information systems in the management of processes within the organization. Process management strategy will help organizations optimize benefits from implementing the system.

To learn and understand the business process within an organization, the process needs to be setup according to its hierarchy (Ganesan, 2011). According to the American Productivity Quality Center (APQC) that hierarchy can be seen in the following illustration Figure 1:
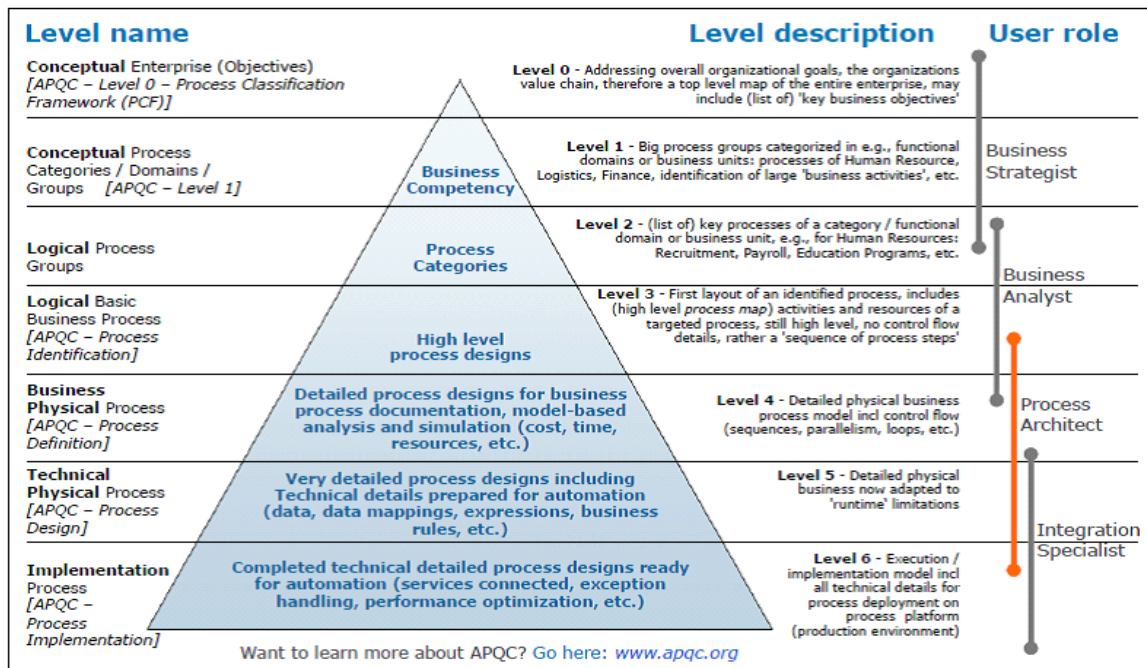

Figure 1. Business process hierarchy (APQC)

The improvement of the corporate processes has long been known as a source of increased operational efficiency. Since 1931 discussions about the process have been widely published in scientific journals (Nordsieck, 1931) and the organizational structure has been linked to process in the early 1960s (Chapple et al, 1961). With the SIPOC concept we continue to map and model University Business Process to level 1 by utilizing the excellent indicator of ECPE. This research will focus on mapping and modelling the as is business process of university level 0 to level 1. The results of this mapping will be continued as the basis of business process mapping for the next level as necessary until the Standard Operating Procedure (SOP) and instructions for work.

The education criteria Malcolm Baldrige Criteria for Performance Excellence (MBCfPE) are used by educational institutes worldwide to impact bottom-line improvements in performance including operational, financial, and market outcomes. The criteria require an organization to assess its improvement efforts, diagnose its overall performance management systems and identify strengths and opportunities for improvement (NIST 2020). The Baldrige criteria is considered a comprehensive means for achieving performance excellence in education. Since the criteria share some common elements with TQM (Alonso-Almeida and Fuentes-Frías 2012; Seetharaman et al. 2006), it is also considered a means for TQM implementation (Bou-Llusar et al. 2009).

Literature Review
Processes are at the heart of the way every business operates, and the greater understanding of what they are, how they function and what impact they have, the better you'll manage your business. This is where Business Process Mapping comes in. Visualizing the processes helps you get a better understanding of how your business functions, as well as your strengths and weaknesses.

Types of Business Process Maps
There are several types of business process maps you can use, each come with their own pros and cons. Here's a brief summary of each…

Process Flowcharts – These are the most common types of business process maps as they most closely resemble what the Gilbreths introduced almost a century ago. They can be hand-drawn or created in software like Office, but the downside of these methods is the lack of flexibility or adaptability. But the simplicity and familiarity have their own appeal too, so flowcharts won't be going away anytime soon.
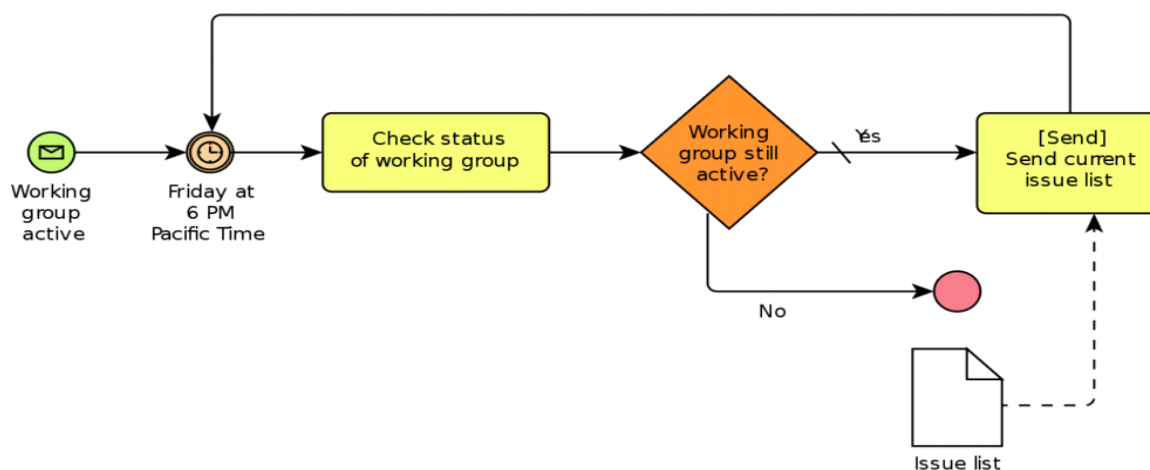
Figure 2. Process Map
Source: Wikimedia

Value stream map – Another alternative to the flowchart, a value stream map is often used in lean six sigma applications and are much less straightforward to analyze at a glance. This makes them potentially more useful for a more in-depth look into a process, but also makes them less commonly used.
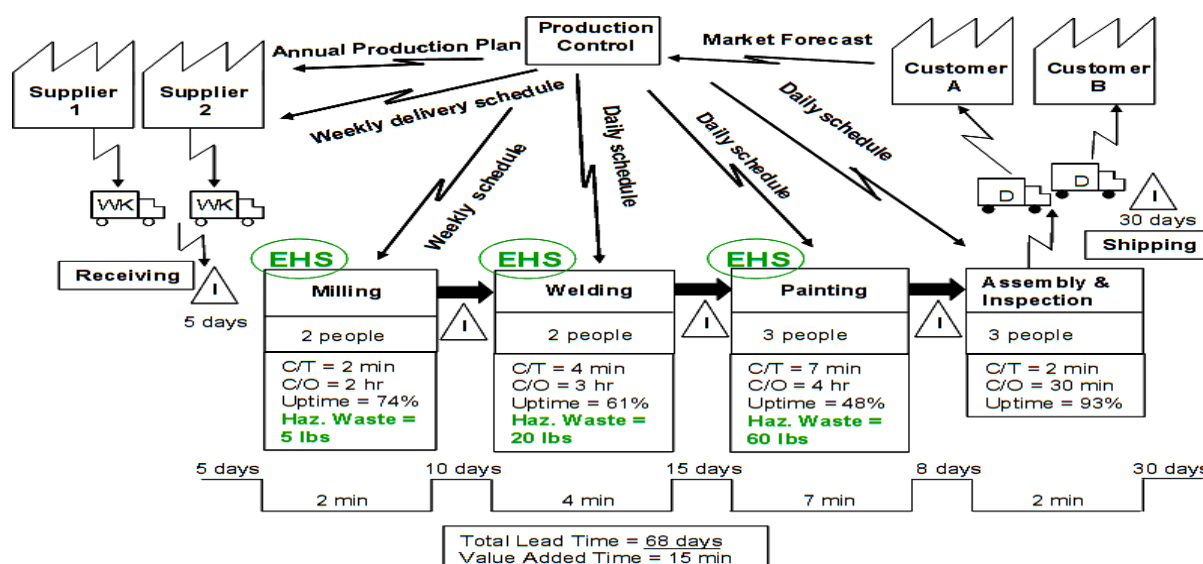

Figure 3. Value Stream Process Map
Source: Wikimedia

Process Modelling levels

Level zero: this very high-level map outlines the operational levels of an organization and are rarely, if ever, actually drawn. Examples include: customer processes, administrative processes.

Level one: shows end-to-end processes across the above operational areas. For example, a level two process for purchasing capital equipment would cross several operational areas: the requesting department, purchasing, accounts payable, asset management, receiving and biomedical/maintenance. Also called top down or high-level process maps. They are quick and easy to draw, but may not provide the detail necessary to build understanding or realize improvements.

Level two: shows the roles, inputs, outputs and steps required to complete a specific process within an operational area. For example, the purchasing process (request, sourcing, cut PO) might be depicted as a process map. Also called cross-functional or deployment diagrams. Usually contain enough information for improvement efforts, but often miss inefficient details and don't function well for training or as operational documentation.

Level three: is the documentation of systems, instructions and procedures required to complete steps in the level three processes and shows inputs, outputs, associated steps and decision points. For example, specific steps necessary to cut a PO in the enterprise application would require a level three process map. The procedures and system instructions can be represented as text, an algorithm or detailed process map. Because of the level of detail, they can be resource-intensive to create, but offer the greatest improvement potential. Since they illustrate decisions and subsequent actions, they are excellent training and reference materials. But if your organization is new to process mapping, use these sparingly. The time and effort may turn stakeholders off before they've had a chance to experience the benefits of the work.

Business and organizational processes can be viewed as two sides of the currency within a company. Although traditionally the company is more represented in the organizational form, it can be said that the reason the establishment of the organization is not to represent the interests of the stakeholder, but rather because to manage the business process to meet customer needs. A key factor in determining the quality of a business process is effectiveness, efficiency, and adaptability. All three are generally known to the success of the company in winning competition. In short it can be said that the effectiveness related to the output of a process, in this case is the accuracy in meeting the needs and expectations. Efficiency relates to savings in resource consumption using appropriate methods. Finally, a process should be prepared to face changes in external and internal factors.

Research Methods

To identify processes, process mapping and process flowcharting are necessary in an organization before improvement of process. Process mapping was done with the help of SIPOC diagram which is a method of identifying and categorizing parts of a process into the Suppliers, Inputs, Process, Outputs, and Customers. Using University Business Process level 0, Figure 4 (Simamora, 2019). we map all the 14 (fourteen) process at level 1. Furthermore, using University Business Process level 1, figure 5, we map 51 processes at level
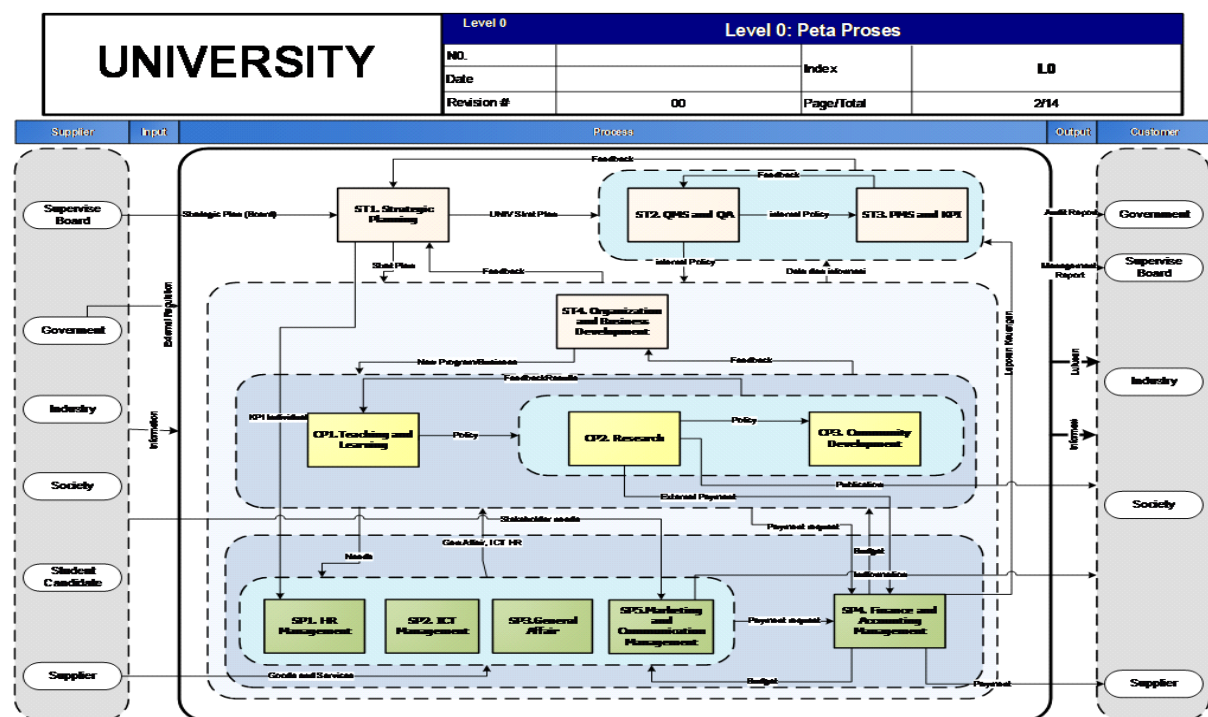

Fig. 4. University Business Process level 0 (Simamora, 2019)

Focus Group Discussion

This process was conducted during the workshop on creating a performance excellence application document based on Baldrige Education Criteria. From this workshop, it can be identified that processes at the University overall are comprehensively explained in 7 (seven) category of MBCfPE.

Interview

This process is done to get more detailed information about the processes. The interview process is conducted by asking directly to the process owner, in the academic Area and Operations and related units at University.
Observation

Direct observation to find out how the flow and interaction between processes to determine what input and output to and from each related process.

Study Documents
To analyze and evaluate the supporting documents needed in the identification and mapping business process, such as Vision and mission of the University, Quality Objectives, organizational structure of University, Job description personnel in every academic and operational area.

Analysis and Results
After data and information related to the existing business process at University are collected, the next step is to conduct analysis of the data and information that has been collected.
This stage of analysis is done in several activities, namely:
Causal analysis
It is the study of the logical relationship between each data, documents and information obtained from each method of data collection that has been done.

By collecting and analyzing data and information and of all information related to the vision, mission, objectives and objectives of the organization, regulations and legislation applicable to the "Tri Darma University", it can be identified process groups as follows:
- The core process consists of the process of education, research and community service.
- The directing process consists of strategic planning, quality management & quality assurance, performance management and KPI as well as organizational and business development.
- The support process consists of HR management, ICT Management, GAL management, financial and accounting management and marketing and public relations management.

Using the SIPOC method for each of the 12 processes at level 0 (fig.5), we obtain 12 (twelve) University Business Process level 1 3 (three) core processes namely the process of Teaching and Learning, Research and Community Service, 4 (four) directing processes namely Strategic Planning, Quality Management & Quality Assurance, Performance Management and KPI as well as Organizational and Business Development and 5 (five) supporting processes namely HR management, ICT Management, General Affair Management, Financial and Accounting Management and Marketing and the Public Relationship Management where some of it depicted below:
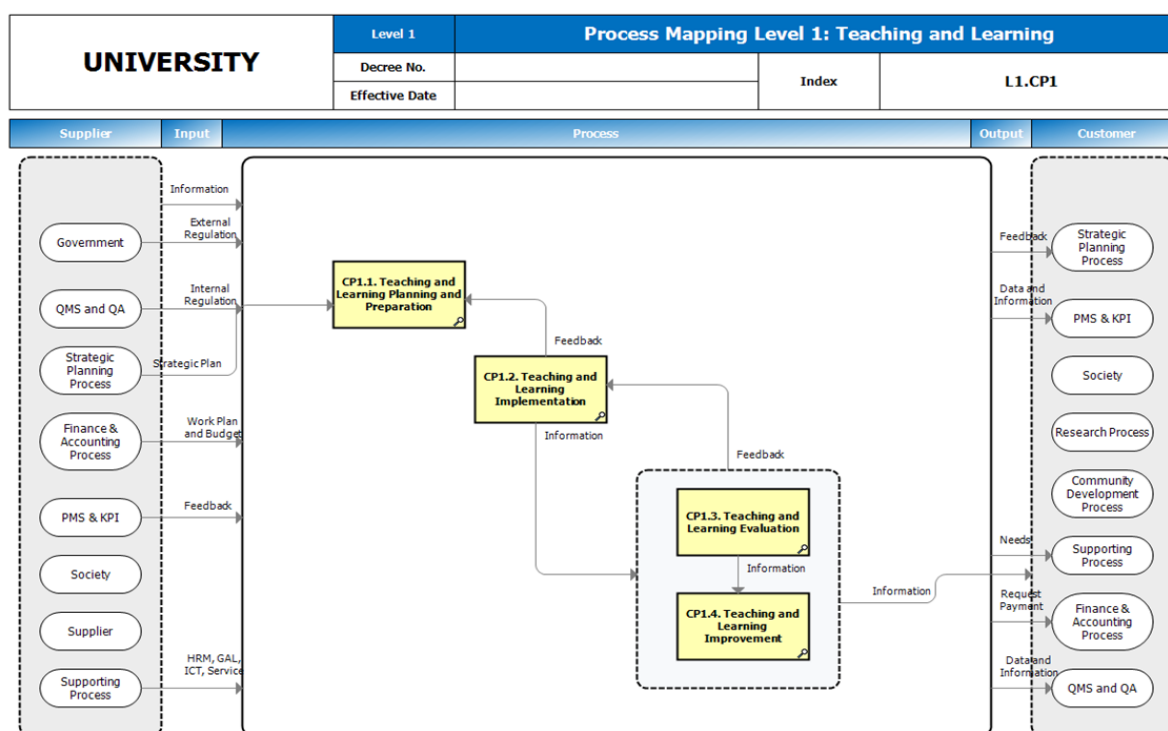

Figure 5. University Business Process level 1 (Simamora, 2020)

Figure 5. is one of 12 (twelve) processes at University Business Processes level 1.
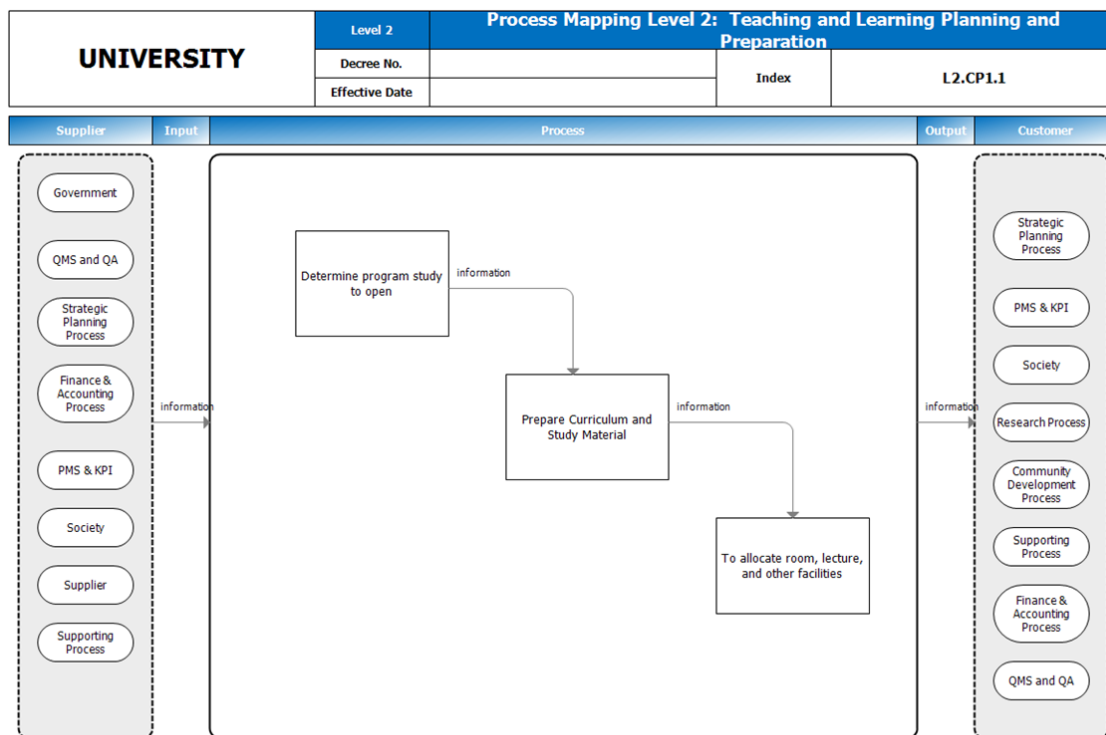

Figure 6. University Business Process level 2

Figure 6. is one of 51 (fifty-one) processes at University Business Processes level 2 that emanating from 12 (twelve) processes at level 1.
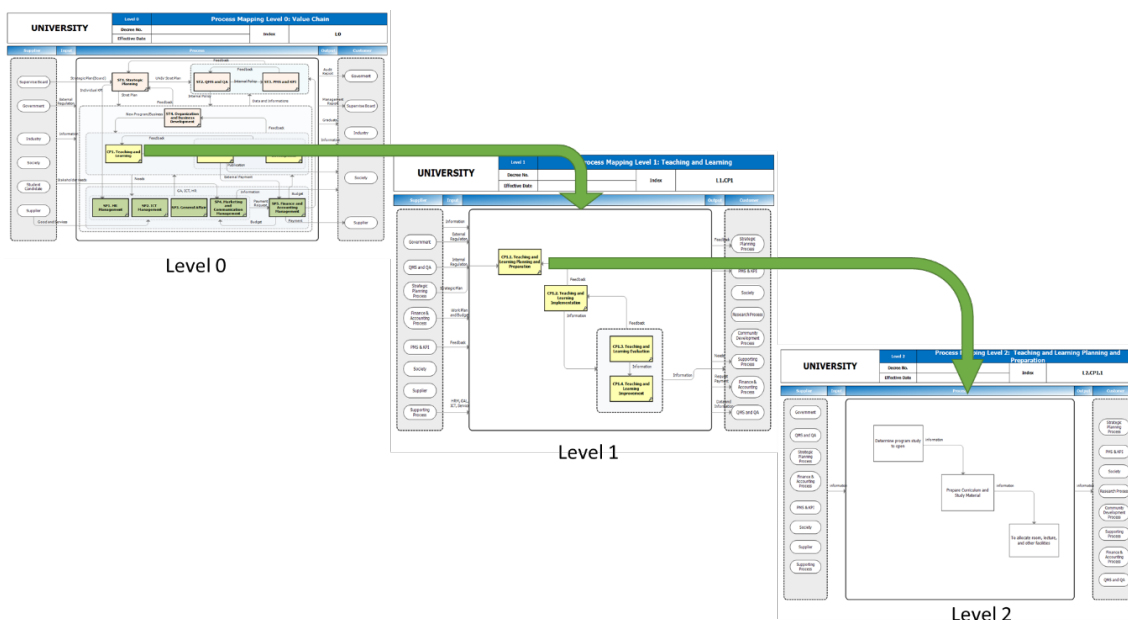

Figure 7. Integrated University Business Process (0,1 and 2)

Figure 7. is screenshot of how the level in process mapping link from level 0 to level 1 and to level 2.

Conclusion and Recommendation

Business process integration for university business process achieved using Porter's Value Chain with SIPOC diagram and key indicators of MBCfPE ADLI approach and QPR Process Analyzer software. There are 12

processes at level 1 emanating from level 0 and 51 process at level 2 emanating from level 1. It is important to know that by mapping and modelling business process integrated, it will help a lot in managing organizational business process that is known to be complex. Further study would be to use metrices in measuring process performance that could help improve measurement system dashboard of the organization.

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Biography

Bachtiar H. Simamora is an Associate Professor, and Leader of Performance Excellence Research Group at Bina Nusantara University, Jakarta, Indonesia. He earned B.S. in Mathematics from North Sumatera University, Medan, Indonesia, Master's in General Operations Research from School of Engineering and Applied Science the George Washington University, Washington DC, USA and PhD in Industrial Engineering and Management from Oklahoma State University Stillwater Oklahoma, USA. He has published journal and conference papers. In 2018, he started new journal named International Journal of Organizational Business Excellence (IJOBEX) where he is the Editor-in-Chief. Dr Simamora has just completed research projects with Asian Productivity Organization (APO) about Public Sector Productivity. His research interests include Business Process Modelling and Mapping, Business Process Improvement, Organizational Performance Excellence, simulation, optimization, reliability, scheduling, and lean. He is member of IPEF, ORSA and ICSB.

Natalia got Master's in management from Bina Nusantara University. Her main research interest is in marketing strategy and consumer behavior mainly in education and tourism context. She has published several international publications and in those area. She is currently working as Academic and Development Assurance of Binus Business School and Lecturer of Global Business Marketing Program of Binus Business School.