

## **CHAPTER 5**

### **IMPLEMENTATION PLAN**

This chapter is divided into two parts, namely people and implementation. This chapter analyse every individual and prepare them before deploying newly created processes and systems for the company. It is necessary to ensure that the project meet the organization strategy and process goals, therefore top executive support is achieved. Once this has been elaborated, an implementation plan can be made. Hence, the company enables to undergo a much more facile transition.

#### **5.1 People Phase**

After so much time and effort spent on analysing and redesigning the current process and structure steps have been addressed, it is time to manage the people change through understanding of existing and future core competencies of the employee at role level.

##### **5.1.1 People Capabilities Gap Analysis**

The people capability matrix separates the knowledge capabilities as core competencies which are mainly used during each of the business process inside the company. The benefits of people capability matrix will be useful for identifying to which extent that the current employee of the company have the ability to face changes within processes and support implementation of BPM with IT based framework.

Changes of the people capability matrix between current and the new one can be seen through the gap analysis, with value ranging from 1-3, some process may require upgrade of the initial value of core capabilities. A deviation in core capabilities value is a result of change in future organization processes. The comparison between current and future people capability matrix can be found on the next pages.

## a. Current People Capability Matrix

Table 5.1 Current People Capability Matrix

Process	Knowledge Capabilities						
	Marketing and Selling Skills	Communication and Negotiation Skills	Data Entry Skills	Coordination Skills	Analytical Skills	Technology and Digital Literacy	General Labour Skills
Marketing initiatives	1	1	3	2	2	2	3
Order Fulfilment	2	2	2	2	3	2	2
Business Development	2	1	3	1	2	2	3
Requisitions	3	2	3	2	2	3	3
Sourcing	3	1	3	2	2	3	3
Import and Customs	3	2	3	1	2	2	2
Stock Transfer and Allocations	3	3	3	1	3	2	1
Inbound Goods Processing	3	2	3	2	3	3	1
Purchase Return	3	2	2	2	3	2	2
Warehousing and Maintenance	3	2	3	1	3	3	1
Outbound Logistics	3	2	3	2	3	3	1
Delivery Order	3	2	2	2	3	3	2
Invoicing	3	2	2	2	3	2	3
Payment Process	3	2	2	2	3	2	3
Customer Services	2	1	2	3	3	3	2
Sales Return and Exchange	2	2	2	2	2	3	2

## b. New People Capability Matrix

Table 5.2 New People Capability Matrix

Process	Knowledge Capabilities						
	Marketing and Selling Skills	Communication and Negotiation Skills	Data Entry Skills	Coordination Skills	Analytical Skills	Technology and Digital Literacy	General Labour Skills
Marketing initiatives	1	1	2	2	2	2	3
Pre-Sales	1	2	2	2	2	1	2
Order Fulfilment	2	2	1	2	2	1	3
Business Development	2	1	3	1	1	1	3
Requisitions	3	2	2	2	2	2	3
Sourcing	3	1	2	2	2	2	3
Import and Customs	3	1	2	1	2	1	2
Stock Transfer and Allocations	3	2	2	1	2	2	2
Inbound Goods Processing	3	2	2	1	2	2	1
Purchase Return	3	2	2	1	2	2	2
Warehousing and Maintenance	3	2	2	1	2	1	1
Inventory Control Warehouse Admin	3	2	2	1	1	1	2
Outbound Logistics	3	2	2	1	2	2	1
Delivery Order	3	2	2	1	2	2	2
Invoicing	3	2	2	2	2	1	3
Payment Process	3	2	2	2	2	1	3
Customer Services	2	1	2	2	2	2	2
Sales Return and Exchange	2	2	2	2	2	2	2

### c. PCM Gap Analysis

People development is needed to deal with changes in business process as seen in the gap analysis result of PCM. Through reengineering of the business process, the technology literacy, data entry, and analytical capabilities are expected to increase as documentation and reporting regarding to transaction will be made automatically using keyed data into the new system. While some manual processes are omitted and changed into more accurate computerization, the manual labour is significantly reduced, e.g., sourcing process are faster since canvassing of RFQs is derived directly from the lead principals through uploaded quotations in the web-form, no need to reprint and send out approvals to division manager using manual paper documents.

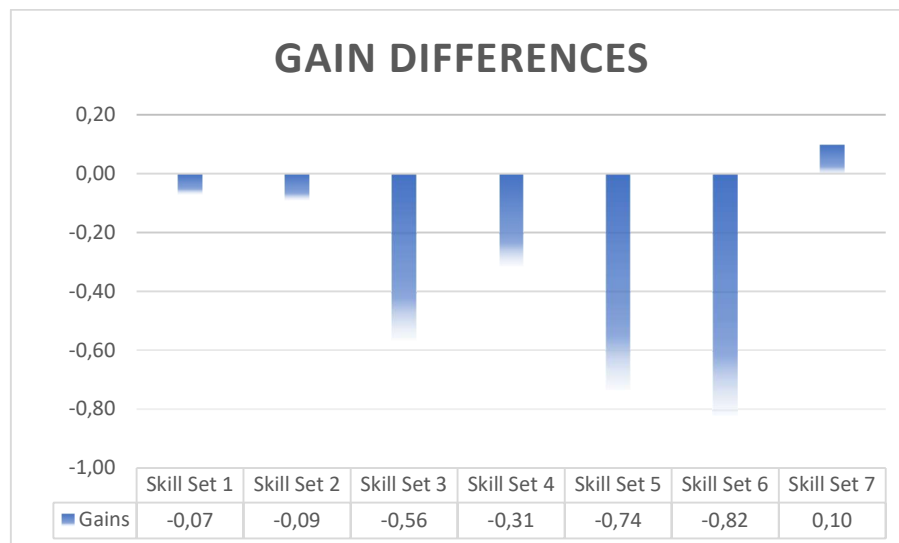


Figure 5.1. Gap Analysis Point in Gain Differences

To understand the PCM gap analysis better: the required skill for the company is scaled into 3 value rating from 1 to 3. Core competencies assessment is used by this rating where value 1 is a mandatory skill, value 2 is essential below mandatory, value 3 is not necessary but desirable. The gap analysis counts the average total expected competencies of the current and future people capability matrix. Finally, both data is compared to show changes in newly proposed process, whereby with the new information system development, employee is required to obtain portion of new skill value.

The chart above shows that the skill sets (excluding skill-set 7) have been progressed into more demanding attribute. As the BPM implementation requires information technology, the employee is demanded to understand and able to use

new technology, particularly in the warehouse, in order to confidently support the new systems. This is shown in skill set 3, 5 and 6 which have above 0.5-point change in average score. Those skill sets are the data entry skill, analytical and technology literacy, in which contribute as the core competencies of the people change in BPM.

Table 5.3 Detailed Changes in Core Competencies

Process	Data Entry Skills	Skill Set 3 Diff.	Analytical Skills	Skill Set 5 Diff.	Technology and Digital Literacy	Skill Set 6 Diff.	General Labour Skills	Skill Set 7 Diff.
Marketing initiatives	3	Change of: 1	2	Remain	2	Remain	3	Remain
Pre-Sales	0	Change of: -2	0	Change of: -2	0	Change of: -1	0	Change of: -2
Order Fulfilment	2	Change of: 1	3	Change of: 1	2	Change of: 1	2	Change of: -1
Business Development	3	Remain	2	Change of: 1	2	Change of: 1	3	Remain
Requisitions	3	Change of: 1	2	Remain	3	Change of: 1	3	Remain
Sourcing	3	Change of: 1	2	Remain	3	Change of: 1	3	Remain
Import and Customs	3	Change of: 1	2	Remain	2	Change of: 1	2	Remain
Stock Transfer and Allocations	3	Change of: 1	3	Change of: 1	2	Remain	1	Change of: -1
Inbound Goods Processing	3	Change of: 1	3	Change of: 1	3	Change of: 1	1	Remain
Purchase Return	2	Remain	3	Change of: 1	2	Remain	2	Remain
Warehousing and Maintenance	3	Change of: 1	3	Change of: 1	3	Change of: 2	1	Remain
Inventory Control	0	Change of: -2	0	Change of: -1	0	Change of: -1	0	Change of: -2
Outbound	3	Change of: 1	3	Change of: 1	3	Change of: 1	1	Remain
Delivery Order	2	Remain	3	Change of: 1	3	Change of: 1	2	Remain
Issue Invoice	2	Remain	3	Change of: 1	2	Change of: 1	3	Remain
Payment Process	2	Remain	3	Change of: 1	2	Change of: 1	3	Remain
Customer	2	Remain	3	Change of: 1	2	Remain	2	Remain
Sales Return and Exchange	2	Remain	2	Remain	2	Remain	2	Remain

The table above shows filtered list of changes in the core competencies requirement for to-be processes, specifically for the value rating changes greater than 0.5. It can be seen through the “skill set diff.” columns that there are several differences in value rating between the old and new processes for the capability requirement.

The cell formula on the table is = “Old – New”. A minus points in difference means the old process has greater requirement than the new one, whereas the plus point means that the old process has lower requirement than the new one. This make up the chart previously.

### 5.1.2 RACI

This part explains RACI as a matter of constructing a redesigned role structure as an important guide in applying actual separation of duties in PT Kusuma Kemindo Sentosa.

Table 5.4 RACI Matrix

RACI MATRIX / Activity	Business Units							
	Marketing	Sales/Comm	Inventory Control	Purchasing and Import	Warehouse	Finance and Accounting	General Manager	BOD
Manage Customer	A	R						
Request (new) Products	C	R/A	I				C	I
Manage products		C	R/A	C			I	
Send Email to Customer	C	R/A						I
Manage Cust. Inquiry		R/A						
Manage Quotations		R/A						
Approve Sales Order		R	C				A	I
Review Stock Availability		R	A		C		C	I
Manage Sales Order		R/A					C	I
Create and Allow Backorder		R	C				A	I
Track Order Shipment		R/A			C			
Create Product Request List		R/A	I					

RACI MATRIX / Activity	Business Units							
	Marketing	Sales/Comm	Inventory Control	Purchasing and Import	Warehouse	Finance and Accounting	General Manager	BOD
Overview Pre-Invoice (SO Approval)		A				R	C	I
Manage Delivery Order		C			R	A		I
Create Packing List		I			R/A			
Process Billing to AR						R/A	C	I
Create Goods Return		I			R/A	C	C	I
Handle Product Delivery		I	C		R/A			I
Handle Picking and RFID scan					R/A			
Create Inbound GR				C	R/A			
Goods checking and RFID scan			C	A	R		I	I
Finish Delivery Order				I	R/A			
Analyze Report/Department		R	I				A	I
Analyse Inv. Valuation			R/A		C		I	I
Review Inv. On Hand			R		A		I	I

/ Activity	Business Units							
	Marketing	Sales/Comm	Inventory Control	Purchasing and Import	Warehouse	Finance and Accounting	General Manager	BOD
Manage Forecasting Check			R/A	C			I	I
Manage Stock Taking			A		R		I	I
Approve Product Request		I	R/A				C	
Manage Requisition Worksheet				R/A				
Manage Supplier/Principals		C		R/A				
Create and Spread RFQ(s)				R/A				
Supplier Quotation Canvassing				R		C		
Create Purchase Order		C		R/A			I	I
Approve Purchase Order				R		C	A	I
Manage Original Import Docs				R/A				
Upload Letter of Credits				R/A				
Analyse Mgmt. Report		C	C			C	R/A	I



### **5.1.3 Human Resource Development**

An improvement in PT Kusuma Kemindo Sentosa's human capital skill is a must, that one may be able to fully adapt new business process with new technology implementation. Employee's willingness and constant feedbacks are needed to adjust business needs, ensuring successful implementation of upcoming technology, so that everyone can work efficiently in new environment.

1. What? - Concerning that the new system will adopt customized settings, a creation of new project development team is required for the system implementation can be performed completely. Also, a revamp in business means a shift in employees' paradigm and work procedures. Hence, in-house training program is necessarily brought to in several stages so that the employees can work under the proposed business process.
2. How? - The on-the-job training will be delivered by presentation, employees will be briefed step by step of to-be process through socialization, simulation, and self-study by reading work instruction and standard procedures of the new systems.
  - a. Identify activities and roadmaps - Stakeholders involved in developing training session are the project manager, system developers, division heads and HR team will plan weekly training session as interval training.
  - b. Create and conduct employee training development program - Hiring a specific certified mentor to teach the employees about the new system can be taken to consideration.
  - c. Feedback analysis from the users - constant feedback from the employee to adjust to their needs that will eventually create continuous system updates.

## **5.2 Implementation Phase**

This section elaborates estimate project scope that will be refined as the project requirements are more completely defined throughout the PT Kusuma Kemindo Sentosa process and agreed upon by project team.

### **5.2.1 Implementation Requirements (Software Specs)**

This section recommends technology requirements for the best use of the system. Technology requirement explains about all kinds of technology needed to ensure acceleration of process performance performed by every employee in the

company. Through the assessment that has been done, initial system can be developed further in PHP, JS (jQuery-JSON) and SQL. Yet, measuring the hardware availability of current systems, the need of proper upgrade in hardware security and specification is very reasonable. Hence, preparation of network stability is important, considering the to-be process would require solid integration between web-based inventory system and hardware scanners.

A suggested strategy: procuring hardware and software that the company be able to do corporate contract with official technology reseller to be offered with optimal hardware in bulk with best price. This could reserve capital cost and presumably also afford easier future after-service. Therefore, a list of technology requirement of hardware and software in minimum conditions are listed in detail in table below:

Table 5.5 Minimum Hardware and Software Recommendation

Item Type	Specs	Use
Laptop (user and client)	<p>Software:</p> <ul style="list-style-type: none"> <li>d. Microsoft Windows 10 (64-bit version recommended)</li> <li>e. macOS</li> <li>f. All other OS that supports webGUI</li> </ul> <p>Hardware:</p> <ul style="list-style-type: none"> <li>a. <b>Processor</b> - Intel Core i3</li> <li>b. <b>RAM</b>: 4GB DDR4 at minimum to run multitask web-app</li> <li>c. <b>VGA</b>: any integrated graphic card (IGPs)</li> <li>d. <b>Storage</b>: 128GB SSD preferable (although this system does not require installing, a capacity of &gt;1 GB is needed to save browser cache)</li> <li>e. <b>Connectivity</b>: Wi-Fi 5/6, Bluetooth® 5.2</li> </ul>	<p>PC requirements to run web-application of inventory management systems to do complete CRUD activities in business process dealing with transaction and business decisions.</p>

Item Type	Specs	Use
	Suggested device, ThinkBook14s	
Mobile Device – Tablet	Software: iPadOS Hardware: a. Connectivity: Wi-Fi 802.11 a/b/g/n, 3G/4G/, Bluetooth® 4.0 b. 3D Camera (recommended to for faster pallet measurement). Suggested device, iPad 6 <sup>th</sup> Generation	Versatile and portable device for warehouse and logistics; access the mobile app and connects to handheld readers to support new policy of item receiving and delivering in paperless forms.
RFID Tags	UHF RFID TAG 860-960mhz in coated paper (passive tags, read/write). Protocol: EPCglobal C1	RFID tags will be attached to the existing collection of items, the RFID tag contains primary key in product table in the database.
RFID Reader	Handheld Reader: Bluetooth UHF RFID Reader. Zebra RFD 8500	Read tags/barcodes of incoming goods and picking process for order fulfilment. Connect to mobile app
GPS tracker	Software: Foxlogger Hardware: Foxlogger FL-212	Sync data using API service between internal enterprise systems and 3 <sup>rd</sup> party tracker.
App Server and Storage server	Software: a. <b>OS</b> - Microsoft Windows b. <b>APP</b> -XAMPP, Apache, MySQL Connector ODBC c. <b>DBMS</b> – MySQL	Current office server serves only as a file server. This server can be used as a base for inventory system web

Item Type	Specs	Use
	<p>d. <b>IDE</b> – Netbeans</p> <p>Hardware:</p> <p>a. <b>Processor</b> - Intel Xeon 4208 (Scalable)</p> <p>b. <b>RAM</b> - 16 GB DDR4</p> <p>c. <b>Storage</b> - SSD 512 GB</p>	<p>server, it also stores the source code replication to do maintenance and incremental dev. The data stored using SQL script in MariaDB</p>
VPS (with considerations)	<p>Amazon EC2 for Microsoft Windows (2012 r2) with SQL Web.</p> <p>Hardware specifications may follow as it is on the server now.</p> <p>On general purpose:</p> <p>Instance - m5d.4xlarge:</p> <p>a. Processor - vCPU 8 core (s) Intel Xeon® Platinum</p> <p>b. Memory - 128 GiB</p> <p>c. Instance Storage - 2x600 GB NVME SSD</p> <p>d. Amazon SDK</p>	<p>Cloud hosting storage VPS supplies the needs for data replication and analysis by launching instances to set-up web server in VM without complex setups.</p>

### 5.2.2 Implementation Strategy

An approach of parallel implementation is chosen because it is currently the best way for the company to cope with the current situation where people adaption of the new system is needed. During the parallel implementation, result of business processes are recorded simultaneously by manual and new system. This can help to analyse the accuracy and quality of the systems by doing data validation alongside user testing later.

The company will slowly implement the new system to replace the old one while still maintaining some activities for several old processes. This way, a gradual change in business process with more computerized platform from old processes will be more lenient to the user/employee, in which the employee will have time to be accustomed to the latest system. Hence, a continuous improvement of the system based

on the to-be process can be tailored to not only to business requirement but explicitly for the sake of meeting user's requirement along the way.

### **5.2.3 Project Structure and Resource Plan**

The following project structure estimate the phase and deliverables, as seen on the table (5.6). Also, members of project organization team are:

1. Project Manager – ensure the project operates according to the plan in an accepted deadline and budget. Project manager also ensure that all the project team and key user give full support to the project.
2. Business Analyst – key player that works with the key user to decide business requirements and direct it to the system. Business analyst will also work as functional consultant to help key user helps to prepare design, configuration set-up and technical specs to develop the system. The business analyst is responsible to assess business process, create effective and efficient solutions for business transformation in the new systems.
3. Business Users – all head divisions or managers that will have deeper knowledge understanding for the new to-be business process. Business users will work with the business analyst to determine the area subject, system validation, and support Go-Live implementation with end-user training.
4. Technical Lead and Staff – configure and develop technical part of the web systems, mobile application, network structure, and its integration up to the hardware requirements. This team consist of new-front and back-end programmers with skills also in web and mobile development.

New IT position in the new organization structure is added as an IT program development which consist of the PM, BA and programmers to support internal business development at this current state. IT team is suggested to have these members organized by the project manager under current senior general manager. The business analyst and senior programmer is under project manager managing couple of system development such as the web application of procurement, inventory and integration of current EDRS system environment led by the IT dev-ops teams.

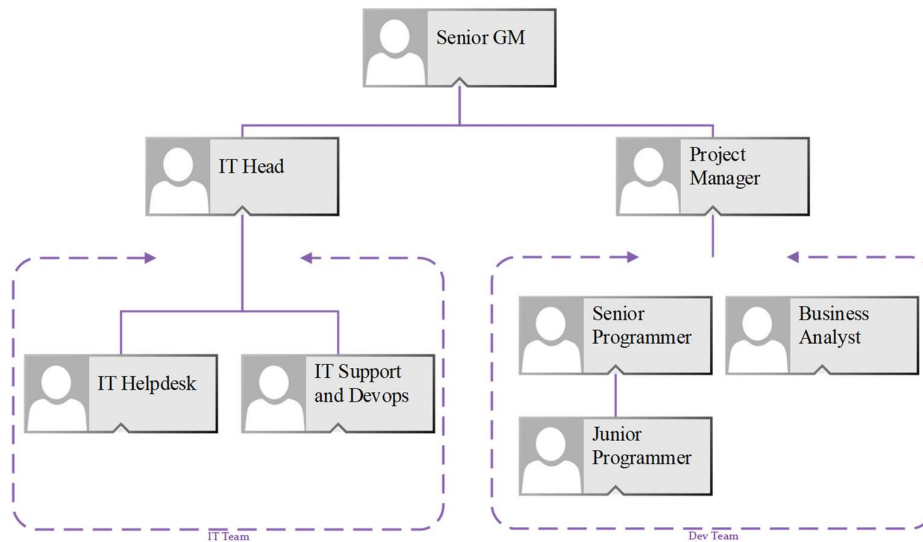


Figure 5.2. IT Position Within Organization Structure

Table 5.6 Project Structure (in Agile – Sprint)

Phase	Deliverables	Man-Days
Project Definition and Planning	<ol style="list-style-type: none"> <li>1. Business Assessment (Key Processes and Requirements Document)</li> <li>2. Gap Analysis</li> <li>3. Interface Design</li> <li>4. Resource Preparation</li> </ol>	50
<i>Sprint Per-Phase</i>		
Project Launch & Execution	<ol style="list-style-type: none"> <li>1. Master Data Preparation</li> <li>2. Web Application: Order Fulfilment Dev, Procurement Dev, Inventory Control Dev.</li> <li>3. Mobile Application and RFID integration Dev,</li> </ol>	35-56 Days
Project Performance and control	<ol style="list-style-type: none"> <li>1. SUS for Interface Design</li> <li>2. Prepare Test Environment</li> <li>3. Bug Test and Fix (Developer)</li> <li>4. UAT</li> <li>5. Deployment</li> </ol>	14-21 Days

Phase	Deliverables	Man-Days
Full Go-Live	<ol style="list-style-type: none"> <li data-bbox="630 289 829 321">1. User training</li> <li data-bbox="630 338 1192 369">2. Administrator environment and monitoring</li> <li data-bbox="630 386 980 417">3. Project completion notice</li> </ol>	<p data-bbox="1295 289 1331 321">49</p> <p data-bbox="1279 338 1347 369">Days</p>

#### 5.2.4 Initial Projected Time Frame

Timeline of the proposed project in 9 months of development as shown on the figure below, is divided into 3 stages; assessment, development, and value realization.

According to the project timeline, assessment and early development is achieved with the completion of this BPR stages. This contributes as earlier stages with 6 months of assessment to business process reengineering. The next part is realization of actual development in which the proposed business process, system design, and management plan including people and implementation plan is already outlined in this BPR project scope.

Certainly, after a lot of discussions to the company expertise and executives, top management support and approval policies was attained in discretion as a condition to organise actual project planning. The following figure (5.2) on the next page is a time span of implementation project for 1 entity which is PT KKS. The planned timeline is made in agile framework that depends on current resources assumptions and circumstances. In total, approximately a minimum of 1.3-1.5 years is needed to complete the BPR and new technology development for PT Kusuma Kemindo Sentosa.

