CONCEPTUAL MODEL OF BUSINESS PROCESS RE-ENGINEERING: A CASE STUDY OF A CARGO COMPANY IN MALAYSIA

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ABSTRACT
Faced with the growth of business enterprises as well as consideration of the increasing competition in freight business to Indonesia, MS Company realizes that the company’s business process needs changes to effectively and efficiently support the decision making process as well as to increase the competitiveness of the business and the company. Business process re-engineering (BPR) is not just the program of business process improvement, but more than that, it can improve the operations of the business process as a whole. Improvement priorities of the company are on the improvement in the operation division which includes the administration, customer service and operations. Improvement of the system is done by changing the system from being manually run into a computerized system that runs with an emphasis on the achievement of improvements in the effectiveness of the speed of processing time, cost efficiency and human resources as well as an increase in level of customer service. Change of the system and program on MS Company were conducted by implementing four main phases: 1) Building vision and objective, 2) Identification of existing process, 3) Identifying process improvements, and 4) Building of a prototype. This paper explains the phases in more detail and presents the conceptual model for MS Company’s BPR model.

KEYWORDS
Business process reengineering, Conceptual model, SME.

1 INTRODUCTION
Nowadays the business environment has become so fiercely competitive that it needs strong relationships between the customers and leading production, manufacturing, and service companies. Unfortunately, many such companies are still experiencing various problems for their competitiveness in the world market and fulfilling customers’ demands. This phenomenon occurs because of several reasons. The first reason is when the companies are not well prepared to face rapidly changing technologies and the high pace of product development. The second reason arises when companies cannot control resource utilization, inventory level, and system performance. The third reason is that error rates of customer order fulfillment are high and their inquiries are ignored for long time. These management problems can lead to high turnover of the staff and loss of money. It can be observed that this critical situation threatens the survival of the companies despite restructuring and downsizing. It reflects the fact that the traditional methodology of improvement programs, such as restructuring,
downsizing, rationalization, and automation, have not been able to solve the system performance problems in the companies concerned.

According [1] stated that the main objective of business process re-engineering (BPR) is to radically redesign business organizations to achieve dramatic improvements in order to make more efficient business processes, improve quality and shorten the time for making decisions. According to [2] business process re-engineering is defined as a radical re-design of processes in order to gain significant improvements in cost, quality, and service. Firms have been re-engineering various business functions for years, ranging from customer relationship management to order fulfillment, and from assembly lines to logistics.

Why do we need to do re-engineering? Some argue that the purpose of business process re-engineering is to make all processes within the organization to be the best in its class [3]. According to Andrews and [4] the purposes of business process re-engineering, as mentioned by [5], are to:

1. Enhance the organization's ability to produce a particular good or service and maintain mass production.
2. Improve satisfaction with the goods or services so that customers will choose the goods or services over competitors'.
3. Make it easier and enjoyable for customers to do business with the company.
4. Decide organizational boundaries, bringing customers to channel information through communication, networking and computer technology.
5. Speed up response time to customers, eliminate errors and dissatisfaction, and reduce the development of goods or services in factory cycle time.
6. Raise customer demand for more processing and increasing the volume of each customer and to determine the price of "value-driven" to the customer without reducing profitability.
7. Improve the quality of work and the individual's ability to contribute to the company.
8. Improve the usability of knowledge sharing and organization so the organization does not depend on the expertise of several people.

BPR could also be at risk when a large enterprise acquires small fast-growing companies to power its own growth engine [6]. Integration of business processes across disparate organizations with different cultures requires careful planning and involves process automation, globalization, system selection, downsizing, and information security. It is important to streamline and automate processes in order to improve efficiency and reduce operating cycle times. According to [6] ideally, during re-engineering, processes should be built from scratch based on evolving business needs, changing market conditions, as well as innovations in technology. This helps avoid disruption of organizational operations and allows for more flexible time constraints during implementation. Several compromises must be made during this redesign. This paper presents a framework for BPR using a structured analytic approach to make business decisions.

2 LITERATURE REVIEW

2.1 Business Process Engineering in the face of competition

BPR is known as a way to achieve competitive advantage in business. This approach was experienced by Wrigley, an American company, to re-engineer their IT infrastructure. This company made the improvements in boarding arrangements, customer service, and productivity. By implementing the BPR, the company managed to achieve the advantages of Wrigley's
competitiveness. This has been proved by the fact that an excess of competitiveness in boarding, handling customer service, qualities and productivity achieved a minimum low score [7].

2.2 An airline's cargo handling process

A previous project involving airline cargo at an international airport was studied and reviewed. The company was improved by taking up a BPR technique with a view to achieve the following objectives:

1. To improve the cargo services;
2. To shift to the automatic or semi-automatic system from the manual system if it exists;
3. To re-think on adopting modern or updated concepts and methods of air cargo handling processes used in freight services;
4. To reduce clerical assignments as much as possible;
5. To re-design and develop elective methods to exchange required information and data as fast as possible;
6. To reduce total time taken for completing export shipment operations starting from the truck unloading point on the ground to loading into the aircraft.

There are several ways to improve processes and make them better, faster and cheaper. Efforts to improve processes must be fact-based. It means process improvements should be based on systematic observation and collection of quantitative data which will allow first a focus on major problems and then on steps taken to eliminate waste. In other words, a standard method is needed to identify the areas that need to be broken, reduced and “fixed-refixed. A seven-step process improvement can be summarized as follows: 1) Definition of process boundary, 2) Observation of process steps, 3) Collection of process-related data, 4) Analysis of collected data, 5) Identification of improvement area, 6) Development of improvements and 7) Implementation and monitoring of improvements [8].

2.3 The Distribution Theory of Innovation in BPR

This study presents a case study at the University of Turku which describes the process re-engineering human resource management related to organizing the teaching and other duties in the Applied Science Degree Program at the University of Turku using the diffusion of innovation theory [9]. It also uses a three-phase re-engineering process, starting with the natural process and end process re-engineering.

2.4 Workflow Management Technology for Business Process Re-engineering

American companies and government agencies alike are striving to improve, streamline, and automate their business practices to adjust to the rigorous demands of a highly volatile marketplace, austere financial resources and manpower reductions. Research was conducted by using workflow data gathered from the Port Hueneme Division of the Naval Surface Warfare Center (PHD NSWC). The proposed methodology consists of five phases and 32 component steps with associated data collection forms. The purpose of this research was to conduct a thorough study into structured methodologies available for enabling business process re-engineering (BPR) through the use of workflow management automation. The proposed Workflow Re-engineering Methodology promises to be a methodology that can be used with supporting workflow automation to improve an organization's business processes. Using this methodology, the researcher could achieve the following: Increased Productivity, heightened Competitive Advantage, Reduced Costs, Increased Communications, Improved Process Control, Reduced Manpower, and Support for Process Re-engineering [10].
The methodology used in the above research by Bitzer was not applicable to all domains and predicted size. Of 32 steps, there are only 19 steps which are appropriate for small and medium enterprises in particular for MS Cargo. This step will be explained in the next section.

3 RESEARCH APPROACH

This research was conducted based on the methodology used by [11], [9], [12]. The methodologies mentioned from the previous researchers above are summarized into four main phases as follows:

- Phase 1: Building of vision and objective
- Phase 2: Identification of existing process
- Phase 3: Identification of process improvements
- Phase 4: Building of prototype

For each phase there are steps and associated activities that can be referred to in Figure 1.

3.1 RESEARCH APPROACH

3.1.1 Phase 1: Building of Vision and Objective

In this phase, a need for improvement in the way business operations is identified and recognized. The business cycles of the organization are identified, and a vision for the organization’s future is established. The project environment is defined and a business

Figure 1. Workflow Re-engineering Methodology

4 CASE STUDY

This research was carried out in a case study which involved a cargo company in Malaysia (which will be named as MS Company). MS Company is engaged in serving delivery of goods from Malaysia to Indonesia. This company was established in 2001 with the motto "Your Package Our Responsibility". It is operated and supported by several sections involving the treasury, customer service, operation, administration, marketing, human resource, warehouse and information technology divisions. These various divisions have to work together collaboratively to produce a good business processes. Business processes that are operating now in MS Company is a business process that is less impressive because it runs manually, resulting in business processes which are less effective and inefficient. This research project aims to help this company to analyse and improve its existing business processes to produce enhanced and integrated processes befitting a competitive enterprise company. This case study focuses on 3 main divisions: customer service, operation and administration.

The case study was implemented based on the approach discussed earlier in section 3. The following sections will explain the steps and activity carried out in each phase.

4.1 PHASE 1: BUILDING OF VISION AND OBJECTIVE

In this phase, a need for improvement in the way business operations is identified and recognized. The business cycles of the organization are identified, and a vision for the organization’s future is established. The project environment is defined and a business
cycle is selected for improvement. A proactive change management program is employed throughout the organization to prepare all employees for modifications to business operations and to train them on how to operate the workflow management tool. In this phase six steps were conducted.

**Step 4.1.1: Identification of a Need for Process Improvement**

MS Company ensures that customer requirements are determined from the time of service assurance and ensures that customer requirements are prescribed and filled with the aim of enhancing customer satisfaction.

To ensure that the BPR model developed meets the perfect integration of the system and services, the top management should be involved. The requirements were obtained by means of interviews. Interviews with the stakeholders are also conducted in order to ensure business processes are consistent with the strategy planning of MS Company. In addition the answers from the respondents via interviews served as the inputs to the new BPR model and prototype which will be developed in this research. In the interview sessions, staff involved in each division is aware of all activities and information related to their tasks and responsibility as well as the requirements of this research project. At first the researcher presented the Project Management Plan to all staff to provide better understanding to all the people involved in this exercise. The interview sessions were conducted with three senior officers of the company. In the interview sessions the respondents gave good response and feedback collaboratively.

**Step 4.1.2: Establishing Change of Leadership Roles**

The organization must establish key leadership roles to support and assist the change team. These roles include a re-engineering leader, and an executive level re-engineering steering committee. The leader is an executive-level manager who creates a corporate vision, motivates, oversees the re-engineering effort, and ensures that the program has continuing financial and managerial support. The steering committee is a group of senior managers who define the organization’s re-engineering strategy. The re-engineering leader is often the chairperson of this committee. The committee determines project priority, controls resource allocations, and provides problem resolution assistance to re-engineering teams.

The General Manager is personally, as is a general manager's function, solely responsible for all operational activities to support activities of MS Company delivers "door to door" to reach the destination. The General Manager’s responsibilities include implementation, maintenance, and improvement of management systems, classification of events, and initiation of preventive action to minimize aberrations.

The Operations Manager is responsible for organizing, specifying, and controlling the intake of ordering items from the list based on customer service.

The Customer Service Manager is the person directly responsible for dealing with customers and serves the customer if there are complaints.

The Administration Manager is the person responsible for container booking, applying for Malaysian and Indonesian customs clearance, liaison with the Indonesian embassy and process and approval of payment.

**Step 4.1.3: Introduction of Automated Workflow Management Technology**

Each unit in an organization needs strong coordination with each other. However, the problem is that each unit usually has different working technologies. Each unit is still necessary in coordination so that
organizational goals can be achieved. Information technology infrastructure is needed to support the connectivity throughout the organization. Members in this team provide information on the necessity of IT support. IT services will need to identify, acquire, and install the necessary infrastructure support to provide connectivity throughout the organization.

**Step 4.1.4: Briefing, Educating, and Training of a Change Team**

In this step, the selected staff will be collected to perform workflow modeling and system improvements. The staff consisted of an individual from the financial division, and one person from the warehouse division. Analyzing and re-designing should be completed within a limited time, as at least a certain level of commitment is required for this project be successful [13]. The staff involved will be briefed, and educated on workflow management.

**Step 4.1.5: Identification of the Business Cycle**

Next, the organization of the business cycle must be identified and recorded. To determine the organization of the business cycle, and changes to be made, the team should identify the mission and goals of the organization to gather and review any regulations or instructions governing the operation. They also need to consult with the executive director for clarification and confirmation of business objectives. This would explain the current work on the Administration division (Table 1). Prior to this step the flowcharts of all services in this case study will be produced.

**Step 4.1.6: Creation of an Organizational Vision**

The Mission and Vision need to be defined initially as they will determine strategic management. But they are not something that should be fixed, because the Vision and Mission of a company will change after seeing the new realities that may should be fixed, because the new realities that may become obvious after analyzing the external and internal environments.

The Vision of MS Company is to be a company capable of operating in line with international companies in the field of shipping goods to the destinations of Malaysia and Indonesia through optimization of its own strength and sensitivity to the market environment.

The Mission of MS Company is to be a freight forwarding company that can compete with international companies through the optimal delivery of services at a minimal price and be able to play a role in the creation of jobs.

**4.2 PHASE 2: IDENTIFICATION OF EXISTING PROCESS**

During the second phase of this research, the business products of the business cycles are reviewed and identified. The component processes of the cycle are distinguished and selected for improvement. There are 5 steps involved in this phase and these are explained in the following sections.

**Step 4.2.1: Catalog Business Products**

The change team identifies the products that result from the completion of the chosen business cycle. Using the Business Process Identification Form, shown in Table 1, each product’s form (physical or electronic) are identified and recorded. Table 2 shows the Business Process Identification Form for Administration, Table 3 shows the Business Process Identification Form for Customer Services and Table 4 shows the Business Process Identification Form for Operational Division.
**Table 1. Flowchart of Administration Division**

<table>
<thead>
<tr>
<th>Flow Diagram</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make forecast for procuremant of container -1</td>
<td>1. The administration makes predictions based on previous years’ data and provides the container to implement the forwarding</td>
</tr>
<tr>
<td>Making manifest of goods into the warehouse -2</td>
<td></td>
</tr>
<tr>
<td>Reservation container -3</td>
<td>2. Make manifest according to receipts from the operation and data entry of goods in warehouse</td>
</tr>
<tr>
<td>Information prepare for loading from warehouse to container -4</td>
<td>3. If the goods in the warehouse are suitable, prediction or at least able for loading goods into containers then make sure to return to prepare for the arrival of containers</td>
</tr>
<tr>
<td>Match</td>
<td>4. Ensure the warehouse for loading goods into containers where the goods are suitable for container loading and ready</td>
</tr>
<tr>
<td>No</td>
<td>5. If the goods are in accordance with the manifest the receipts are then directly inserted into container; when it is not done the reporting in the form of car/par, to be followed up, and the goods will be separated first.</td>
</tr>
<tr>
<td>Yes</td>
<td>6. Carry out the process of loading into the container while a record of the suitability of goods with the documents in the manifest/receipt is made.</td>
</tr>
<tr>
<td>Send data for draft Bill of Lading (shipping instruction) -7</td>
<td>7. Perform data transmission draft Bill of Lading</td>
</tr>
<tr>
<td>Bill of Lading Indonesia -8</td>
<td>8. Bill of Lading was obtained in Indonesia</td>
</tr>
<tr>
<td>Send Manifest to Embassy for confirmation -10</td>
<td>9. Do the delivery manifest to Indonesia</td>
</tr>
<tr>
<td>Send document to customs -11</td>
<td>10. Do the delivery manifest to the Embassy to be confirmed</td>
</tr>
<tr>
<td>Match</td>
<td>11. Perform transmission of documents to customs</td>
</tr>
<tr>
<td>Yes</td>
<td>12. If it does not match/have a problem, coordination with Indonesian customs</td>
</tr>
<tr>
<td>Indonesia customs -12</td>
<td>13. if it matches do distribution goods in Indonesia</td>
</tr>
<tr>
<td>No</td>
<td>14. Admin gets the final report of the delivery status</td>
</tr>
<tr>
<td>Send Manifest to Indonesia -9</td>
<td>15. If there are problems they will be reported to the customer service</td>
</tr>
<tr>
<td>Bill of Lading Indonesia -10</td>
<td>16. If appropriate then, that data kept by the admin.</td>
</tr>
</tbody>
</table>
Table 2. Business Process Identification Form for Administration

<table>
<thead>
<tr>
<th>No</th>
<th>Form</th>
<th>Business Process</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Loading</td>
<td>Forms used for the admin and the warehouse for a list of data items into the container.</td>
<td>Important</td>
</tr>
<tr>
<td>2</td>
<td>Shipping instruction</td>
<td>Details of shipping containers used for Malaysian customs with a copy of passport of one of the representatives on behalf of the sender to be given to the forwarding agent after loading the goods.</td>
<td>Important</td>
</tr>
<tr>
<td>3</td>
<td>Bill of Lading</td>
<td>Receipt and is signed by the Malaysian customs, the goods are received in good condition, clear and ready to depart.</td>
<td>Important</td>
</tr>
<tr>
<td>4</td>
<td>Manifest</td>
<td>Detail of data items in the container, its data is sent to the Embassy and distributor in Indonesia</td>
<td>Important</td>
</tr>
<tr>
<td>5</td>
<td>BSTK / additional items</td>
<td>Form of Indonesian distributor about container receiving report</td>
<td>Important</td>
</tr>
</tbody>
</table>

Table 3. Business Process Identification Form for Customer service

<table>
<thead>
<tr>
<th>No</th>
<th>Form</th>
<th>Business Process</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DO (delivery order)</td>
<td>List of addresses and telephone numbers of customers and agents who want to order a box or a</td>
<td>Important</td>
</tr>
<tr>
<td>2</td>
<td>CB (checking goods)</td>
<td>Report of the customer or agent that the goods have not been sent to the recipient, and the goods have not arrived for less than one month.</td>
<td>Important</td>
</tr>
<tr>
<td>3</td>
<td>SLP (shipment through the period)</td>
<td>Report of the customer or agent that the goods have not been sent to the recipient, and the goods have not arrived for more than a month.</td>
<td>Important</td>
</tr>
<tr>
<td>4</td>
<td>RPA (request exchange address or phone number)</td>
<td>Reports from customers that the phone number or address of the recipient in Indonesia have been exchanged for new ones. Or distributor to the ministry asking customer service to look for a new phone number because the numbers in the receipt could not be reached</td>
<td>Important</td>
</tr>
<tr>
<td>5</td>
<td>TDC (technical distribution case)</td>
<td>Reports from customers that the goods are delivered to Indonesia down the road (not to home) or the Indonesian side requested the distribution of goods delivery.</td>
<td>Important</td>
</tr>
<tr>
<td>6</td>
<td>OPR (open report)</td>
<td>Reports from customers that the goods sent there are missing or damaged.</td>
<td>Important</td>
</tr>
</tbody>
</table>
Step 4.2.2: Identification of Business Processes

During this step, the business cycle is decomposed into its component processes by identifying how each business cycle product is created. Using the Business Process Identification Form, the change team records the process name and the priority assigned to the tasks: low, routine, high, urgent. The priority of the tasks is assigned by the offices in the divisions. The priority of the process will be used to determine work assignment and precedence. Table 5, Table 6 and Table 7 show the results of the business processes and the time of completion.

Table 5. The administration of the business cycle component

<table>
<thead>
<tr>
<th>Task</th>
<th>Priority</th>
<th>Time Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>make a forecast</td>
<td>routine</td>
<td>1 day</td>
</tr>
<tr>
<td>Loading</td>
<td>routine</td>
<td>3 days</td>
</tr>
<tr>
<td>Delivery shipping instruction</td>
<td>urgent</td>
<td>1 day</td>
</tr>
<tr>
<td>Bill of lading</td>
<td>urgent</td>
<td>2 days</td>
</tr>
<tr>
<td>Make manifest</td>
<td>routine</td>
<td>4 days</td>
</tr>
<tr>
<td>Send documents to the Embassy</td>
<td>urgent</td>
<td>1 day</td>
</tr>
<tr>
<td>Send documents to the customs Jakarta</td>
<td>urgent</td>
<td>1 day</td>
</tr>
<tr>
<td>Distribution of goods to Indonesia</td>
<td>routine</td>
<td>4 days</td>
</tr>
</tbody>
</table>

Table 6. The Customer service of the business cycle component

<table>
<thead>
<tr>
<th>Task</th>
<th>Priority</th>
<th>Time Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick-list</td>
<td>High</td>
<td>1 day</td>
</tr>
<tr>
<td>CB (checking goods)</td>
<td>Low</td>
<td>1 day</td>
</tr>
<tr>
<td>SLP (shipment through the period)</td>
<td>High</td>
<td>7 days</td>
</tr>
<tr>
<td>RPA (request exchange address or phone number)</td>
<td>High</td>
<td>2 days</td>
</tr>
<tr>
<td>TDC (technical distribution)</td>
<td>High</td>
<td>2 days</td>
</tr>
</tbody>
</table>
Table 7. The Operation of the business cycle component

<table>
<thead>
<tr>
<th>Task</th>
<th>Priority</th>
<th>Time Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>For pick-zoning</td>
<td>High</td>
<td>1 day</td>
</tr>
<tr>
<td>Take the empty boxes from the warehouse</td>
<td>Routine</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Take the goods to the customer and agent</td>
<td>High</td>
<td>9 hours</td>
</tr>
<tr>
<td>Writing of receipt</td>
<td>High</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Make the LDO</td>
<td>High</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Submit receipt to the admin</td>
<td>High</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Deposit money into Finance</td>
<td>High</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Creating a Daily Report</td>
<td>Routine</td>
<td>1 Hour</td>
</tr>
</tbody>
</table>

Step 4.2.3: Selection of a Process for Implementation and Improvement

Once all the processes of a business cycle are identified and recorded, the team selects a single business process for implementation based on a set of factors. A Weighted Selection Approach to rate each process on a scale of one to five on the factors of changeability, performance, and business and customer impact [14].

To determine the value for each element, the change team must answer the following questions:

- Changeability: How easily can the process be fixed? (1 = Cannot be changed; 5 = Easily changed)
- Performance: How does the process presently function? (1 = Well; 5 = Badly)
- Business Impact: How important is the process and its product to the success of the company? (1 = Unimportant; 5 = Critical)
- Customer Impact: To what extent is the customer concerned with or affected by the present state of the process or its product? (1 = Unconcerned; 5 = Highly concerned)

The process with the highest total score is the process that is in the greatest need of improvement. Therefore, the change team selects this process for automation and improvement. The ranking of each process is recorded, in order of their re-engineering priority on the Business Process Identification Form. These rankings are used to schedule the remaining processes for future improvement projects.

The change team committee must identify the owner of the selected process. The process owner is the senior manager responsible for the effective and efficient functioning of that particular process. He/She should understand the tasks involved in the entire process and be able to predict how any proposed changes might affect both the process and the overall business cycle.

Step 4.2.4: Construction of a Work Breakdown Structure

The change team act together to build a work breakdown structure. Description from the business cycle is then composed into several parts. Composed goal is to make a more easily understood and modeled. The process is divided into sub-components of the process, further subdivided into steps of the actual work of the process.

4.3 PHASE 3: IDENTIFYING PROCESS IMPROVEMENTS

Business process improvement is the third phase in this research approach. This phase was carried out in four main activities or steps.

Step 4.3.1: Considering the Customers' Requirements

Because the company's customers know about what they want from the business
processes and products, their requirements must be considered in determining the goals of new processes. The change team had meetings with customers’ representatives to discuss and record their needs, ideas of improvement, and performance objectives. A survey was then created and posted to gather broad customer base needs. Direct contact, however, should be used whenever possible to demonstrate a strong commitment to customer needs and to foster a better relationship.

**Step 4.3.2: Benchmarking against Industry Competitors**

In the recent years, the increasing number of actors has created a tight market competition in businesses. Even now this is a competition among entrepreneurs with other business actors and is getting more complex. It is necessary for a company to know their competitors in their business environment to stay competitive and maintain its presence in the business.

Without new innovations from the company, customers will quickly get bored and the business would sink in the midst of much competition. That is why the competitors would work towards both innovation in the internal affairs of the company as well as enhancing the competitiveness of their products. To achieve this goal, the team must be aware of changes and adapt to any new methods and technologies employed in the industry.

These information sources may include the publishing industry, academic research, consulting firms, and visits to other companies inside and outside the circle of their competitiveness. For this case study, we have identified nine competitors with similar effort and services provided. In response to these competitors, MS Company has undertaken a number of strategies such as providing an appropriate price, having its service profile published in the magazine of the Embassy of the Republic of Indonesia-Malaysia, serving the customers door to door, and giving 1 free shipping for customers who have sent goods a total of 5 times.

**Step 4.3.3: Specifying of Performance Goals**

Using data collected from customers and benchmarks, processes and objectives stated in the vision statement of the organization, the team determines the whole process of performance goals (in terms that can be measured) for each key performance indicator implemented in the workflow. Each of these goals is recorded in order of priority in the process of performance form. This amount is then divided into each component task process and the task performance recorded in each form.

**Step 4.3.4: Construction of New Workflow Models**

Based on previous activities and inputs the new workflow model which consists of integrated processes and components for MS Company will be produced in this step. Figure 2 shows the general and conceptual model of BPR with four main components. The components are people, input, output and the technical component. The new model is the process integrated model proposed by this research and will be evaluated by this case study.

The components have links inter connected with each other, and each component has a very important role for MS Cargo.

- The Distributor is a person who is given responsibility for delivery of goods after the container lands up in Indonesia.
- The Customer is someone who repeatedly comes to a similar place to gratify his desire to have a product or a service by paying for the product or service.
- The Agent is someone who helps MS Company in finding and selling services to customers. Agents are also able to explain
the distribution of goods to reach the receiver.
- The Database is a collection of data items inter-related to each other, organized based on a schema or a particular structure, stored in computer hardware and software to do the manipulation for specific purposes.
- The System is a group element / elements that are interconnected and affect each other in doing the activities together to achieve the goal.
- The Input is a process that is running in MS Company. Processes are those such as the ordering of items, sending the box and taking the goods, and serving customers' complaints. All processes were done manually, so often delay and errors occur in input data.
- The Output is a new process that will be developed, integrating the three divisions into a single system. The new process will run automatically and are expected to reduce errors and deficiencies that have occurred over the years.

![Figure 2. The Conceptual Model of BPR](image)

5 CONCLUSION
The case study showed that WRM (Workflow Reengineering Methodology) promises to be a methodology that can be used successfully to improve an organization’s business processes. The data collection and process identification forms significantly streamlined the process definition effort, ensuring that all relevant information was gathered from workflow participants.

WRM is comprehensive, covering the process improvement effort from the identification of a need for change to the final implementation and maintenance of the improved workflow. The method can be applied to different processes and is designed to be easy for all personnel to learn and understand. Simple forms and detailed guidance are provided for all phases and steps. Our research has proposed a new enhanced methodology of WRM to suit small and medium-sized companies. A conceptual model of BPR for SME has been proposed in this paper and currently is at the stage of being evaluated.
This study is at the stage of developing an integrated BPR model for MS Company. The model will be validated by a prototype.

6 REFERENCES


