CHAPTER II

LITERATURE REVIEW

2.1 Customer Expectation

Every customer comes into the customer situation with differing wants. ***Harris (1996)*** described about five needs of every customer as follows:

Service. Customers expect the service that they think is appropriate for the level of purchase that they are making.

1. ***Price***. People and businesses want to use their financial resources as efficiently as possible.
2. ***Quality.*** Customers want the products that they purchase to be durable and functional until the customer decides to replace them. Customers are much less likely to question price if they are doing business with a company that has a reputation for producing a high-quality product.
3. ***Action.*** Customers need action when a problem or question arises. Customers like to think that when they have a need or question arises, someone will be ready and waiting to help them.
4. ***Appreciation.*** Showing customer the appreciation is very important. Customer service providers can convey this appreciation in many appropriate ways.

2.2 Waste

Balle (1995) briefly stated about the value added that it would be in the process which makes customer feel happy to pay for the product. The rest is waste. He also described the wastes as following:

- *Wasting work* is doing too much that not actually useful. People sometimes go into too much detail, or over engineering the things which matter to them but that the customer does not greatly care about. The other type of wasted work is all the useless things people have to go through because of complex administrative procedures, or involved processes, but which stop them from doing their real work.

- *Wasting time* is often caused by badly organized processes. The wasting time is happen not only for those who do the work but also for the customer (the next person in the process).

- *Wasted transportation* will be happen anytime depending on how far from sender to receiver. This type of waste usually has incredible amount of time.

- *Wasted inventory* is occurred from a large in-tray which people think that it can proves they are greatly busy. Each task that is stuck in an in-tray somewhere is costing money. Obviously, inventory is much more costly in a production process but the folder that is waiting on the desk for too long might push the customer to give up on it and try his or her luck elsewhere.

- *Defects* are probably the most critical waste. Particularly so with complex projects, the later they appear the more expensive they are to rectify.

2.3 Reengineering

To understand the essence of re-engineering, it is necessary to define the true meaning. According to ***Hammer and Champy (1993)***, re-engineering is defined as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measure of performance, such as cost, quality, service, and speed."

It is a rather long and complex definition that many firms often confuse for a imagine term for typical reorganization of departments or functions. Indeed, there are four key words in this definition, which differentiates re-engineering from other conventional methods of business improvement, as followings:

- Fundamental
- Radical
- Process
- Dramatic

Their Business Reengineering methodology breaks into six steps:

1. ***Introduction into Business Reengineering*:** Before actually initiating the process of reengineering the CEO of the firm explains the current situation and in a very practical manner the need for reengineering to the employees.
2. ***Identification of Business Processes*:** All processes in the organization are distinctly identified. The processes are studied with respect to how they affect other processes in the company and how they interact with external factors such as customer requirements. The output of this step is a list of processes in the form of graphs, tables etc.
3. ***Selection of Business Processes*:** Based on data collected critical processes are identified. These processes are the ones, which affect the customer most. Another criterion for process selection is the ease of reengineering it.

4. ***Understanding the Selected Business Processes*:** In this step the current state of the selected process is compared to the required state. Emphasis is laid on understanding the process as a whole rather than its functionalities.
5. ***Redesign of the Selected Business Processes*:** The fifth step is according to Hammer/Champy the most creative of all. It involves redesigning the process both technically as well socially (the work environment). Outputs could be development plans.
6. ***Implementation of Redesigned Business Processes*:** The last step covers the implementation phase of the Business Reengineering project. Hammer/Champy believes in the success of the implementation, once the five preliminary steps have been properly performed.

Although the meaning of reengineering was defined, people still confuse it with the popular strategic implementations as followings

- Downsizing
- Automation or software re-engineering
- Busting bureaucracies
- Total Quality Management (TQM) or quality improvement programs

Davenport (1993) places much emphasis on innovation and technology and discusses the key role that IT plays in reengineering, but gives more importance to human resource issues. Davenport sees culture as a constraint, where there is a poor process innovation to cultural fit. With regard to managing the change he proposes traditional management functions, like planning, directing, monitoring, decision-making and communicating. His methodology covers six steps:

1. ***Visioning and Goal setting*:** A vision is set, goals are identified and all further actions/plans are directed towards achieving these goals, goals such as cost reduction, worker satisfaction, reduction of time requirements, and improvement of process performance.
2. ***Identification of Business Processes*:** This step identifies the business processes, which should be reengineered. It involves formation of reengineering teams, which concentrate on the selected processes (Davenport sets an upper limit of 15 processes).
3. ***Understand and Measure Processes*:** The identified processes are studied in detail and their functioning clearly understood. Davenport wants to avoid "reinvention". Performance benchmarks for the redesigned processes are set up.
4. ***Information Technology*:** In this step, ways in which Information Technology tools and applications can be used for the newly designed work processes are identified and put in place.
5. ***Process Prototype*:** A prototype is designed and studied thoroughly for conformance to set benchmarks, based on which improvements are suggested.
6. ***Implementation*:** The tested prototype is implemented on a company-wide basis. Davenport considers this step crucial to the success of the overall effort, since

implementation takes roughly double as long (minimum one year) as the foregoing steps.

"Process" was defined in **www.isixsigma.com** as a series of steps or actions that lead to a desired result or output. A set of common tasks that creates a product, service, process, or plan that will satisfy a customer or group of customers. A sequential series of steps lead to a desired outcome.

Processes are largely affected by one or more of the following factors:

- Personnel who operate the processes;
- Materials which are used as inputs (including information);
- Machines or equipment being used in the process (in process execution or monitoring/measurement;
- Methods (including criteria and various documentations used along the process);
- Work environment

Shim and Siegel (1999) reviewed about Continuous Improvement, based on a Japanese concept called Kaizen, which is a management philosophy that endlessly pursues improvement of machinery, materials, labor use, and production methods, by applying suggestions and idea of team members. CI uses many different approaches, including:

- 5W2H approach. Asking various questions about the current process and how it can be improved. 5W2H refers to why, when, who, where, what, how to do, and how not to do.

- *Statistical Process Control*. Using traditional statistical control charts.

- Pareto Analysis. Focusing attention on the most important problem areas. It is based on the concept that about 80% of the problems come from 20% of the items.

- *PDCA Cycle*. Providing a framework for improvement activities. PDCA refers to plan, do, check, and act.

- *Quality circles*. Tapping employees for ideas concerning quality and productivity improvement. A circle is voluntary group of workers who meet regularly to identify and solve problems of quality and productivity.

- *Fishbone (or Ishikawa) Diagrams*. Identifying potential causative factors for the problem areas. The diagrams use a chart resembling the skeleton of a fish in which the spine bone represents the major cause of quality problems and the connecting bones, contributing causes, revealing cause-effect linkages.

- *Benchmarking.* Examining excellent performers outside the industry and seeing how the firm can use their best practices. Benchmarking typically involves the following steps:

    1. Identifying those practices that need to be improved
    2. Identify a company that is the world leader in performing the process
    3. Interview the managers of the company and analyze data obtained

Trimble (2004) stated about the important of measuring the success of a reengineering in ***www.prosi.com*** by using Metric as a standard measure to assess firm's performance in a particular area. Metrics are at the heart of a good, customer-focused process management system and any program directed at continuous improvement. The focus on customers and performance standards show up in the form of metrics that assess firm's ability to meet customers' needs and business objectives.

He divided metric implementation in 3 elements

Measure the right things

- Customers
    1. Performance against customer requirements
    2. Customer Satisfaction
- Performance of internal work processes
    1. Cycle times
    2. Product and service quality
    3. Cost performance (could be productivity measures, inventory, etc.)
- Suppliers
    1. Performance of suppliers against requirements
- Financial
    1. Profitability (could be at the company, product line, or individual level)
    2. Market share growth and other standard financial measures
- Employee
    1. Associate satisfaction

Create metrics that are SMART

What the firm need are metrics that are Specific, Measurable, Actionable, Relevant, and Timely or SMART objectives.

- "Specific" in that metrics is specific and targeted to the area it is measuring.
- "Measurable" in that data, which is accurate and complete, can be collected.
- "Actionable" in that the metrics are easy-to-understand, and it is clear when the firm chart its performance over time which direction is "good" and which direction is "bad", so that the firm know when to take action.
- "Relevant" simply means don't measure things that are not important.

- "Timely" metrics are those for which people can get the data when they need it.

Metrics should be simple. If they require a lot of explanation and definition, then collecting data and translating that data into actions becomes more difficult. Easy-to-understand metrics are easier to sell, and have a stronger impact on the process and the people who use it.

Follow a proven process for developing metrics

One tried and true approach follows five simple steps.

- Identify customers and outputs of the process.
- Determine customer needs/requirements.
- Ensure operator understand the key goals of the business.
- Determine effective measures, including both performance and diagnostic metrics.
- Compare/filter/align metrics for this process with those for the higher level processes of which they are a part.

Schumacher (2004) differentiates barriers to Business Reengineering implementation success into hard and soft barriers at ***www.prosci.com***. Figure 3 classifies soft and hard barriers along with areas which contain root causes for barriers to Business Reengineering implementation success.

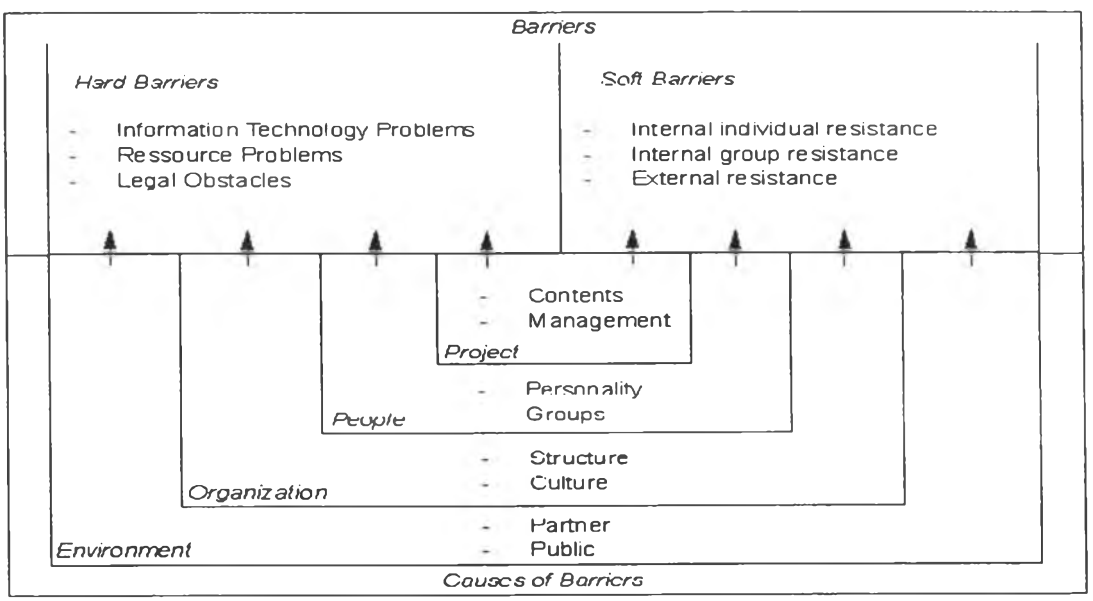

Figure 2.1: Relationships between Potential Barriers and Potential Causes of Barriers *(www.prosci.com)*

From more than 150 companies, reengineering success factors was addressed at ***www.prosci.com*** as these below:

1. Top Management Sponsorship (strong and consistent involvement)
2. Strategic Alignment (with company strategic direction)
3. Compelling Business Case for Change (with measurable objectives)
4. Proven Methodology (that includes a vision process)
5. Effective Change Management (address cultural transformation)
6. Line Ownership (pair ownership with accountability)
7. Reengineering Team Composition (in both breadth and knowledge)

2.4 Best Practice

Metropolitan Electricity Authority (MEA)

MEA has hire Consultant Company to set the efficiency improvement and firm development plan rely on Business Process Reengineering (BRP). Consultant cooperates with Information Technology Department of MEA launch the new queuing and computer system in customer payment process.

"The result shows that time for payment is reduced from 30 minutes to 6 minutes, that less than target 10 minutes, in rush hour. After evaluate and conclusion, new system will be integrated all area" said ***Sesavaj (2001)***. The government has policy to keep pace with the trend of technology world, and from the studies around the world found that firm which implements BRP system will easily to convert itself among the change outside.

2.5 Information Technology

Harrison and Samson (2002) stated that technology is not an end in itself. It should be considered in the context of the organization in which it is deployed or being considered. The value of the technology should ultimately be measured in business terms such as in contribution to revenue, market share, or sales, or in terms of a return to society such as an environmental or "quality of life" benefit. "Intermediate" measures such as operational variables of cost, quality, delivery, and so on are often useful to consider as being constructs that connect technical performance to business and broader measures of performance.

They also emphasized that the firm's technology represents an important part of its infrastructure. From a business perspective, key question are how much should be invest and how should technology be organized in order to maximize business goal such as shareholder wealth creation. Operational variables and marketing performance parameters are usually integral to such consideration.

Burd (1996) states that the steps necessary to develop an information system are commonly called a system development life cycle (SDLC). A number of SDLCs have been used over the history of automated information processing. A current popular approach to the development of information system is the structured SDLC, developed in the 1970s and still in use today. The structured SDLC specifies a set of steps to be followed in the system development as well as tools and procedures for each step. The steps of the structured SDLC are as follows:

- Systems survey
- System analysis
- System design
- System implementation
- Evaluation and maintenance

He suggests that technical knowledge of computer hardware and systems software is required in the development of information systems. The breadth of knowledge is required in the survey phase to evaluate feasibility and related issues. Depth of knowledge is most required during systems design, when details specifications for hardware and systems software are derived.

According to Burd, technical knowledge must be constantly updated due to changes in the hardware and software technology. Information system professionals must engage in continuing education and study to keep pace with these changes. Training may be obtained through vendors, educational organizations, and self-study.

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