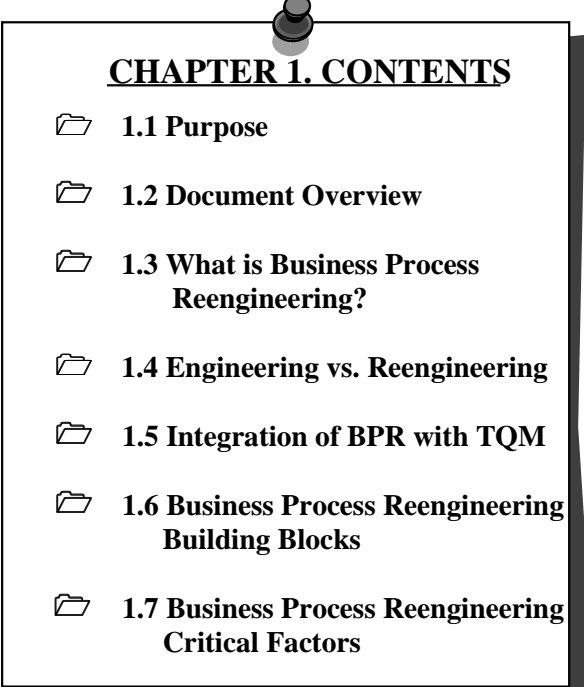


# CHAPTER 1. INTRODUCTION



## CHAPTER 1. CONTENTS

- 📁 1.1 Purpose
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## **1.1. PURPOSE**

The purpose of this document is to integrate research and experience on the topic of Business Process Reengineering (BPR) into a State-of-the-Art Report (SOAR). To be successful, this document must:

- discuss critical factors affecting successful BPR efforts
- improve awareness of organizations and individuals involved in BPR efforts
- provide guidelines (strategies and methodologies) for successful implementation of BPR

The goal is not to establish a new approach to reengineering, but to integrate existing methodologies, concepts, and strategies into a single document which improves reader understanding of the BPR paradigm. The content of this document has been gathered from personal experience, as well as research on BPR efforts, literature from industry experts, and customer feedback.

Throughout the course of this document, examples will be used to highlight the use of BPR in improving both process and product quality.

### ***Who Should Read***

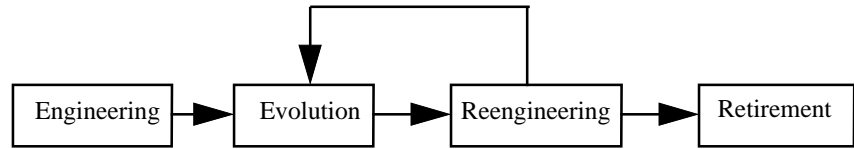
The document is intended to serve the following customer communities:

- managers attempting to perform business process reengineering within their organization
- staff involved in and wishing to better understand business process reengineering
- consultants wanting further guidance on structured approaches to business process reengineering

## **1.2. DOCUMENT OVERVIEW**

Throughout this document, reference is made to the concept of a Process Management Life Cycle (PMLC). Such a cycle is used to

describe the stages in the life of a process, as shown in the following diagram.

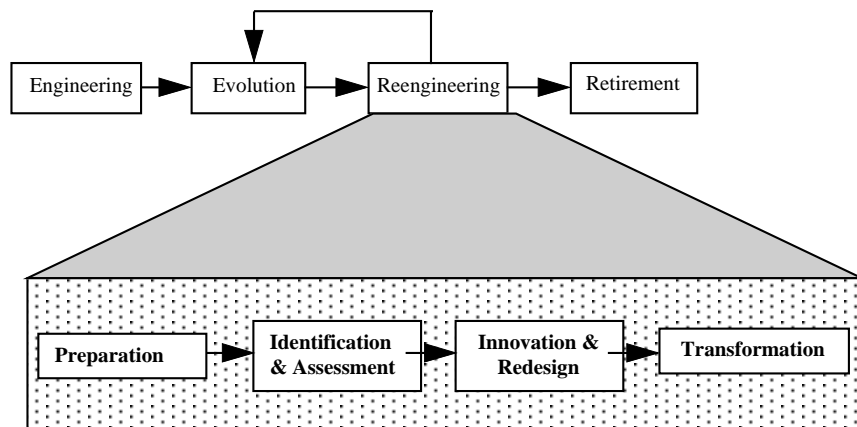


*Figure 1.2-1. Process Management Life Cycle (PMLC)*

The Process Management Life Cycle (PMLC) represents the foundation for organization and presentation of information within this text.

### 1.2.1. DOCUMENT ORGANIZATION

Since the focus of this document is reengineering, the document has been organized to walk the reader through a series of chapters focusing on reengineering project stages as illustrated in the following diagram. While the diagram illustrates reengineering as a formalized and sequential approach, successful application of reengineering requires that strategies be implemented in a flexible manner.



*Figure 1.2-2. Reengineering Project Stages*

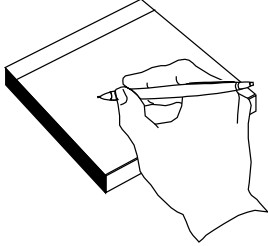
Where possible, examples have been provided to further guide user understanding. A brief overview of the information presented in each chapter is provided in the following list.

- Chapter 1. Introduction - Provides an overview of the organization and content of this document as well as a description of common concepts, critical factors and distinctions used throughout this document.
- Chapter 2. Preparation - Gives insight into those components required to initiate a reengineering effort, including defining success in terms of goals and targets, and gaining management commitment.
- Chapter 3. Identification & Assessment - Provides approaches for defining, assessing and selecting business processes to be reengineered. This assessment provides guidance relating to alignment of business process impacts with business goals and targets for success.
- Chapter 4. Innovation & Redesign - Describes the steps required to visualize, analyze, decompose, and redesign (reengineer) a business process in order to achieve business goals and targets. Key aspects include a discussion of both technical and social (organizational culture) redesign of processes.
- Chapter 5. Transformation & Evolution - Describes the steps of transforming a business process and provides insight into the continuous process improvement tools and techniques common to a Total Quality Management (TQM) environment that are required to evolve processes in a value-added manner.
- Appendices. Reengineering Toolbox - Provides valuable references to terms, documents, articles, data sources, and tools that can be used to support reengineering.

### 1.2.2. DOCUMENT "EYE" CONS

A set of icons or graphical tabs are used throughout the left hand margin of this document to ease the readability and aide the reader in quick reference. Where possible, common icons are utilized to

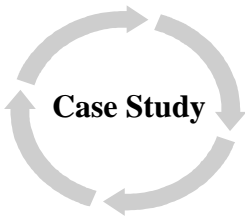
### ***Process Management Notebook***



represent a particular area of interest as described in the following paragraphs.

Throughout this document, the icon shown to the left of this paragraph is used to highlight recommended actions. Specifically, the icon identifies when information should be recorded by users/readers into a Process Management Notebook (PMN). The authors understand that a variety of automated and manual approaches may be utilized to construct and maintain a PMN and therefore focus attention on "what" should be included and not "how". While the PMN is referenced throughout this document, Chapter 5 entitled "*Transformation and Evolution*" summarizes the contents and usage of the PMN. The PMN summary may be useful in the definition and selection of appropriate approaches (manual and automated) for process management.

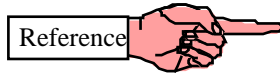
### ***Case Study***



Concepts are often difficult to understand or visualize without real-world examples. The icon shown to the left of this paragraph is used throughout the document to highlight examples by following the actions of a practicing company through the stages of BPR, including both *what actions were taken* and *how actions were implemented*. Examples are not just intended to represent that of "best practices", but are meant to convey both *what worked* and often *what didn't work* in a practicing business enterprise.

The example company used throughout this document is CSK Technical, Inc., referred to as "CSK", which is briefly described in the following paragraph.

***CSK is a small business and turnkey supplier of water treatment systems. CSK operates from a 10,000 square foot manufacturing facility located in Western New York. In operation for over 30 years, CSK specializes in custom designed systems, each engineered to meet the individual needs of a specific customer. In early 1994, CSK initiated business process reengineering efforts as a means of achieving dramatic improvement in processes with respect to business goals.***



Where concepts or methodologies are described in greater detail elsewhere in the document, the icon shown to the left of this paragraph is used as a pointer to the specific.

### 1.2.3. FORMALISMS

A variety of diagramming techniques and formalisms are used within this document. Such variations are used to improve visual presentation, expose the reader to alternative conventions, and convey the message that the *thought* process is much more critical than formal or rigid presentation.

### 1.2.4. GRAPHICAL HIGHLIGHTS

The left margin may also be used to present graphical highlights and pictures, which may aide the reader in understanding the concepts presented and/or improve the visual presentation of the publication.

## 1.3. WHAT IS BUSINESS PROCESS REENGINEERING?

The confusion associated with any new paradigm is often staggering. As a result, many organizations tend to miscast strategies or generalize meanings. For example, the March 1995 issue of *Readers Digest* provided the following overview of new terms.

***Reengineering*** - The principle slogan of the 90's used to describe any and all corporate strategies.

***Restructuring*** - A simple plan institutionalized from above, in which workers are right-sized, downsized, surplusd, or, in the business jargon of you're fired.

***Vision*** - Top management's heroic guess about the future, easily imprinted on mugs, T-shirts, and posters.

While many of the definitions are meant to be humorous, they are likely to be more representative of what many subjected to such paradigms truly believe.

***Definition of Business Process Reengineering***

Probably the most widely used definition for Business Process Reengineering (BPR) is that provided by Hammer and Champy in their best-selling book "*Reengineering the Corporation*" which reads as follows.

***The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.***

Early estimates indicate that over 70 percent of organizations are currently involved in some form of Business Process Reengineering (Redesign). Furthermore, experts estimate that approximately 75% to 85% of BPR efforts fail. Even with the difficulties experienced by early reengineering efforts, most large consulting firms expect the trend towards BPR to continue, and most corporations are expected to increase emphasis on BPR. Why?

***Reengineering is Inevitable***

Today's emphasis on downsizing (we prefer the term rightsizing), automating, and reorganizing is a necessity with growing competition and increasing focus on customer service. This trend of change represents a form of reengineering (however unstructured) that will continue for several years to come. Organizations no longer can afford to rest on previous accomplishments, past products, or weak competition to keep market share, they must achieve operational excellence at a minimum cost. According to an interview presented in the March 1995 issue of Performance magazine, Michael Hammer (often credited with discovering reengineering) states that a key reason is "inevitability". He further states that "*You have to make people understand that reengineering is not something that might happen, or something we're asking for a debate on. This is going to happen.*" In response to the high failure rate associated with BPR, Hammer states that "*when reengineering doesn't work it's because it's not done right.*"

While it is clear that, to date, BPR has been more of an *art* than a *science*, this book will attempt to communicate key factors affecting the success of BPR efforts and offer a structured approach leaning toward reengineering as a scientific form.

### ***Business Enterprise***

Readers should also understand that business process reengineering focuses on processes with respect to the *business enterprise*. The business enterprise represents the collection of all processes and activities which are included within the boundaries of the business. While there are many loose definitions for processes, a "*business process*" has a more distinct definition which is clearly stated in Chapter 3 (section 3.1) of this text.

## **1.4. ENGINEERING VS. REENGINEERING**

*Reengineering* implies that processes were *engineered* in the first place. In general, processes are conceived upon business start-up or integration of new business requirements and have evolved to reach their current state of design. Rethinking of existing process designs after a period of evolution will often yield new process designs which may seem radical in nature. The following figure illustrates the relationships between engineering, evolution, and reengineering.

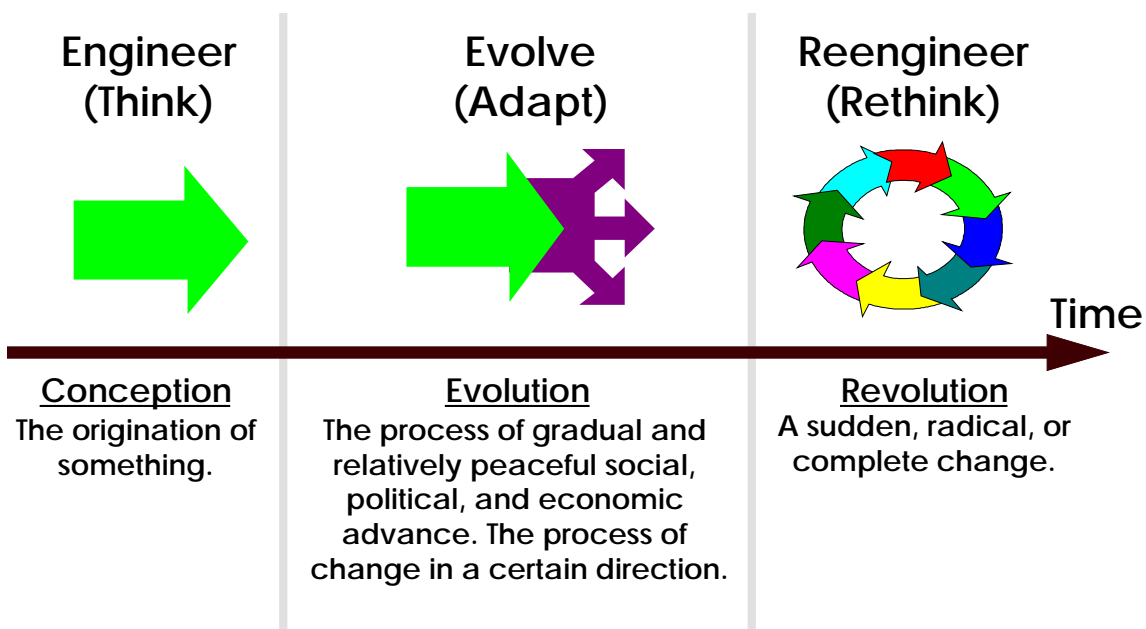


Figure 1.4-1. Engineering vs. Reengineering

In addition to the radical perception of a new process design, the implementation of the new design is often more complicated than "clean-slate" engineering due to difficulties associated with changing legacy business processes.

### ***Legacy Business Processes***

The term *legacy business processes* refers to processes (consisting of people, systems, and organizational structure) which have been institutionalized within a business. The use of the term *legacy systems* has been widely used by both government and commercial business sectors to refer to institutionalized hardware/software systems.

Over time, businesses have established cultures and procedures which have allowed the business to survive, but as a result have become the environmental constraints which impede process change. This history (legacy) is often embedded into the minds and attitudes of employees, giving them pride of ownership in the existing business process. In addition, much of the business process design, which is commonly well documented during initial engineering stages, is frequently neglected as the business evolves. As a result, the existing business process design is maintained in many loose forms including memorandums, meeting notes, procedure documentation, and the minds of employees. Within this text, this loosely organized set of business process materials is referred to as *Business Process Knowledge*. Employees may view this loose form of process information as a source of job security, making them even more reluctant to share and/or participate efforts advocating change.

### ***Evolution vs. Revolution***

What makes the BPR transformation even more complicated is the demand for short-term results. Only an organization committed and prepared to accept the challenge of a rapid re-evolution (or revolution) will receive the greatest gains.

Throughout this document, an emphasis is placed on *adding value*. Care must be taken to ensure that the overall impact of revolutionary thinking and actions results in a positive or "value added" business impact.

***Continuous Reengineering***

The question of "*Will we ever have to reengineer again?*" is similar to asking "*Should we ever re-think our business processes?*". When to reengineer is dependent on how well a process evolves over time towards strategic goals established for the business.

**1.5. INTEGRATION OF BPR WITH TOTAL QUALITY MANAGEMENT (TQM)**

The focus of Chapter 5, entitled "*Transformation and Evolution*", is to describe how the results of reengineering are integrated within the Total Quality Management (TQM) culture of a business enterprise. Therefore, only a brief overview of the BPR-TQM interaction will be presented within this chapter.

The concept of TQM is so broad in nature that all strategies, methodologies, and techniques for business improvement (including BPR) fall within its preview. But, without BPR, TQM is much like chewing a steak without teeth; you may go hungry before you can swallow. BPR adds the "*quick strike*" capability that TQM often lacks in practice.

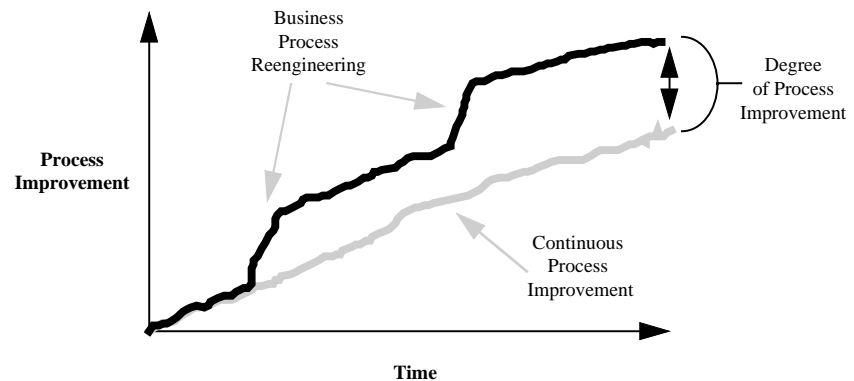
***What is Total Quality Management (TQM)?***

In the book entitled "*A Guide to Implementing Total Quality Management*", published by the Reliability Analysis Center in 1990, Total Quality Management (TQM) is described in the following manner.

*TQM consists of continuous process improvement activities involving everyone in an organization - - managers and workers - - in a totally integrated effort toward improving performance at every level. This improved performance is directed toward satisfying such cross-functional goals as quality, cost, schedule, mission, need, and suitability. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach focused on continuous process improvement. The activities are ultimately focused on increased customer/user satisfaction.*

### ***Continuous Process Improvement***

TQM has long promoted the concept of continuous process improvement or just continuous improvement, which includes an organized set of tools and techniques used to continually improve processes. Continuous improvement strategies, as commonly used to date, advocate "tweaking" the existing process to improve performance over time. The continuous improvement strategies of TQM rarely consider the radical thoughts that form the foundation of BPR, such as "let's start from scratch". Where continuous improvement efforts generally lead to gradual process improvements, BPR efforts can lead to "breakthroughs" or rapid process improvements. It should be noted that the more rapid and radical nature of BPR may also increase the risk of failure in implementation. As the following figure illustrates, the goal of BPR is to achieve improvements of a degree over standard continuous improvement applications within the same period of time. This text recommends utilizing BPR strategies followed by continuous improvement strategies to effectively revolution and evolution.



*Figure 1.5-1. Process Improvement*

In addition, those implementing TQM have often lacked a business process focus, resulting in sub-optimization of activities within organizations. BPR has raised the view of TQM practitioners to focus on *business* process improvement, not local problem resolution.

**Process Evolution**

As illustrated in Figure 1.2-1, business processes are in one of the four phases of the Process Management Life Cycle (PMLC). A process in evolution is one which has previously been engineered or reengineered, yielding the existing institutionalized process design (referred to as a legacy process).



*Figure 1.5-3. Relationship between BPR and Continuous Improvement*

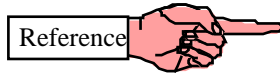
Continuous improvement represents the means by which a legacy process is gradually improved through *controlled process evolution*. Controlled process evolution represents a process state in which continuous process improvements are utilized to evolve processes in a *value-added* manner. In addition, business process goals and targets are passed from the engineering and reengineering phases to help give direction to process evolution activities, thus limiting the need to later reengineer.

The intent of this section is not to recommend the replacement of continuous process improvement or to present a new term with the same meaning as continuous process improvement, but rather to provide a better understanding of the use of continuous improvement strategies within a specific phase of the Process Management Life Cycle. To those from the software world, controlled process evolution may be considered similar to placing software under configuration control as part of a Configuration Management (CM) plan. All changes to the process are strictly monitored, documented, and controlled.

**BPR Never Ends**

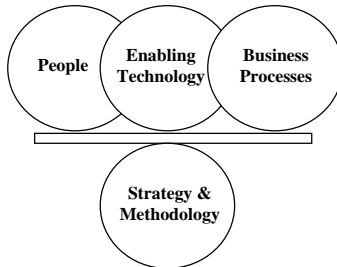
BPR is a never ending activity. Each business process is constantly reviewed by the reengineering team to:

- ensure proper business process goals and targets
- identify high impact, "unhealthy" processes to reengineer



Refer to Chapter 5, entitled "*Transformation and Evolution*", for greater insight into Total Quality Management and Continuous Process Improvement methodologies and approaches.

## **1.6. BUSINESS PROCESS REENGINEERING BUILDING BLOCKS**



Effective BPR integrates people, technology, and business processes under the guidance of strategy and methodology. Those who take a critical view of these building blocks should recognize that people, technology, and business processes are existing elements within the business enterprise, and that BPR is truly the mechanism by which strategy and methodology can effectively utilize and restructure these resources, adding value to both process and product. Therefore, strategy and methodology have the greatest overall impact on BPR implementation and tend to balance how the other business elements (people, enabling technology, and business processes) are integrated.

### **1.6.1. PEOPLE**

Even with an increased emphasis on technology and automation, people still represent the strongest contributing resource to BPR. The majority of process and business process knowledge resides with individuals who can collectively support or derail a BPR effort. How people interact with business processes through information technology and process technology solutions greatly impacts the operational efficiency of business processes. The intent of BPR is not to remove people from the business (i.e. staff reductions), yet as a result of BPR application, the number of people required to perform a process may decrease. Performing processes more efficiently often means using fewer resources (including people) to complete required activities. The intent of BPR is to drastically improve process performance over time by integrating people and technology as enablers.

### **1.6.2. BUSINESS PROCESSES**

All businesses have functioning business processes. Business processes represent the engine by which a business operates, with

information, people, and materials being the fuels/resources necessary to keep the engine running. Hammer and Champy would argue that the goal of BPR is not to fix existing business processes, but to completely redesign (change) a business process. In short, they recommend a complete engine overhaul or replacement. Regardless of whether fixing or redesigning a business process is required, rethinking of business processes is a necessity.

Information is considered as part of the business process building block, since information is created, maintained within, and output from processes. As described in later sections of this document, information plays a vital role in the transformation of a business process during reengineering.

### 1.6.3. TECHNOLOGY

To remain competitive, an organization must constantly evaluate its machinery, control systems, information systems, communication resources, and procedures. Each portion of the overall system must be periodically upgraded to incorporate efficient new technologies and methods.

Most of today's technology is obsolete long before it wears out. In addition, many market developments will result in systems which are obsolete before they are completed. An inadequate solution may be proposed for a big problem, or inordinate amounts of personnel, time, and money may be squandered on a grandiose development scheme. As a result, completed systems and associated processes often fail to satisfy customer needs and expectations.

There is no such thing as a perfectly-designed system or process that can meet all possible customer needs over a long period of time without change. Ideally, a newly upgraded computerized system is configured so that it can be adapted to meet changing requirements without wholesale replacement. Advance planning and diligent up-front attention to the application of appropriate technologies will help to ensure that automation is properly aligned with business process workflow.

Increasingly, automation is becoming the cornerstone of any process improvement effort. The methodology outlined in this document supports the effective insertion of enabling technologies relative to a systems engineering and BPR context. In other words, this document supports not just the automated system itself, but the concomitant interface between man, machine, and process.

#### **1.6.4. STRATEGY & METHODOLOGY**

Without strategy and methodology, business process improvement would primarily be guesswork. This document focuses on how to apply strategy and methodology as an integrated approach to BPR.

### **1.7. BUSINESS PROCESS REENGINEERING CRITICAL FACTORS**

Much like Total Quality Management (TQM), the success or failure of BPR hinges on a few key factors. The U.S. General Accounting Office (GAO) held a symposium on BPR in December 1994, the results of which were summarized into a set of five key principles for successful reengineering:

***Principle I: Top management must be supportive of and engaged in reengineering efforts to remove barriers and drive success.***

***Principle II. An organization's culture must be receptive to reengineering goals and principles.***

***Principle III. Major improvements and savings are realized by focusing on the business from a process perspective rather than a functional perspective.***

***Principle IV. Processes should be selected for reengineering based on a clear notion of customer needs, anticipated benefits, and potential for success.***

***Principle V. Process owners should manage reengineering projects with teams that are cross-functional, maintain a proper scope, focus on customer metrics, and enforce implementation timeliness.***

Those from the world of hardware engineering may refer to critical factors from a slightly different perspective, such as critical failure modes. The most recognized factors are not those relating to engineering tools, information technology, or detailed process modeling techniques, but those relating to preparation and education. Few organizations take the time to prepare themselves to properly rethink business processes or educate themselves to consider such simple, yet critical, factors as the those described in the following subsections.

### 1.7.1. MANAGING THREAT OF CHANGE

Regardless of the detailed wording of definitions associated with BPR, phrases such as rethinking and radical redesign clearly stand out. The very definition implies that the old business environment will likely be thrown away or significantly restructured, thus creating a perceived threat to the existing systems, people, processes, and culture. Upon learning of the impending devastation to be caused by BPR through "*radical redesign*", the workforce creates defensive barriers limiting communication and eventually stalling progress. The workforce will tend to defend against what they do not understand. Therefore, creating a culture where people become *enabling* factors rather than barriers is critical to successful BPR.

### 1.7.2. DEFINITION OF BUSINESS SUCCESS

Even though BPR is not a science, it is also not "witchcraft". Most principles involve common sense business management. The fundamental theory behind BPR involves setting strategic goals which will yield a successful business, and then aligning and restructuring business processes to meet the desired goals. Many organizations make the critical mistake of attempting to redesign processes without first understanding and quantifying strategic business goals with respect to business success. Industry leaders continually point to the commitment of management to BPR success, yet fail to describe what the commitment includes. As a minimum, management must be involved in establishing a

definition for success and a set strategic goals and targets which will promote the survival and growth of the business.

### 1.7.3. UNDERSTANDING BUSINESS VALUE

Many businesses that have survived the test of time have also struggled through *evolution*. Business evolution has caused the business to adapt to changing business environments, customer needs, and internal problems in order to maintain a solvent business enterprise. As a result, inefficient and/or obsolete processes have evolved and have not been removed, repaired, or totally redesigned. Much like a world-class athlete who must understand and engineer his or her body in order to achieve maximum performance without wasting valuable energy and time, a business enterprise must ensure that resources and process designs are effectively aligned to promote immediate increases in business value.

### 1.7.4. DEFINITION OF A BUSINESS PROCESS

The fundamental building block of BPR is the business process. Organizations often tell stories of well intentioned BPR teams (many times led by professional consultants) that have expended months of effort without a clear definition of business processes. The BPR industry as a whole has struggled to establish a definition of a business process which is simple, comprehensive, and repeatable.

Reference



Section 3.1 of this text provides a clear definition of a business process.

### 1.7.5. UNDERSTANDING THE BIG PICTURE

The size, complexity, and organizational structure of a business have a significant impact on the amount of bends, curves, and speed-bumps in the road to transformation of a business process.

In general, the larger the organization and greater the depth of the business hierarchy (number of layers), the greater the amount of culture and infrastructure change required. Conversely, the smaller and flatter the business is, the less resistance there is to change.

Those seeking to succeed in reengineering must clearly understand the magnitude of the business enterprise, as well as the level of control required to change the business or related organization.