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Term Paper:
Business Process Re-engineering

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ABSTRACT

Business Process Reengineering has gained a considerable attention in the world of change management during the past years. While more and more organizations embark on the BPR trend it can be concluded, that the theoretical bedrock for BPR falls rather short of the concepts ambition of being a solution for a multiplicity of problems that many companies suffer from. This report is intended to understand and contrast continuous process improvement and business process reengineering (BPR). In this report we provide a review of relating BPR to theories, definitions of BPR, methodologies of BPR, tools and techniques of BPR and risks that BPR projects fail.

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2. INTRODUCTION

For many companies, the competitive field has been reshaped significantly during the past years. The globalization of markets, the current economic recession, new customer requirements for product- and service quality, as well as new methodologies and tools for system analysis and -design in dynamic environments. Many leading companies have therefore launched large-scale efforts to deliver greater customer value by "reengineering" their businesses, "customerizing" their business processes. Beyond that, all changes have to be performed in respect to the aspects of "Total Quality". As the advocates of BPR claim it may, if done well, deliver extraordinary gains in speed, productivity, and profitability. In their striving for competitive advantage, reduced costs and increased profitability.

Business Process Reengineering (BPR) services bridge the gap between the ***existing*** and the ***desired state*** of your business. The BPR exercise shall be carried out to satisfy the ***needs and "wants"*** of your customers.

BPR is a method to radically redesign processes and redirect resources in order to achieve dramatic improvements in service and customer satisfaction. This often results in reduced cost, reduced time, or improved quality. The two cornerstones of any organization are the people and the process. If the process is cumbersome, labor intensive, antiquated, or unnecessarily complicated, despite the motivation and hard work of individuals, the organizational performance may appear to be poor or the service provided expensive. If the organizational infrastructure is too hierarchical or employees are not empowered to make some decisions, resources may be improperly assigned. This can lead to poor performance, increased cost, or decreased customer satisfaction. BPR relies upon questioning, challenging, evaluating, and redesigning every element of an organization's operational process. BPR does not always involve widespread changes in organizational structure. It does, however, require radical changes in process.

Analyzing present business process diagrams, process flow diagrams (work flow diagrams) and data flow diagrams may lead to success in business process re-engineering since these diagrams are very powerful in visualizing the activities, processes and data flow of an organization.

3. RELATING BPR TO THEORIES

A first, brief review leads to the conclusion that Business Process Reengineering can be considered as a combined application of theories and concepts from mainly three areas:

(1) Marketing, in the concern of competitive advantage, customer focus, industry value systems and value adding chains.

(2) Organization theory in the broad sense, including the aspects of Human Resource Management and organizational strategies.

(3) Informatics, the use of IT for supporting process-based organizations by using appropriate information-architectures and -systems. (See Figure. 1)

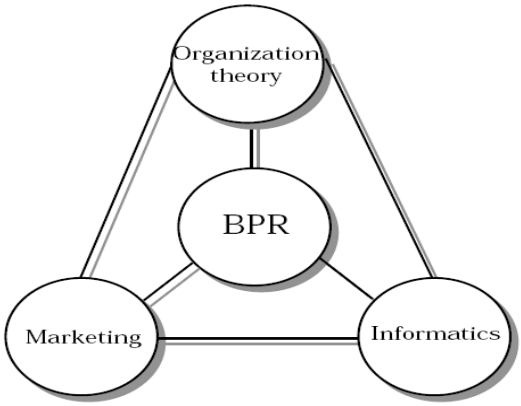

Figure.1

Literature on BPR

The following list includes some of the terms used as synonyms for BPR:

- Reengineering
- Process Reengineering
- Process Quality Management
- Process Innovation
- Process Improvement
- Process Change Management
- Business Process Re-design
- Business Process Improvement
- Business Reengineering
- Business Process Engineering
- Business Process Reengineering
- Business Transformation

Figure.2 shows the number of occurrences of the keywords used in the subquests.
The following terms were used:

- Information technology (IT)
- Workflow
- Architecture
- Virtual (organizations)

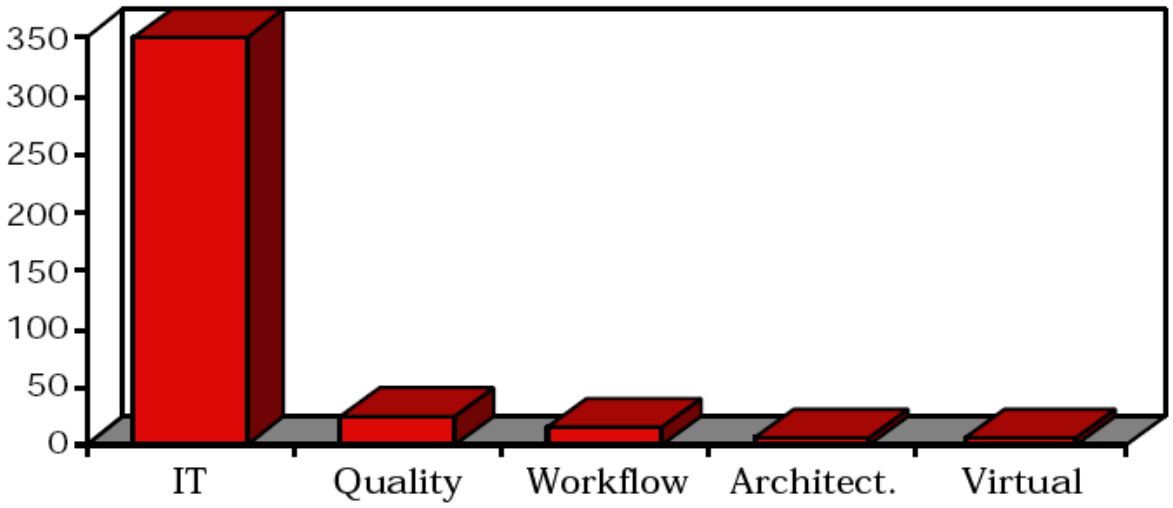

Figure.2

Literature on Marketing
BPR focuses on the need of considering customer needs and requirements, as well as on "value-adding" as the major factors for determining business processes (even called "process-customerization" in current literature).

Literature on organization theory
BPR focuses, as far as the consideration of organizational aspects (including the issue of human resources) is concerned on the following aspects among others:

- Theories on departmentalization
- Organizational culture & power
- Organizational complexity
- Organizational change
- Human resource management

Literature on informatics
The literature on Informatics was chosen with respect to the rapid development of IT during the past years. Technological aspects were considered even in early writings, but have to be seen in the context of the "state-of-the-art" of the decade when being published, which makes many early foundations rather in actual today.

4. WHAT IS BUSINESS PROCESS REENGINEERING?

Reengineering is the organizational process required to align people, processes and technology with strategies to achieve business integration. It can also be thought of as taking a business in its current state and forming an organizational and operational blueprint to redirect

skills, policies, information (data), cultural values, organizational structures, processing and incentives towards targeted improvements.

Business Process Reengineering is a management approach that examines aspects of a business and its interactions, and attempts to improve the efficiency of the underlying processes. It is a fundamental and radical approach by either modifying or eliminating non-value adding activities.

Business Process Reengineering means not only *change* but *dramatic change*. What constitutes dramatic change is the overhaul of organizational structures, management systems, employee responsibilities and performance measurements, incentive systems, skills development, and the use of information technology. Business Process reengineering, (BPR) can potentially impact every aspect of how we conduct business today. Change on this scale can cause results ranging from enviable success to complete failure.

Reengineering is the radical redesign of an organization's processes, especially its business processes. Rather than organizing a firm into functional specialties (like production, accounting, marketing, etc.) and looking at the tasks that each function performs, we should, according to the reengineering theory, be looking at complete processes from materials acquisition, to production, to marketing and distribution. The firm should be re-engineered into a series of processes.

Re-engineering is the basis for many recent developments in management. The cross-functional team, for example, has become popular because of the desire to re-engineer separate functional tasks into complete cross-functional processes. Also, many recent management information systems developments aim to integrate a wide number of business functions. Enterprise resource planning, supply chain management, knowledge management systems, groupware and collaborative systems, Human Resource Management Systems and customer relationship management systems all owe a debt to re-engineering theory.

4.1 DEFINITIONS

4.1.1 Definition Of Business Process

A business process is a set of linked activities that create value by transforming an input into a more valuable output. Both input and output can be artifacts and/or information and the transformation can be performed by human actors, machines, or both.

There are three types of business processes:

- Management processes - the processes that govern the operation. Typical management processes include "Corporate Governance" and "Strategic Management".
- Operational processes - these processes create the primary value stream, they are part of the core business. Typical operational processes are Purchasing, Manufacturing, Marketing, and Sales.

- Supporting processes - these support the core processes. Examples include Accounting, Recruitment, and IT-support.

A business process can be decomposed into several sub-processes, which have their own attributes, but also contribute to achieving the goal of the super-process. The analysis of business processes typically includes the mapping of processes and sub-processes down to activity level.

Activities are parts of the business process that do not include any decision making and thus are not worth decomposing (although decomposition would be possible), such as "Answer the phone", and “produce an invoice".

A business process is usually the result of a business process design or business process reengineering activity. Business process modeling is used to capture, document and reengineer business processes. To visualize a business process, one of the graphical notations can be used such as Business Process Modeling Notation.

Examples of processes include: developing a new product; ordering goods from a supplier; creating a marketing plan; processing and paying an insurance claim; etc.

4.1.2 Definition of BPR

There is no universally accepted definition of business process reengineering. There are almost as many definitions of BPR as there are authors publishing on the topic, we can identify multiple aspects that they have in common. Let us first review a number of definitions.

Davenport & Short (1990) define BPR as:
"The analysis and design of workflows and processes within and between organizations" .

Hammer and Champy (1993) define BPR as:
"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."

Thomas Davenport (1993), another well-known BPR theorist, uses the term process innovation, which he says:
”Encompasses the envisioning of new work strategies, the actual process design activity, and the implementation of the change in all its complex technological, human, and organizational dimensions”.

Additionally, Davenport (ibid.) points out the major difference between BPR and other approaches to organization development (OD), especially the continuous improvement or TQM movement, when he states:
"Today firms must seek not fractional, but multiplicative levels of improvement – 10x rather than 10%."

Finally, Johansson et. al. (1993) provides a description of BPR relative to other process-oriented views, such as Total Quality Management (TQM) and Just-in-time (JIT), and state:
"Business Process Reengineering, although a close relative, seeks radical rather than merely continuous improvement. It escalates the efforts of JIT and TQM to make process orientation a strategic tool and a core competence of the organization. BPR concentrates on core business processes, and uses the specific techniques within the JIT and TQM "toolboxes" as enablers, while broadening the process vision."

Teng et al. (1994) define BPR as:
"The critical analysis and radical redesign of existing business processes to achieve breakthrough improvements in performance measures."

Furthermore, Hammer's Definition is the famous and he considers four keywords within that definition as being the most relevant ones, as there are:

- ***Fundamental***

Two questions are considered as being fundamental and are addressing the companies' justification of existence: What are we doing? and Why are doing so? As Hammer points out, Reengineering means starting from scratch.

- ***Radical***

Radical redesign of business processes means getting to the root of things, not improving existing procedures and struggling with suboptimizing. According to Hammer, radical redesign means disregarding all existing structures and procedures and inventing completely new ways of accomplishing work.

- ***Dramatic***

Reengineering is no way for achieving marginal improvements and fine-tuning. It is intended to achieve heavy blasting.

- ***Processes***

Process-orientation is considered as being the most important aspect of BPR. Hammer claims, that most companies are focused on tasks, people and structures rather than processes.

4.2 The History of BPR

In 1990, Michael Hammer, a former professor of computer science at the Massachusetts Institute of Technology (MIT), published an article in the Harvard Business Review, in which he claimed that the major challenge for managers is to obliterate non-value adding work, rather than using technology for automating it (Hammer 1990). This statement implicitly accused managers of having focused the wrong issues, namely that technology in general, and more

specifically information technology, has been used primarily for automating existing work rather than using it as an enabler for making non-value adding obsolete.

Hammer's claim was simple: Most of the work being done does not add any value for customers, and this work should be removed, not accelerated through automation. Instead, companies should reconsider their processes in order to maximize customer value, while minimizing the consumption of resources required for delivering their product or service. A similar idea was advocated by Thomas Davenport and J. Short (1990), at that time a member of the Ernst & Young research center, in a paper published in the Sloan Management Review the same year as Hammer published his paper.

This idea, to unbiased review a company's business processes, was rapidly adopted by a huge number of firms, which were striving for renewed competitiveness, which they had lost due to the market entrance of foreign competitors, their inability to satisfy customer needs, and their insufficient cost structure. Even well established management thinkers, such as Peter Drucker and Tom Peters, were accepting and advocating BPR as a new tool for (re-)achieving success in a dynamic world. During the following years, a fast growing number of publications, books as well as journal articles, was dedicated to BPR, and many consulting firms embarked on this trend and developed BPR methods. However, the critics were fast to claim that BPR was a way to dehumanize the work place, increase managerial control, and to justify downsizing, i.e. major reductions of the work force, and a rebirth of Taylorism under a different label.

Despite this critique, reengineering was adopted at an accelerating pace and by 1993, as many as 65% of the Fortune 500 companies claimed to either have initiated reengineering efforts, or to have plans to do so. This trend was fueled by the fast adoption of BPR by the consulting industry, but also by the study *Made in America*, conducted by MIT, that showed how companies in many US industries had lagged behind their foreign counterparts in terms of competitiveness, time-to-market and productivity.

4.3 The concept of Reengineering

BPR derives its existence from different disciplines, and four major areas can be identified as being subjected to change in BPR - organization, technology, strategy, and people - where a process view is used as common framework for considering these dimensions. The approach can be graphically depicted by a modification of "Leavitt's diamond". Business reengineering normally includes a fundamental analysis of the organization and a redesign of:

- Organizational structure
- Job definitions
- Reward structures
- Business work flows
- Control processes
- Reevaluation of the organizational culture and philosophy.

A brief description of these four dimensions will be given in Figure.3

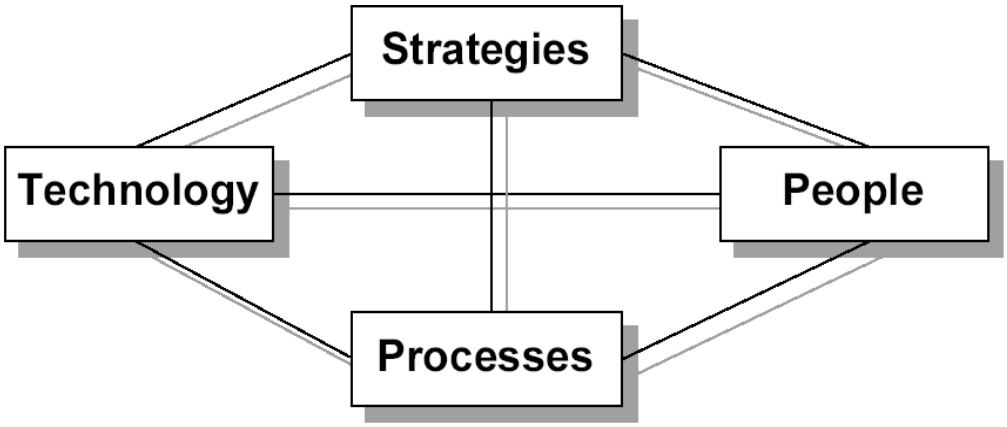

Figure.3

- ***Strategies***

The strategy dimension has to cover strategies within the other areas under concern, namely organization strategy, technology strategy and human resources strategy. Beyond that, strategies have to be current and relevant to the company's vision, as well as to internal and external constraints. Finally, the strategies must be defined in a way that enables understanding and motivation of employees in order to align the work force with them.

- ***Processes***

The concept of business processes - interrelated activities aiming at creating a value added output to a customer - is the basic underlying idea of BPR. These processes are characterized by a number of attributes: Process ownership, customer focus, value-adding, and cross-functionality.

- ***Technology***

In BPR, information technology is generally considered as playing a role as enabler of new forms of organizing and collaborating, rather than supporting existing business functions. However, the point is not to use IT as an improver for existing activities, as which it often has been conceived, but as enabler for the new organization.

- ***People***

The people / human resources dimension deals with aspects such as education, training, motivation and reward systems.

5. METHODOLOGIES OF BPR

Even though a formalized standard methodology, based on a common framework that ensures success in reengineering projects hasn't yet been developed, several attempts have been made to develop such an approach.

5.1 Methodologies from contemporary literature

Although the names and steps being used differ slightly between the different methodologies, they share the same basic principles and elements. With an understanding of the basics of BPR, five methodologies are summarized in Table 1.

Activity#	Methodology #1 [11]	Methodology #2 [5]
1	Develop vision & strategy	Determine Customer Requirements &Goals for the Process
2	Create desired culture	Map and Measure the Existing Process
3	Integrate & Improve enterprise	Analyze and Modify Existing Process
4	Develop technology solutions	Design a Reengineered Process:
5		Implement the Reengineered Process

Activity#	Methodology#3 [2]	Methodology #4 [9]	Methodology #5 [7]
1	Set Direction	Motivating Reengineering	Preparation
2	Baseline and Benchmark	Justifying Reengineering	Identification
3	Create the Vision	Planning Reengineering	Vision
4	Launch Problem Solving Projects	Setting up for Reengineering	Technical & Social design
5	Design Improvements	As Is Description & Analysis:	Transformation
6	Implement Change	To-Be Design and Validation	
7	Embed Continuous Improvement	Implementation	

Table.1 A few BPR methodologies from contemporary literature

A consolidated methodology has been developed from the five methodologies previously presented and a model was developed to provide a structured approach and to facilitate understanding (Muthu, Whitman and Cheraghi 1999). (See Figure.4)

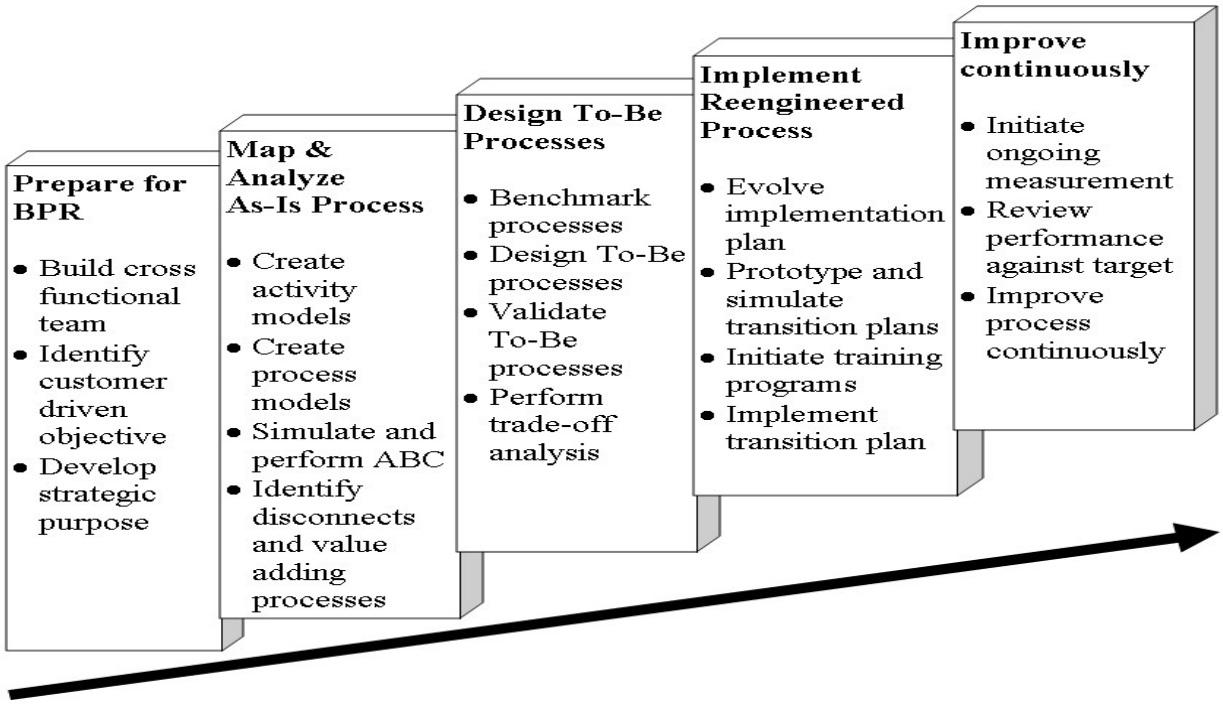

Figure.4: The surest way to the Top!

5.2 Process Reengineering Life Cycle (PRLC)

The following description is based on the PRLC (Process Reengineering Life Cycle) approach developed by Guha et.al. (1993) (See Figure.5).

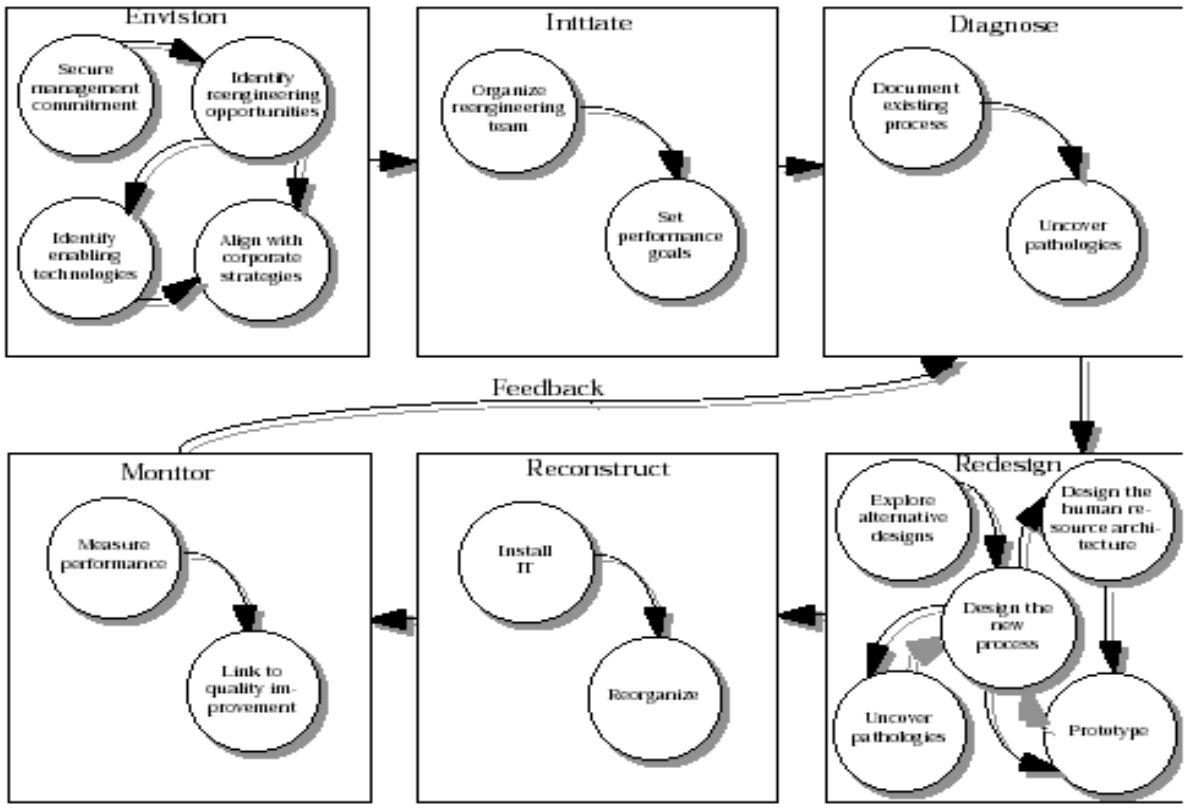

Figure.5

5.2.1 Envisioning new processes

The organization's leaders start with an examination of how they would run their business without any constraints whatsoever. This process does not address the question of how current work can be improved, but how it should be done to achieve maximum performance in all measures.

1. Secure senior management support

It is substantial, that top management is willing to support reengineering projects. This involves the chief executive officer (CEO), as well as the heads of departments in the reengineering effort which is a necessary presumption for anchoring BPR throughout the entire organization. A critical success factor in this concern is convincing management of the necessity of disregarding existing constraints and abandoning existing procedures and

2. Identify reengineering opportunities

Business consists of a large number of processes and the crucial matter is to identify those of them being adequate for reengineering efforts. This task requires firstly a commonly accepted definition of what a business process means, secondly genuine knowledge about the changing needs of customers and processes' potential for customer value adding.

3. Identify enabling technology

It is important to remember, that using IT is no self-purpose, but a way of supporting the activities within the business processes to be performed. Keeping this in mind, companies can use IT for achieving gains in speed, productivity while they, at the same time, are able to ignore geography.

4. Aligning with corporate strategy

This step includes the examination of internal and external strategies related to the reengineering opportunities and enabling technologies being identified.

5.2.2 Initiating change

In this stage, the reengineering project is prepared for performance. The reengineering team is assembled from a multiplicity of units within the organization and external change agents are, if necessary, allocated to the project. At the same time, the reengineering route is staked out and performance goals are defined and set.

1. The reengineering team

Due to the multifunctional character of processes, the reengineering team has to be assembled from a various number of departments. An overall company project may involve people from all departments, while minor projects may consist of members from the affected departments only. A result responsible team leader is assigned by top management and this team leader is then, in turn, assigning roles to the other members of the team.

2. Performance goals

The desired performance for the new processes is determined in this step. There are three areas where potential benefits can be realized, namely: time, cost and number of defects. However, another consultancy, proposes four dimensions of performance, namely: Financial success, customer satisfaction, internal processes, organizational learning.

5.2.3 Process diagnosis

On the basis of the performance goals to be accomplished the reengineering is able to perform an in-depth analysis of the processes to be reengineered. Existing processes are described and hidden pathologies are uncovered. This stage is critical for the further success of the reengineering efforts due to its importance to process redesign.

1. Describing existing processes

A presumption for business process redesign is to gain genuine understanding how existing processes work, their span, linkages and bottlenecks. The following factors are important to take under consideration in process documentation:

- Description of the entire process.
- Identification of process elements and resources.
- Current process performance.
- Analytic decomposition of processes.

2. Uncovering pathologies

The pathologies of processes may have different nature, as there may be inefficient work-flows and sequences of activities, high costs, and insignificant value adding for customers. These inadequacies have to be detected and documented. For this, quantitative as well as qualitative methods should be applied, depending on the nature of pathologies.

5.2.4 Process redesign

Several dimensions are available as measures for redesigning business processes, as there are time, cost, productivity, quality and capital commitment. Using a single dimensional approach would lead to suboptimization of processes, so a consideration of multiple dimensions is to be used. However, some of the performance measures are concurrent, a fact that requires the definition of preferences.

1. Alternative process designs

This step includes the exploration of alternative designs and their possible implementations in order to identify and determine the most appropriate process structure and enabling technologies.

2. New process design

Designing new processes is a task of constantly questioning the necessity of performing a certain activity and how it should be performed. Several factors are critical for the design of processes and have to be dealt with in order to succeed. A list of the most critical ones can be found below.

- Break patterns and disregard "common sense".
- Align processes with strategies and performance goals.
- Assign people to processes instead of single tasks.
- Dismiss hierarchical structures.
- Eliminate pathologies.
- Improve productivity by integrating fragmented work.
- Appraise enabling technology.

3. Designing the human resources architecture

It can be assumed that there is a common agreement on the claim, that no organization is better than the individuals working in it. This makes the design of the human resources architecture being a most critical task within the reengineering effort, especially as major change in the human resource area comes along with reengineering. The following aspects are important for a successful restructuring of the human resources architecture:

- Redefinition of work descriptions, titles and positions.
- Application of team based management techniques.
- Encouraging organizational learning.
- Performance evaluation on team basis instead of individuals.
- Reward structures based on group performance.
- The double role of managers as team members and superiors.
- Continuous reengineering communication with employees.

4. Prototyping

Prototyping provides an instant feedback to the reengineering on the progress and acceptance of the reengineering effort. Prototyping provides opportunities for simulating and evaluating reengineering potentials within the organizational, as well as the system development area. Continuous prototyping enables the reengineering team and management to make necessary adjustments before a final process design is chosen.

5. Selection of IT platform

The IT platform has to be chosen based on its ability of supporting the new designed processes. Other aspects to be taken under consideration should be the adaptability to changing processes and new technologies.

5.2.5 Reconstruction

This stage includes implementing change and anchoring it in the organization and addresses the organizations ability of adopting change. Failure during change implementation may result in costly project failure and potential future inconfidence of employees.

1. Installing IT

Using IT as an enabling technology for implementing change and supporting processes is one of the steps within the reconstruction stage. Depending on the radicality of change and the adaptability of the existing information technology, the existing systems may be changed, or replaced entirely. While the first alternative involves software engineering without affecting the hardware, the second way often includes overhauling the current systems totally, including a new technical platform.

2. Reorganizing activities

Adapting the organizational structure to make it fit the new defined processes is a crucial task. The changes in the human resources architecture have to be realized carefully in a new organizational structure without more than marginal disturbances of the motivation of the individuals being affected. While employee empowerment, subunit reorganization and job

rotation often can be achieved without major disruptions, the reduction of staff, often coming along with reengineering projects, can cause major disruptions.

5.2.6 Process monitoring

The identified and implemented process has to be monitored in a continuous process in order to scan their performance and contribution to quality improvement. This is made possible by an iteration process, in which the new process are used as input to stage 3 (diagnosis) of the methodology, and then being "looped". This includes, that reengineering projects are not handled in the conventional way of being initiated, performed and finished, but that reengineering is an ongoing process of permanent improvement.

1. Performance measurement

For determining the reengineering efforts' success, or failure, the new processes' performance must be measured and compared to the processes being replaced. This performance measuring is performed in terms of the following aspects:

- Process performance: Cycle times, customer value adding, quality.
- IT performance: Information rates, system use.
- Productivity: employees, production, service operations.

2. Links to quality improvement

Reengineering is closely related to quality improvement and should be linked with quality programs. However, there is a major difference in focus between reengineering and approaches like TQM (Total Quality
Management): While reengineering is concerned with abrupt changes and improvement, TQM is concerned with continuous improvement. Nevertheless, quality improvement is a major concern for reengineering as well.

5.3 Comparison of Selected Business Reengineering Methodologies:

The four representative methodologies assume that Business Reengineering projects are being initiated by top-management and carried out by specially formed project teams. All Business Reengineering methodologies can be structured into three steps of Business Reengineering project management (Table.2).

	Step 1: Project Preparation	**Step 2: Redesign of Processes**	**Step 3: Implementation**
Hammer/Champy (Consultants / Academics)	1. Introduction 2. Identification 3. Selection	4. Understanding 5. Redesign	6. Implementation
Davenport (Academic)	1. Visioning and Goal setting 2. Identification	3. Understand and measure 4. Information Technology	5. Prototyping 6. Implementation
Manganelli/Klein	1. Preparation	3. Process Vision	5. Transformation

(Consultants)	2. Identification	4a. Technical Design 4b. Social Design	
Kodak (Users)	1. Project Initiation 5. Change Management	2. Understanding 3. New Process Design 5. Change Management	4. Business Transition 5. Change Management

Table.2 Comparison of Selected Business Reengineering Methodologies

The comparison of the four selected methodologies shows many similarities. First, the overall approach Business Reengineering projects take, is of a linear nature. Further, Business Reengineering projects take a similar route as Information Technology implementation projects. Within the three consecutive steps, the individual approaches differ in the scope of project preparation.

6. TOOLS AND TECHNIQUES OF BPR

When a BPR project is undertaken across the organization, it can require managing a massive amount of information about the processes, data and systems. If you don't have an excellent tool to support BPR, the management of this information can become an impossible task. The use of a good BPR/documentation tool is vital in any BPR project.

The tools of BPR include:

- Purpose analysis (To identify the objectives.)
- Flowcharting
- Process Activity Analysis is our own (superior in terms of comprehensiveness and identifying waste) brand of what is sometimes called "Value Stream Mapping" or "Flowcharting" (To identify current or future information, material, or document flows.)
- Waste analysis (To identify waste in the current process.) We use our three proprietary techniques to establish waste:
    - Complexity, Variability, Analysis
    - Agility Analysis (Self diagnosis available on request) (It is applicable to non manufacturing businesses.)
    - 21 wastes (which does include the original 7 wastes of Ohno)
- Ownership Analysis (To identify changes of ownership of material, information or documents during their life.)
- Benchmarking (To identify alternative strategies, organization, processes, procedures and methods.)
- Resource Domination Analysis (To identify what products or services consume what resources.)
- Product life cycle analysis (To identify whether investment in particular products and processes are worthwhile.)

- Force field analysis (To identify cultural constraints)
- Pareto Analysis (To sort the wheat from the chaff, in products, processes, value, space utilization etc.)
- Segmentation (A method of virtually or actually segmenting the business or processes.)
- Input / Process / Output diagrams (A method of defining a process)
- Control Systems Design (A method of identifying appropriate control systems techniques for the new situation.)
- Measures of Performance Design (A method of identifying how the new process will be measured.)
- Culture Development (A method of identifying cultural development needs.)
- Supplier development (A method of identifying and developing a supplier's ability to support the redesigned process.)
- Postponement and Mass Customization (A method of improving flexibility, and reducing lead times.)
- Impact / Ease Analysis (A method of identifying the appropriate things to develop and how to control their development.)
- Risk analysis, SWOT, and FMEA (Methods of identifying which aspects of the process or development are risky and which need close monitoring or preventative measures to avoid problems.)
- Simulation (A method of testing the new design prior to implementation.)

7. RISKS, PROBLEMS & REASONS THAT BPR PROJECTS FAIL

Radically improved business processes may satisfy customer requirements better than before and achieve drastic improvements to the operational results of an organization. However, the dramatic improvements do not come without risks and a high rate of failure. The benefits of reengineering do not necessarily come in due time. That means that BPR projects must be carefully monitored during the life cycle of the project.

At each step of the change process (design, implementation and operational/rollout) problems related to sponsorship, scope, organizational culture, leadership, skills, human resources and management can arise. Examples of the types of problems are summarized as follows:

1. Design risks include the following:
    - Sponsorship issues
        - CEO not supportive
        - Insufficient top management commitment
        - Management skepticism
        - Wrong executive leading the effort
        - Wrong members on the design team
        - Inappropriate use of outside consultants and contractors
        - Poor communication of importance

- Scope issues
    - Unrelated to strategic vision
    - Scope too narrow or too ambitious
    - Sacred cows protected
    - Existing jobs protected
    - Analysis paralysis
- Skill issues
    - Insufficient exploration of new ideas
    - Absence of out-of-the-box thinking
    - Closed to new ideas
    - Design misconceptions
    - Cultural change not calibrated to organization
    - Inadequate consideration of human resource issues
    - No notion of a separate and distinct “reengineering process.”
- Political issues
    - Sabotage by managers losing power
    - Sniping
    - Uncontrolled rumors
    - Fear of change
    - Cultural resistance
    - No legacy system under control

2. Implementation risks include the following:
    - Leadership issues
        - Insufficient attention or commitment by top management
        - Ownership struggle
        - CEO/sponsor's political will wavers or falters
        - Switch in CEO/sponsor
        - Inadequate resources
        - Failure to communicate compelling vision
        - Failure of CEO to unify management behind effort
    - Technical issues
        - Beyond the capability of IT to build
        - over-reliance on information technology solutions
        - Delayed software implementation
        - Capability of packaged software insufficient
        - Software architecture is not a primary reengineering consideration
        - Functional and design requirement problems
        - Key issues not initially identified
        - Complexity underestimated
        - Unanticipated scope change
        - Time consuming or costly development strategies

- Transition issues
    - Loss of key personnel from design phase
    - Loss of momentum
    - Staff burnout
- Scope issues
    - Inadequate planning
    - Slower than expected results
    - Budget overruns
    - Unrealistic time frames
    - Narrowing of original scope
    - Neglect of human resource issues
    - Magnitude of effort overwhelming

3. Operational/roll out risks include the following:
    - Cultural/human resource issues
        - Cultural resistance increases
        - Dysfunctional behavior does not diminish
        - Lack of buy in leads to erosion of projected benefits
        - Old technologies in training programs with inadequate, insufficient or unsuccessful
        - Outcomes not as promised or generally understood
    - Management issues
        - Unsuccessful implementation of new management skills
        - No provision for ongoing continuous improvement activities
        - Ownership/turf/power issues not satisfactorily resolved
        - Insufficient will to overcome problems encountered
        - Poor communication
        - Active or passive sabotage by employees and managers
    - Technical issues
        - Support late and/or flawed
        - Operational problems with systems/software bugs
        - Systems do not meet user needs/expectations
        - Inadequate testing
        - Data integrity problems undermine confidence

8. REENGINEERING SUCCESS FACTORS

More than half of early reengineering projects failed to be completed or did not achieve bottom-line business results, and for this reason business process reengineering "success factors" has become an important area of study.

Reengineering Success Factors include:

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)

8.1 Top Management Sponsorship

Major business process change typically affects processes, technology, job roles and culture in the workplace. Significant changes to even one of these areas require resources, money, and leadership. Changing them simultaneously is an extraordinary task. If top management does not provide strong and consistent support, most likely one of these three elements (money, resources, or leadership) will not be present over the life of the project, severely crippling your chances for success.

It may be true that consultants and reengineering managers give this topic a lot of attention. Mostly because current models of re-designing business processes use staff functions and consultants as change agents, and often the targeted organizations are not inviting the change. Without top management sponsorship, implementation efforts can be strongly resisted and ineffective.

Top management support for large companies with corporate staff organizations has another dimension. If the top management in the "line" organization and "staff" organization do not partner and become equal stakeholders in the change, AND you only have staff management support, you most likely are ill-prepared for a successful reengineering project. Projects that result in major change in an organization rarely succeed without top management support in the line organization.

8.2 Strategic Alignment

You should be able to tie your reengineering project goals back to key business objectives and the overall strategic direction for the organization. This linkage should show the thread from the top down, so each person can easily connect the overall business direction with your reengineering effort. You should be able to demonstrate this alignment from the perspective of financial performance, customer service, associate (employee) value, and the vision for the organization.

Reengineering projects not in alignment with the company's strategic direction can be counterproductive. It is not unthinkable that an organization may make significant investments

in an area that is not a core competency for the company, and later this capability be outsourced. Such reengineering initiatives are wasteful and steal resources from other strategic projects.

Moreover, without strategic alignment your key stakeholders and sponsors may find themselves unable to provide the level of support you need in terms of money and resources, especially if there are other projects more critical to the future of the business, and more aligned with the strategic direction.

8.3 Business Case for Change

In one page or less you must be able to communicate the business case for change. Less is preferred. If it requires more than this, you either don't understand the problem or you don't understand your customers.

You may find your first attempt at the business case is 100 pages of text, with an associated presentation of another 50 view graphs (overhead slides). After giving the business case 20 times you find out that you can articulate the need for change in 2 minutes and 3 or 4 paragraphs. Stick with the shorter version.

Why is this important? First, your project is not the center of the universe. People have other important things to do, too. Second, you must make this case over and over again throughout the project and during implementation - the simpler and shorter it is, the more understandable and compelling your case will be.

Cover the few critical points. Talk to the current state, and what impact this condition has on customers, associates and business results. State the drivers that are causing this condition to occur. State what your going to do about it (vision and plan), and make specific commitments. Keep focusing on the customer. Connect this plan to specific, measurable objectives related to customers, associates, business results, and strategic direction. Show how much time and money you need and when you expect to get it back. Don't sell past the close. No matter how long you talk, you will get resistance from some, and support from others, so you might as well keep it short.

The business case for change will remain the center piece that defines your project, and should be a living document that the reengineering team uses to demonstrate success. Financial pay back and real customer impact from major change initiatives are difficult to measure and more difficult to obtain; without a rigorous business case both are unlikely.

8.4 Proven Methodology

The previous module presented several BPR methodologies, and it is important to note that your methodology does matter. Seat-of-the-pants reengineering is just too risky given the size of the investment and impact these projects have on processes and people.

Not only should your team members understand reengineering, they should know how to go about it. In short, you need an approach that will meet the needs of your project and one that the team understands and supports.

8.5 Change Management

One of the most overlooked obstacles to successful project implementation is resistance from those whom implementers believe will benefit the most. Most projects underestimate the cultural impact of major process and structural change, and as a result do not achieve the full potential of their change effort.

Change is not an event, despite our many attempts to call folks together and have a meeting to make change happen. Change management is the discipline of managing change as a process, with due consideration that we are people, not programmable machines. It is about leadership with open, honest and frequent communication.

It must be OK to show resistance, to surface issues, and to be afraid of change. Organizations do not change. People change, one at a time. The better you manage the change, the less pain you will have during the transition, and your impact on work productivity will be minimized.

8.6 Line Ownership

Many re-design teams are the SWAT type -- senior management responding to crisis in line operations with external consultants or their own staff. It's a rescue operation. Unfortunately the ability of external consultants to implement significant change in an organization is small. The chances are only slightly better for staff groups. Ultimately the solution and results come back to those accountable for day-to-day execution.

That does not mean that consultants or staffs are not valuable. What it does mean, though, is that the terms of engagement and accountability must be clear. The ownership must ultimately rest with the line operation, whether it be manufacturing, customer service, logistics, sales, etc.

This is where it gets messy. Often those closest to the problem can't even see it. They seem hardly in a position to implement radical change. They are, in a matter of speaking, the reason you're in this fix to begin with. They lack objectivity, external focus, technical re-design knowledge, and money.

On the other hand, they know today's processes, they know the gaps and issues, and they have front-line, in-your's-face experience. They are real. The customers work with them, not your consultants and staff personnel.

Hence your dilemma, the line operation probably cannot heal itself when it comes to major business re-design. Staff and consultants have no lasting accountability for the solution, and never succeed at forcing solutions on line organizations.

You need both. You need the line organization to have the awareness that they need help, to contribute their knowledge, and to own the solution and implementation. At the same time you need the expertise and objectivity from outside of the organization.

Building this partnership is the responsibility of the line organization, stakeholders and re-designs team. No group is off the hook.

8.7 Reengineering Team Composition

The reengineering team composition should be a mixed bag. For example,

- some members who don't know the process at all,
- some members that know the process inside-out,
- include customers if you can,
- some members representing impacted organizations,
- one or two technology gurus,
- each person your best and brightest, passionate and committed, and
- some members from outside of your company.

Moreover, keep the team under 10 players. If you are finding this difficult, give back some of the "representative" members. Not every organization should or needs to be represented on the initial core team. If you fail to keep the team a manageable size, you will find the entire process much more difficult to execute effectively.

9. EXAMPLES OF COMPANIES THAT APPLY BPR

In a world increasingly driven by the three Cs: Customer, Competition and Change, companies are on the lookout for new solutions for their business problems. Recently, some of the more successful business corporations in the world seem to have hit upon an incredible solution: Business Process Reengineering (BPR). Some of these companies are: (see table.3)

General Motors Corporation implemented a 3-year plan to consolidate their multiple desktop systems into one. GM saved 10% to 25% on support costs, 3% to 5% on hardware, 40% to

60% on software licensing fees, and increased efficiency by overcoming incompatibility issues by using just one platform across the entire company.

Southwest Airlines offers another successful example of reengineering their company and using Information Technology the way it was meant to be implemented. In 1992, Southwest Airlines had revenue of $1.7 billion and an after-tax profit of $91 million. American Airlines, the largest U.S. carrier, on the other hand had revenue of $14.4 billion dollars but lost $475 million and has not made a profit since 1989.

Michael Dell is the founder and CEO of DELL Incorporated, which has been in business since 1983 and has been the world's fastest growing major PC Company. Dell's website is noted for bringing in nearly "$10 million each day in sales". Dell's stocks have been ranked as the top stock for the decade of the 1990s, when it had a return of 57,282%.

Ford reengineered their business and manufacturing process from just manufacturing cars to manufacturing quality cars, where the number one goal is quality. This helped Ford save millions on recalls and warranty repairs.

A multi-billion dollar corporation like Procter and Gamble Corporation, which carries 300 brands and growing really has a strong grasp in re-engineering. Procter and Gamble grow to $5.1 billion by the fiscal year of 2004. Procter and Gamble raise the volume by 17%, the organic volume by 10%, sales are at $51.4 billion up by 19%, with organic sales up 8%, earnings are at $6.5 billion up 25% and share earnings up 25%. Procter and Gamble also has a free cash flow of $7.3 billion or 113% of earnings, dividends up 13% annually with a total shareholder return of 24%.

When IBM started reengineering in 1992, the guiding principle was to become more customer-centered. Twelve customer relationship processes were identified and used as a basis for the reengineering project. One example is "solutions delivery": a contract between IBM and the customer for a complete IT system, including hardware, software, technical support, consulting services and third party products. The redesigned process moved the responsibility for pricing to the case team, who used "pricing tool" software. This eliminated a nearly two month delay that formerly occurred when pricing was referred to IBM headquarters.

Wal-Mart reduces restocking time from six weeks to thirty-six hours. Taco Bell's sales soar from $500 million to $3 billion."

The reason behind these success stories: Business Process Reengineering!

Company Name	Benefits after applying BPR
General Motors	Saved : 10% to 25% on support costs, 3% to 5% on hardware, 40% to 60% on software licensing fees

Southwest Airlines ×American Airlines	It had a revenue of $1.7 billion…… after-tax profit of $91 million × It had revenue of $14.4 billion dollars…(don't apply BPR)….. Lost $475 million and has not made a profit since 1989.
DELL Incorporated	▪ Dell's website is noted for bringing in nearly "$10 million each day in sales". ▪ Dell's stocks have been ranked as the top stock for the decade of the 1990s, when it had a return of 57,282%.
Ford	save millions on recalls and warranty repairs
Procter and Gamble	▪ Grow to $5.1 billion by the fiscal year of 2004. ▪ Raise the volume by 17%, the organic volume by 10%, sales are at $51.4 billion up by 19%, with organic sales up 8%, earnings are at $6.5 billion up 25% and share earnings up 25%. ▪ Procter and Gamble also has a free cash flow of $7.3 billion or 113% of earnings, dividends up 13% annually with a total shareholder return of 24%
IBM	Eliminate a nearly two month delay that formerly occurred when pricing.
Wal-Mart	Reduces restocking time from six weeks to thirty-six hours
Taco Bell	Sales soars from $500 million to $3 billion

Table.3

10. DIFFERENCES BETWEEN BPR AND TQM

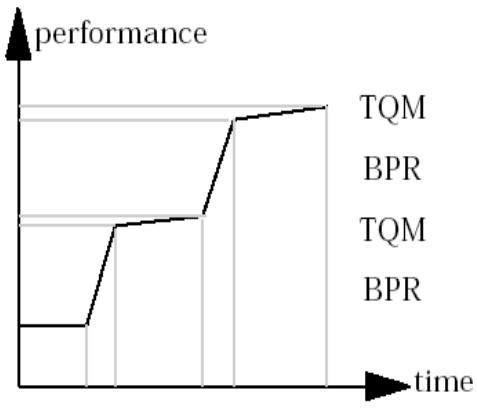

Fig 4.2

TQM - Total Quality Management and BPR share a lot common themes as they both focus on customer requirements and processes to fulfill them, however, they differ significantly as the pace of change and improvement is concerned, as well as on the means of accomplishment.

While BPR is intended to achieve quantum gains rapidly by replacing old processes with new ones, TQM and other quality programs are working on the basis of existing processes and seek to enhance them by incremental, continuous improvement, a process even known by the Japanese term "kaizen". When Kaizen is compared with the BPR method is it clear the Kaizen philosophy is more people-oriented, more easy to implement, but requires long-term discipline and provides only a small pace of change. The Business Process Reengineering approach on the other hand is harder, technology-oriented, it enables radical change but it requires considerable change management skills.

BPR and total quality programs must not necessarily exclude each other, but can be used as complementary concepts, aimed to provide an improvement based on rapid process changes as well as on steady improvement of the new processes.

Davenport (1993) notes that Quality management, often referred to as total quality management (TQM) or continuous improvement, refers to programs and initiatives that emphasize incremental improvement in work processes and outputs over an open-ended period of time. In contrast, Reengineering, also known as business process redesign or process innovation, refers to discrete initiatives that are intended to achieve radically redesigned and improved work processes in a bounded time frame.

Davenport identified four alternative approaches to integrating improvement (TQM) and innovation (BPR) activities, in order to provide a single, coherent program of organizational change:

- Sequencing change initiatives
- Creating a portfolio of process change programs
- Limiting the scope of work design
- Undertaking improvement through innovation

The differences between TQM and BPR efforts can be summarized by the following table 4:

	TQM	BPR
Level of change	Incremental	Radical
Starting Point	Existing process	Clean slate
Frequency of change	One-time/continuous	One-time
Time required	Short	Long
Participation	Bottom-up	Top-down
Scope	Narrow, functional	Broad, cross functional
Risk	Moderate	High
Primary Enabler	Statistical control	Information technology
Type of change	Cultural	Cultural/structural

Table. 4

11. THE FUTURE OF BPR

Six Sigma and Total Quality Management (TQM) are terms often confused with BPR, and are not its replacements. All are change initiatives, with the main difference being BPR is focused on radical, "big bang" change, and Six Sigma and TQM both focused on continuous, incremental improvement.

Methods such as that used by Rigors employ the traditional principles of BPR and acknowledge the contributions made by Six Sigma without the adherence to measurement, which while appropriate for some organizations is not suitable for those at the beginning of the BPR change ladder.

In order to reanalyze BPR, it is being replaced by Business Process Management (BPM). BPM is presently taking a similar road toward many failures by focusing too heavily on automation and failing to consider people in processes.

12. ALTERNATIVES TO BPR

BPR increases productivity by cutting costs but does nothing to increase the revenues or sales. BPR is often undertaken by firms "playing catch up" to avoid disaster, but it does nothing to "regenerate core strategies," which can lead to a real growth in revenues.

For example, Britain's manufacturing output (the numerator) increased about ten percent between 1969 and 1991, while the number of employees (the denominator) was cut in half. Although productivity skyrocketed, Britain surrendered global market share. "One almost expected to pick up the Financial Times and find that Britain had finally matched Japan's manufacturing productivity -- and the last remaining person at work in British manufacturing was the most productive son of a gun on the planet."

Other critics warn that although BPR may lead to a competitive advantage, it is destined to be short- lived. When one company lowers its costs of doing business, other companies will immediately follow, and the competitive advantage is lost. One writer warns that the reason why reengineers are so dangerous is that, due to the obsession with bench-marking, "all firms in an industry start converging on a point of no difference and thus of no profit."

13. CONCLUSION

To be successful, Business Process Reengineering projects need to be top down, taking in the complete organization, and the full end to end processes. It needs to be supported by tools that make processes easy to track and analyze.

An intense customer focus, superior process design and a strong and motivated leadership are vital ingredients to the recipe for the success of any business corporation. Reengineering is the key that every organization should possess to attain these prerequisites to success. BPR doesn’t offer a miracle cure on a platter. Nor does it provide a painless quick fix. Rather it advocates strenuous hard work and instigates the people involved to not only to change what they do but targets at altering their basic way of thinking itself. Failure in expecting big results doesn’t mean that reengineering stops forever. “It usually stalls and then restarts as the company gets itself refocused and remobilized.

14. REENGINEERING RECOMMENDATIONS

- BPR must be accompanied by strategic planning, which addresses leveraging IT as a competitive tool.
- Place the customer at the center of the reengineering effort -- concentrate on reengineering fragmented processes that lead to delays or other negative impacts on customer service.
- BPR must be "owned" throughout the organization, not driven by a group of outside consultants.
- Case teams must be comprised of both managers as well as those will actually do the work.
- The IT group should be an integral part of the reengineering team from the start.
- BPR must be sponsored by top executives, who are not about to leave or retire.
- BPR projects must have a timetable, ideally between three to six months, so that the organization is not in a state of "limbo".

- BPR must not ignore corporate culture and must emphasize constant communication and feedback.

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