# BUSINESS PROCESS REENGINEERING

**GENERAL OBJECTIVES OF THE SUBJECT**

At the end of the course, Individuals will analyze the characteristics of the materials in the industries, taking into account its advantages and functionality, for their proper application according to the same.

## 2. BUSINESS PROCESS REENGINEERING



### 2.1 What is BPR

Generally the topic of BPR involves discovering how business processes currently operate, how to redesign these processes to eliminate the wasted or redundant effort and improve efficiency, and how to implement the process changes in order to gain competitiveness. The aim of BPR, according to Sherwood-Smith (1994), is "seeking to devise new ways of organizing tasks, organizing people and redesigning IT systems so that the processes support the organization to realize its goals".

It is argued by some researchers (for example, van Meel et al., 1994; MacIntosh and Francis, 1997; Peltu et al., 1996) that there is no commonly agreed definition of BPR. Peltu et al. consider that this lack of an accepted definition of BPR makes it difficult to assess the overall success or failure of its concept.

The following is their definition of BPR***: [Reengineering is] 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.***

Another BPR father, Davenport (1993), describes 'business process redesign' as: ... the analysis and design of workflows and processes within and between organizations. Business activities should be viewed as more than a collection of individual or even

functional tasks; they should be broken down into processes that can be designed for maximum effectiveness, in both manufacturing and service environment.

These definitions suggest that we should concentrate on *processes* rather than functions (or structures) as the focus of the (re-)design and management of business activity. The definitions of the term 'process' by different researchers are also slightly different. For example, Hammer and Champy (1993) define a process as: ***a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.***

A process is a specific ordering of work activities across time and space, with a beginning, an end, and clearly identified inputs and outputs: a structure for action. And Warboys et al. (1999) define a process as:

***A process is structured change, i.e. there is a pattern of events which an observer may recognise across different actual examples (or occurrences) of the process, or which may be made manifest, or implemented, in many different occurrences. In BPR, the process to be reengineered is the so-called business process.*** Davenport describes a business process as "simply a structured, measured set of activities designed to produce a specified output for a particular customer or market". Riemer (1998) describes business processes in an object-oriented style: "business processes are series of steps that change states of business objects (that is, customers, orders and inventory), thereby causing business events".

However we should note that BPR is concerned with ***customer-orientation***. Thus the outputs of business processes should not only achieve the company's objectives, but also need to satisfy customers' requirements. From these definitions we can conclude that business processes start and end with customers, and the value of business processes is dependent upon customers.

## 2.2 The Origins of BPR

Some researchers argue that the original concept of *reengineering* can be traced back to the management theories of the nineteenth century. As one report in *The Financial Times* (1994): The purpose of reengineering is to make all your processes the best-in-class. ... Frederick Taylor suggested in the 1880's that managers use process reengineering methods to discover the best processes for performing work, and that these processes be reengineered to optimize productivity.

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> In the early 1900's, Henri Fayol originated the concept of reengineering: To conduct the undertaking toward its objectives by seeking to derive optimum advantage from all available resources. Similarly, Galliers (1998) observes that "BPR ... far from being a new departure, is in fact a reversion to the ***classical*** school1 of strategic thinking popularized in the 1960s". That is, organizations make such radical changes when they meet competitive pressures which challenge their current processes.

BPR can be viewed as a response to such change and therefore fits in the classical school of strategy where organizations adjust themselves to new forms in order to maximize their profits. However it is commonly agreed that BPR first came and attracted academic and industrial attention in 1990 as a result of two papers by Michael Hammer (on reengineering, see Hammer, 1990) and Thomas Davenport (on business process redesign, see Davenport and Short, 1990). In 1993 they further published two key books (Hammer and Champy, 1993 and Davenport, 1993) which brought widespread attention to the emerging field of BPR.

The concept of BPR is widely regarded as having been introduced as a perceived solution to the economic crisis and the recession of the late 1980's and early 1990's (Butler, 1994; Arnott and O'Donnell, 1994). As Butler describes it: "the '80s were a time for financial reengineering ... the '90s are for technological reengineering". Hammer and Champy (1993) propose that "BPR can help organizations out of crisis situations by becoming leaner, better able to adapt to market conditions, innovative, efficient, customer focused and profitable in a crisis situation".

Before BPR emerged (and even today), it was widely accepted by industries and business enterprises that a work should be broken down into its simplest (and most basic) tasks. This leads to the structure of enterprises becoming hierarchical – or functional – in order to manage such divided tasks.

## 2.3 Key Concepts

BPR seeks to break from current processes and to devise new ways of organizing tasks, organizing people and making use of IT systems so that the resulting processes will better support the goals of the organization. This activity is done by identifying the critical business processes, analyzing these processes and redesigning them for efficient improvement and benefit. Vidgen et al. (1994) define the central tenets of BPR as:

- Radical change and assumption challenge;
- Process and goal orientation;
- Organizational re-structuring;
- The exploitation of enabling technologies, particularly information technology.

That is, by focusing on business objectives, we analyze the processes of the organization, eliminate non-essential or redundant procedures, and then use IT to redesign (and 'streamline') organizational operations.

## 2.4 BPR as Radical Change

BPR is a radical change, rather than incremental change. Hammer and Champy (1993) highlight this tenet as: Re-engineering is ... about rejecting the conventional wisdom and received assumptions of the past. ... Reengineering is the search for new models of organizing work. Tradition counts for nothing. Re-engineering is a new beginning. ... To succeed at reengineering, you have to be a visionary, a motivator, and a leg breaker. Similarly Davenport (1993) advocates radical change:

Objectives of 5% or 10% improvement in all business processes each year must give way to efforts to achieve 50%, 100%, or even higher improvement levels in a few key processes. ... [Radical change is] the only means of obtaining the order-of-magnitude improvements necessary in today's global marketplace. Existing approaches to meeting customer needs are so functionally based that incremental change will never yield the requisite interdependence.

One reason the change in BPR is radical rather than incremental is ***"to avoid being trapped by the way things are currently done"*** (Vidgen et al., 1994). Dr. Robinson of IBM UK highlights rapid IT innovation and increasingly intensive global competition as two main reasons why organizations have had to consider the introduction of radical change4 (cf. Peltu et al., 1996). Robinson (1994) concludes that radically re-visioned processes drive the ***shape*** of the organization, rather than current *structures*. Even such radical changes are not limited to inside one organization but forge with other organizations, which generate new views of an organization (Vidgen et al., 1994):

Possible [radical] changes to the organization are not limited to internal re-ordering, links can be forged with other organizations even though they are competitors. This leads to a view of the organization as ***a fluid mix of interests*** rather than a fixed entity with an objective existence. It is recognized in the BPR literature that advances in technology bring opportunities that were difficult to imagine before the technology had been created.

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There is a sense of innovatory solutions looking for problems and the exploitation of unexpected consequences that cannot be predicted by a purely conceptual approach. At its best, BPR can be seen as a mix of ***conceptual thinking*** and ***practical experience*** gained through creative experimentation and faith.

## 2.5 BPR, DSS and TQM

When discussing radical change in BPR, we find that BPR, ***DSS (decision support systems)*** and ***TQM (total quality management)*** have much common with each other. Firstly they are all focusing on business processes. Arnott and O'Donnell (1994) characterize DSS as relevant to BPR as it was the first information system (IS) movement to explicitly focus on the fundamental redesign of business processes rather than on the efficient application of a new computer technology. Also BPR and DSS have a common aim which is to improve business processes via radical change.

The most significant difference between BPR and DSS is the *scope* of analysis: BPR focuses on the whole organization whereas DSS focuses on one individual decision.
BPR is also different from TQM in that BPR concentrates on major discrete changes to business processes, whereas TQM concentrates on minor continuous improvement to business processes. That is, the improvements in TQM are smaller than the ones in BPR. Butler (1994) elucidates the difference between BPR and TQM as:

[TQM approach] which favours steady incremental gain, may often take a number of years to complete. For firms in highly competitive industries, this lagtime can allow competitors to forge ahead. In contrast, results from BPR can be realized within 12-18 months, but it is a far riskier undertaking, and should not be regarded as a 'quick fix' solution.

Furthermore, whereas BPR is commonly viewed as a top-down solution from management, TQM involves staff from all levels for problem solving and suggests bottom-up improvement. Employees' resistance to change has been identified as one major barrier to the success of BPR. It was reported by MacIntosh and Francis (1997) that those companies that had introduced TQM prior to taking on board BPR, faced less resistance to change. As we believe that these two approaches are compatible, we propose in this thesis a concept of 'participative BPR' which combines both of them.

I will describe the problems of BPR due to human factors, and motivate the concept of participative BPR. The details of participative BPR will be further described in this chapter.

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## 2.6 Process-Orientation: From Structure to Process

Many current business processes – with their functional structures – were designed to enable efficient management by separating processes into small tasks that could be performed by less skilled workers with little responsibility. Under this structure, the important decisions were made by the higher skilled and more trusted managers. Traditional (structural) approaches to a business engineering generally follow this sequential order: firstly business strategy is proposed, then the business structures and processes are planned, and finally they are implemented with IT.

In comparison, BPR is regarded as process-oriented which is trying to overcome some problems raised by hierarchical structures. That is, BPR as a process-orientation changes the structural relationships between management and employers into the interactive processes between them. BPR aims to break radically the existing process structures and replace them by fundamental and innovative solutions.

The functional structure is a vertical structure in which there may exist barriers to separate the functions in organizations. BPR emphasizes business processes which are regarded as horizontal flows and cut across organizational functions. MacIntosh and Francis (1997) justify the claim that BPR highlights the delays, errors and inefficiencies which are introduced when passing information and work from one function to another.

## 2.7 Problems Facing BPR

In 1996 Davenport published an article entitled *Why Re-engineering Failed: The Fad that Forgot People* in which he reports: To most business people in the United States, re-engineering has become a word that stands for restructuring, lay-offs, and too often, failed change programmes ... companies that embraced [re-engineering] as the silver bullet are now looking for ways to re-build the organization's torn fabric. (Davenport, 1996) Also in 1998 it was reported that only around 30% of BPR projects were regarded as a success (Galliers, 1998).

The earlier promise of BPR had not been fulfilled. There are many reasons for the limited success of BPR. Some explanation of such high rates of failure for BPR projects have been discussed in BPR literature. For example, employees' resistance of change as they consider BPR as threats to their jobs (i.e. the increase in short-term contracts and lack of promotion); Galliers (1998) and Gerrits (1994) point out that currently BPR approaches lack detailed guidance and support for the actual implementation of reengineering: many publications describe the situation before and after BPR but do not discuss the path to reach the final situation; Chen et al. (2000a) explain that one reaction to this failure was to retain faith in IT as a dominant support and just admit that since it could not adapt – or

at least not at acceptable levels of cost – then business activities must adapt to IT. For example: The pendulum has swung from 'continuous reengineering and re-inventing' to 'pick an application package and force our business processes to comply with the package' (Riemer, 1998).

In this section we focus mainly on the role of IT in BPR and on human factors which affect the success of BPR. The reason is that there is still a gap between the need to model business process innovations and the capabilities of IT to support the task. In the last section, we propose participative BPR and modeling business processes, as the main idea of our EM approach to BPR is to consider the wider context of a desired 'system' in terms of the purposes, people and other resources which form the environment of the system.

## 2.8 Human Factors in BPR

We have found that the focus of the BPR literature is on IT and process redesign techniques. However there are other complex issues such as human, organizational, cultural and political issues. Some researchers determine that one of the main reasons for BPR failure is the neglect of the human element – the approach takes too much account of the scale of changes and fails to consider such change through people. Corrigan (1996) describes this situation thus:

Given [BPR's] focus on business processes, many researchers have highlighted the lack of attention given by [BPR] to the human dimensions of organizing, emphasizing "how employees, not just processes must be re-engineered or debugged if they are to run effectively in systems". Davenport (1993) emphasizes that the success of reengineering programmes is dependent on and concurrent with effective organizational and human resource change. Thus it is essential to take a wider (contextual) view of these influences on the success of BPR.

Resistance to Change - BPR aims at the change in the organization that is for the best. However as BPR is a radical rather than incremental change, it is not surprising that 'resistance to change' has been identified as a major barrier to the success of BPR (Corrigan, 1996; Quaddus, 1994; Peltu et al., 1996). Corrigan identifies one common situation in most organizations adopting BPR (through his interviews):

> Some of the interviewees pointed to the fact that employees were expected to agree and go along with goals and changes in working life that have been determined by senior management, and that they were the last to know about how change would affect them.

For these people, BPR is perceived as a threat to their jobs, either a threat directly to their existence or a threat to the quality and content of their jobs, or as causing the lack of promotion. People commonly asked: "Why change if it is working?". Extremely, as Peltu et al. (1996) verify, 'downsizing', i.e. sacking people, is the most obvious 'dark side of BPR'. Thus, to avoid this situation, as we discussed earlier about TQM, many companies try to introduce TQM prior to BPR for the reason of less resistance to change. Stewart (1993) notes that "you cannot do reengineering without an environment of continuous improvement or TQM". BPR can only work when those in the company who have to work with the new design have a role in creating it, and thus support such changes.