

1. INTRODUCTION

Business process re-engineering is the analysis and design of workflows and processes within an organization. According to Davenport (1990) a business process is a set of logically related tasks performed to achieve a defined business outcome. Re-engineering maintains that optimizing the performance of sub processes can result in some benefits, but cannot yield dramatic improvements if the process itself is fundamentally inefficient and outmoded. For that reason, re-engineering focuses on re-designing the process as a whole in order to achieve the greatest possible benefits to the organization and their customers.[1]

Business process re-engineering (BPR) began as a private sector technique to help organizations fundamentally rethink how they do their work in order to dramatically improve customer services, cut operational costs, and become world class competitors. A key stimulus for re-engineering has been the continuing development and deployment of sophisticated information technology infrastructure, information systems and its networks.

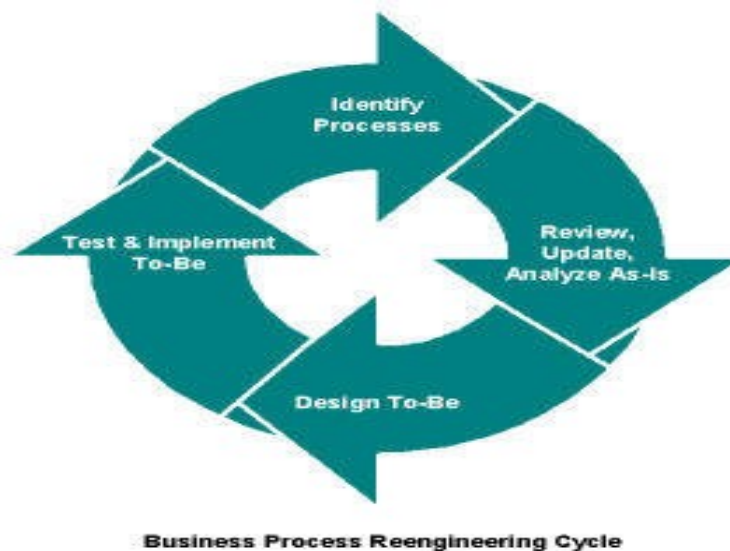


Fig1:

Business Process Re-engineering (BPR) is basically the fundamental rethinking and radical design, made to an organization's existing resources. It is more than just business improvising. It is an approach for redesigning the way work is done to better support the organization's mission and reduce costs and to achieve in all business performance. There are number of phases of business process reengineering: [2]

1. Identify processes
2. Review update and analysis
3. Design
4. Test and implementation.

1.1-Identify processes

The BPR life cycle is started from the identification of processes which are performed by the manpower in the organization for the specific operation. It defines the role of the processes which are currently running in the organizations or enterprises.

1.2-review update and analysis

Once the identification of the process has been defined the next processes will be started. Review update and analysis is the second phase of the business process reengineering life cycle. It reviews the existing system and analyzes what changes would be possible to make better improvement and increased the efficiency of working style.

1.3- Design

Design is the important core phase of business process reengineering life cycle and is based on the logical structure of the process model.

A business process is a collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. There are three main types of business processes:[5]

- **Management processes**, the processes that govern the operation of a system. Typical management processes include "Corporate Governance" and "Strategic Management".
- **Operational processes**, processes that constitute the core business and create the primary value stream. Typical operational processes are Purchasing, Manufacturing, Marketing, and Sales.
- **Supporting processes**, which support the core processes. Examples include Accounting, Recruitment, Technical support. .

1.4- Testing and Implementation

It is the last phase of the business process reengineering life cycle; if the system is completely designed then the testing parameter can be implemented to test whether the system is feasible or not as per users needs and requirement .if it is given the desired output and optimizes the resources, then the system that would be implemented otherwise again send for the reengineering process.

Business process discovery (BPD) related to process mining is a set of techniques that automatically construct a representation of an organization's current business processes and its major process variations. These techniques use evidence found in the existing technology systems that run business processes within an organization.

1.5 Business Process Discovery Techniques

Business process discovery techniques embody the following properties: [6]

1.5.1 Emergent Paradigm - Current methods are based on top-down structured manual interviews relying on second-hand representations of the business process/system behaviors. An automated discovery process relies on collecting data from the information system over a period of time. This data can then be analyzed to form a process model.

1.5.2 Automated Process Discovery – By automating the analysis of the data, the subjectivity of current manual process analysis techniques is removed. The automated system has an ingrained methodology that — through repeated trials — has been shown to accurately discover processes and process variations without bias.

1.5.3 Accurate Information- Since the information is collected from the actual source it cannot be inaccurate, as opposed to gathering it from second party representation.

1.5.4 Complete Information - An automated process captures all the information that is occurring within the system and represents them by time, date, user, etc.... Since the information is collected from real-time interactions, it is not subject to lost or selective memory issues. This includes completeness regarding exceptions in the processes. Often, exceptions are treated as statistical “noise,” which may exclude important inefficiencies in business processes.

1.5.5 Standardized Process - The automated collection of information yields process data which can be grouped, quantified and classified. This supplies a basis for the development and monitoring of both current and new processes, to which benchmarks can be assigned. These benchmarks are the root of both new process design and the determination of problem root cause. Additionally, standardized process data can set the stage for efforts at continuous process improvement.

When the process becomes too noisy and optimization is not fetching the desire output, it is recommended to re-engineer the entire process cycle. Business process re-engineering has become an integral part of organizations to achieve efficiency and productivity at work.[12]

Information technology (IT) has historically played role in re-engineering concept. It is considered by some as a major enablers for new forms of working and collaborating within an organization and across organizational borders.



Fig2: Reengineering relationship of Mission and Work Processes to Information Technology

1.6 THE ROLE OF INFORMATION TECHNOLOGY IN BPR

The role of information technology Information technology (IT) has historically played an important role in the reengineering concept. It is considered by some as a major enabler for

new forms of working and collaborating within an organization and across organizational borders.[15]

Early BPR identified several so called disruptive technologies that were supposed to challenge traditional wisdom about how work should be performed.

- **Shared databases**, making information available at many places
- **Expert systems**, allowing generalists to perform specialist tasks
- **Telecommunication networks**, allowing organizations to be centralized and decentralized at the same time
- **Decision-support tools**, allowing decision-making to be a part of everybody's job
- **Wireless data communication and portable computers**, allowing field personnel to work office independent
- **Interactive videodisk**, to get in immediate contact with potential buyers
- **Automatic identification** and tracking, allowing things to tell where they are, instead of requiring to be found
- **High performance computing**, allowing on-the-fly planning and revisioning

In the mid 1990s, especially workflow management systems were considered as a significant contributor to improved process efficiency. Also ERP (Enterprise Resource Planning) vendors, such as SAP, JD Edwards, Oracle, PeopleSoft, positioned their solutions as vehicles for business process redesign and improvement.

Information technology (IT) has profoundly changed the way that business is conducted. With the use of IT, organizations radically redesign their business processes and improve their business profitability and productivity. These changes are encouraged by the ability of IT that enables better information processing, sharing, and faster responsiveness, and thereby better coordination of the economic activities between separate units of an organization and across organizations[14].