Different Types of Systems

- Abstract and physical systems
- Deterministic and Probabilistic Systems
- Open and Closed Systems
- User Machine Systems

Abstract and physical systems

An abstract or conceptual system is an orderly arrangement of interdependent ideas or constructs, which may or may not have any counterpart in the real world.

On the other hand, physical systems are generally concrete operational systems made up of people, materials, machines, energy and other physical things; Physical systems are more than conceptual constructs.

Deterministic and Probabilistic Systems

A deterministic system is one in which the occurrence of all events is known with certainty. A probabilistic system is one in which the occurrence of events cannot be perfectly predicted. Though the behavior of such a system can be described in terms of probability, a certain degree of error is always attached to the prediction of the behavior of the system.

Open and Closed Systems

An open system is one that interacts with its environment and thus exchanges information, material, or energy with the environment, including random and undefined inputs. Open systems are adaptive in nature, as they tend to react with the environment in such a way, so as to favor their continued existence. Such systems are ‘self organizing’, in the sense that they change their organisation in response to changing conditions.

A closed system is one, which does not interact with its environment. Such systems in business world, are rare, but relatively closed systems are common. Thus, the systems that are relatively isolated from the environment but not completely closed, are termed closed system.

User Machine Systems

Most of the physical systems are user-machine (or human –machines) systems It is difficult to think of a system composed only of people who do not utilize equipment of some kind to achieve their goals. In user-machine systems, both, i.e. human as well as machine perform some activities in the accomplishment of a goal (e.g. decision-

making). The machine elements are relatively closed and deterministic, whereas the human elements of the system are open and probabilistic.

Business Process Reengineering (BPR)

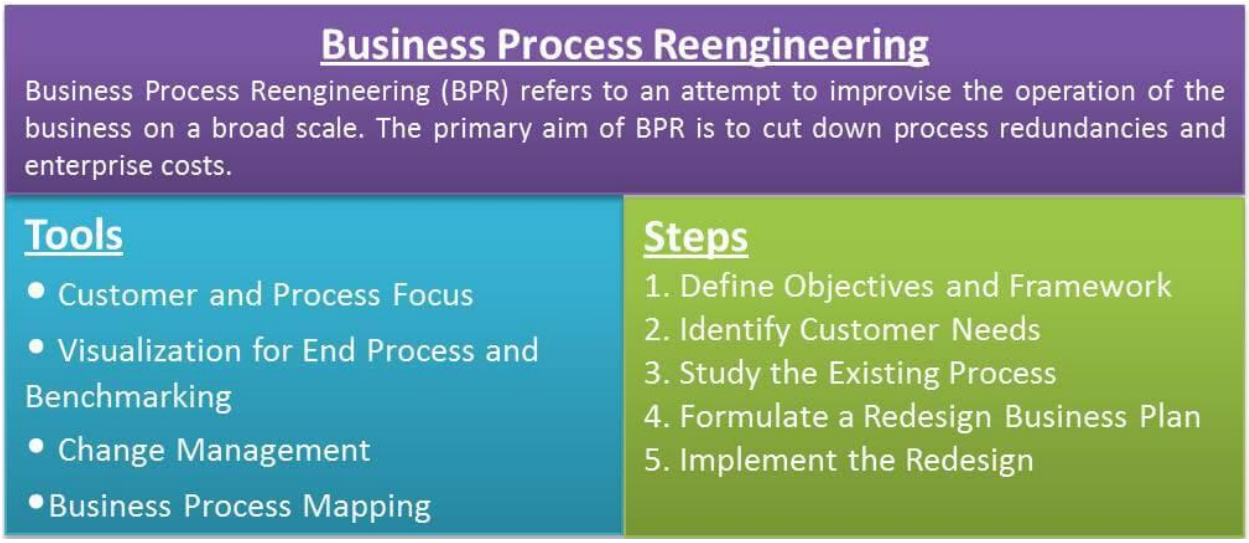
A systematic, disciplined approach to reducing organizational costs and redundant business processes involving the analysis of existing human and automated workflows.

Business process reengineering (BPR) is a management practice in which the related tasks required to obtain a specific business outcome are radically redesigned. A major aim of BPR is to analyze workflows within and between business functions in order to optimize the end-to-end business process and eliminate tasks that do not improve performance or provide the customer with value. The use of IT to automate and integrate steps in the process is central to BPR initiatives.

How does business process reengineering work?

The principles of business process reengineering were laid out by Hammer and organizational theorist James Champy in "Reengineering the Corporation: A Manifesto for Business Revolution," which became a national bestseller. To achieve significant improvement in quality, time management, speed and profitability, the authors urged businesses to follow seven principles:

1. Organize around outcomes, not tasks.
2. Identify all the processes in an organization and prioritize them in order of redesign urgency.
3. Integrate information processing work into the real work that produces the information.
4. Treat geographically dispersed resources as though they were centralized.
5. Link parallel activities in the workflow instead of just integrating their results.
6. Put the decision point where the work is performed and build control into the process.
7. Capture information once and at the source.



Business process reengineering examples: **company selling commemorative cards**. In a company that offers products such as Christmas, anniversary, commemorative cards, etc., renewing the stock and changing the design of the cards is constantly fundamental.
