



Co-funded by the  
Erasmus+ Programme  
of the European Union

Pathway in Enterprise Systems Engineering (PENS)

# Business Process Engineering: An Overview

Georgios Dafoulas

Wednesday, 25/07/2018

Alcala de Henares



# Agenda

---

- Definition
- History
- BPR frameworks
- PRLC lifecycle methodology
- BPR objectives
- Benefits from BPR
- Critique of BPR
- Success and failure factors
- BPR and IS
- Case study (example)
- Different views of BPR from consultancy firms
- Comparable approaches

# BPR definition

---

- Business Process Reengineering (BPR) is the structured, **process-driven approach** to improving the performance of a company in areas such as cost, service, quality, and speed.
- This **radical change methodology** starts at the highest level of companies, and works down to the most minute details to **overhaul the system in a short time**.
- This **complete redesign** distinguishes BPR from other methodologies where incremental improvements are made through regular process improvements.

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>



# BPR definition

---

- Companies performing BPR must reassess their fundamentals and **reform** their processes to **standardize** and **simplify** them.
- Ambitious companies that start BPR do so with the intent of doing whatever it takes to **improve performance** in all aspects of the business.

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>

# BPR definition

- Some examples of **company-specific goals** through BPR include:
  - Taking a decentralized **process** and making one person responsible for it
  - Redeveloping the company's **goals** so improvement plans are consistent
  - Taking a department-specific **process** and assigning it to coordinate and integrate cross-functionally
  - Going from a product **perspective** to a process perspective

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>



# BPR definition

- The term “**reengineering**” suggests that something has already been developed and is being re-developed.
- In most businesses, change to a pre-existing process happens relatively slowly and incrementally. Within the context of BPR however, the most modern tools are put to use in a way that uses them from the ground up.
- The **fundamentals** of already existing processes, ideas, and designs are **rethought**.
- The term **process** focuses on how things are done, not on the specific people, their job descriptions, or the specific tasks that they perform.
- BPR is more interested in the **series of steps that produce the product or service**, from its conceptual stage through the final creation.
- Business Process Reengineering (BPR) is also known as
  - business process redesign
  - business transformation
  - business process change management

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>



# History of BPR

- Michael Hammer, a graduate of and professor at the Massachusetts Institute of Technology (MIT), first introduced BPR in a 1990 issue of the Harvard Business Review.
- He wanted companies to redesign the way they were doing things, and not just by using computers to speed up inefficient processes.
- At the same time, two other authors from MIT, Davenport and Short, put out an article about business process redesign and the use of IT.
- These articles detailed ongoing work at MIT, Harvard, and a number of different consulting companies, and hatched an approach for others to follow.
- From these efforts, big businesses clamored to start their own BPR projects. They were interested in how to produce their goods quicker. By 1993, it was estimated that 65% of Fortune 500 companies claimed to either have already initiated BPR efforts, or had it in the works.
- By 1995, the backlash against BPR hit. Alongside poorly performed BPR projects and abuse of the concept by some companies, its use declined.
- BPR did not disappear completely. Companies never really stopped doing the process reworking, just labelled it differently, especially as the Internet was used more and more.
- In the 2000s companies wanted to be able to offer their customers more, and BPR was a way to revamp the processes to do so. Newer BPR frameworks are different from those developed in the 1990s because of their attitude towards technology.
- BPR was theorized to be the precursor to Business Process Management (BPM) as it is today.

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>

# BPR recommendations

- **Organize around the outcome, not the specific task.** One person owns a whole process, performing or coordinating all of the steps.
- **Those closest to the process should perform the process.** Instead of fielding out different types of easily managed work, ownership is given to the people who need the quick outcomes from simple tasks.
- **Have the people who produce the information process it as well.** This streamlines the outcome of the information gathered into useable data.
- **Centralize resources.** Databases and other technology systems can consolidate resources to cut down on redundancies and increase flexibility.
- **Integrate corresponding activities, not just their results.** This keeps the content cohesive, without the gaps and miscommunication that could cause delays.
- **Have the decision points controlled and where the work is done.** Built-in controls enable the employees who perform the work to self-manage, so that managers can become supportive rather than directive.
- **Information should be collected once and at the source.** Data redundancies are erased when processes are connected in a central database.





# BPR frameworks

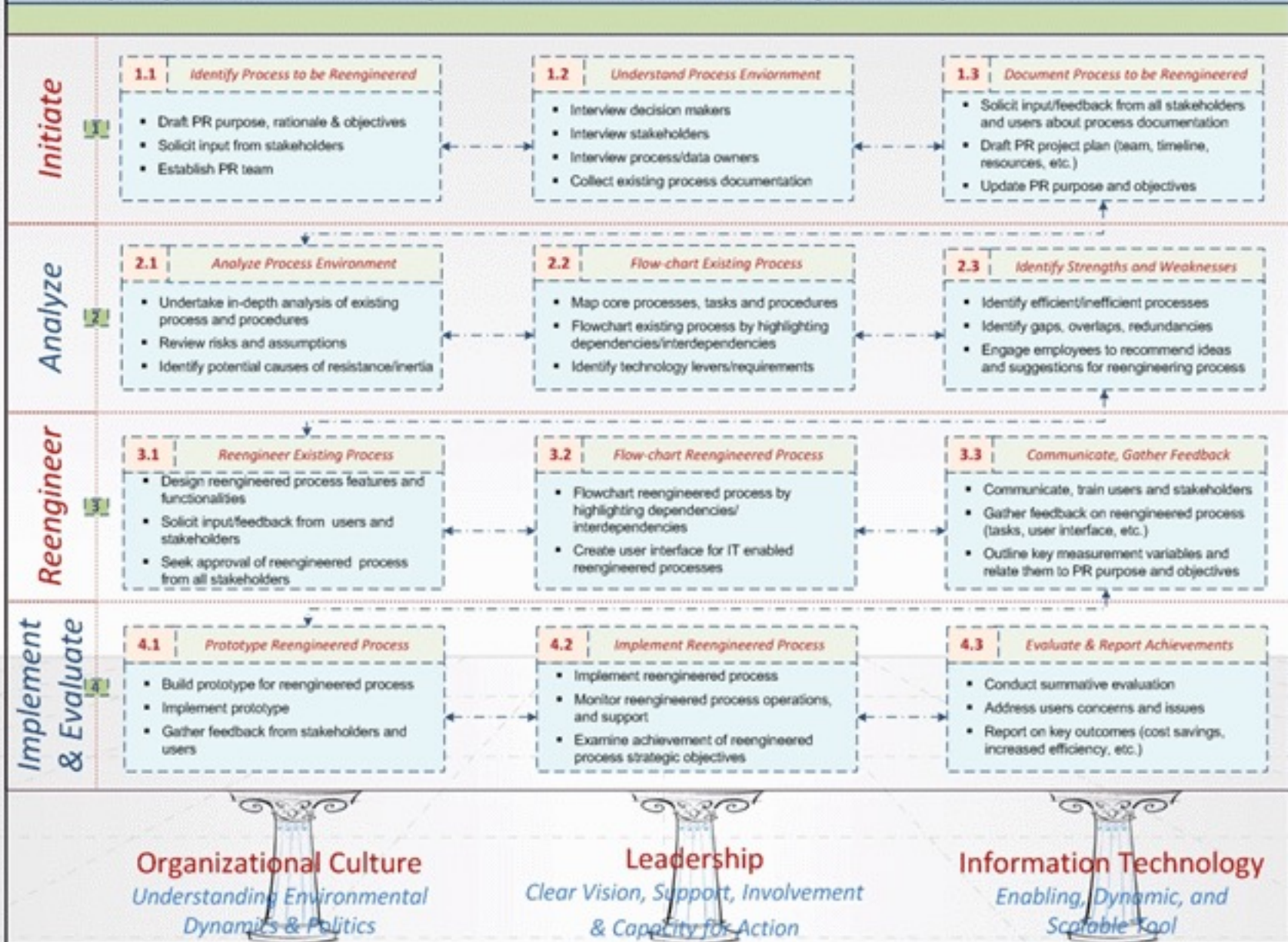
Bhudeb Chakravarti developed the INSPIRE framework with seven steps:

1. **Initiate** a new process reengineering project and prepare a business case for the same.
2. **Negotiate** with senior management to get approval to start the process reengineering project.
3. **Select** the key processes that need to be reengineered.
4. **Plan** the process reengineering activities.
5. **Investigate** the processes to analyze the problem areas.
6. **Redesign** the selected processes to improve the performance.
7. **Ensure** the successful implementation of redesigned processes through proper monitoring and evaluation.

Source: [http://www.wikiwand.com/en/Business\\_process\\_reengineering](http://www.wikiwand.com/en/Business_process_reengineering)

# Framework for Process Reengineering (PR) in Higher Education

"The reengineering process offers a context for a thorough reexamination of the assumptions about the way things are done in higher education" Penrod & Dolence, (1992: 8).



S

# Guiding BPR principles

1. **Set the Vision** – A business needs analysis could be a way to start the process and convince stakeholders with clearly defined and measurable objectives.
2. **Assemble the Team** – A team (which can consist of internal employees, consultants, or mix of both) is gathered within the company to conduct the reengineering.
3. **Determine the Processes** – This portion of BPR requires a comprehensive study of the company itself, looking at its mission, goals, the needs of its customers, and how the company is meeting those needs. Through this lens, the processes are reviewed and analyzed for how they are currently performed.
4. **Redesign** – There are no specific rules that govern how a process is redesigned. This is the portion of BPR where the team gets to flex their creative muscle and design the main principles that reengineering will be applied though. These include figuring out what biases and assumptions that the team is under for the process at hand, and looking for opportunities to apply technology. Team members should remember that they are not just making the old processes better, but completely redesigning how they are performed.
5. **Include the Whole Company** – Companies should remember that BPR does not work well if it is done in a bubble. Not only should companies get employee feedback, but also they should review the other portions of the company that will necessarily evolve because of the change in processes. This may include organizational and management structures, in keeping with the vision.

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>



# Team of experts

In most cases, the team consists of:

- **Senior Manager.** When it comes to making a major change, you need the supervision of someone who can call the shots. If a BPR team doesn't have someone from the senior management, they'll have to get in touch with them for every minor change.
- **Operational Manager.** As a given, you'll need someone who knows the ins-and-outs of the process – and that's where the operational manager comes in. They've worked with the process(es) and can contribute with their vast knowledge.
- **Reengineering Experts.** Finally, you'll need the right engineers. Reengineering processes might need expertise from a number of different fields, anything from IT to manufacturing. While it usually varies case by case, the right change might be anything – hardware, software, workflows, etc.

Source: [https://tallyfy.com/business-process-reengineering/#So\\_What\\_is\\_Business\\_Process\\_Reengineering](https://tallyfy.com/business-process-reengineering/#So_What_is_Business_Process_Reengineering)



# Define the right KPIs

## Manufacturing

- **Cycle Time** – The time spent from the beginning to the end of a process
- **Changeover Time** – Time needed to switch the line from making one product to the next
- **Defect Rate** – Percentage of products manufactured defective
- **Inventory Turnover** – How long it takes for the manufacturing line to turn inventory into products
- **Planned vs. Emergency Maintenance** – The ratio of the times planned maintenance and emergency maintenance happen

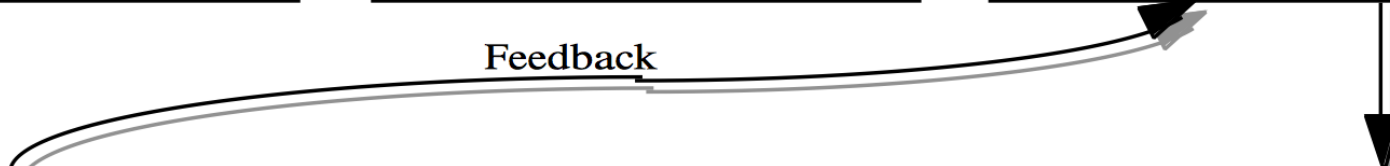
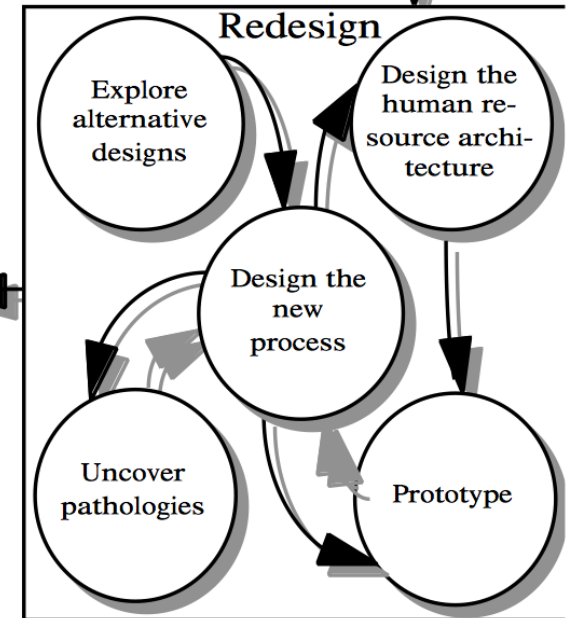
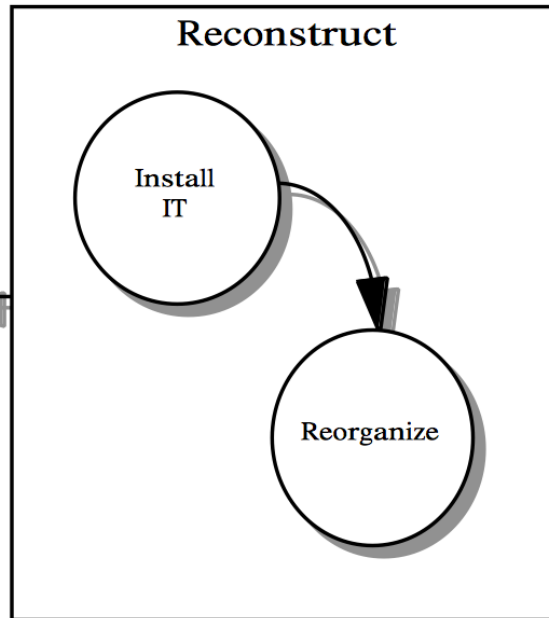
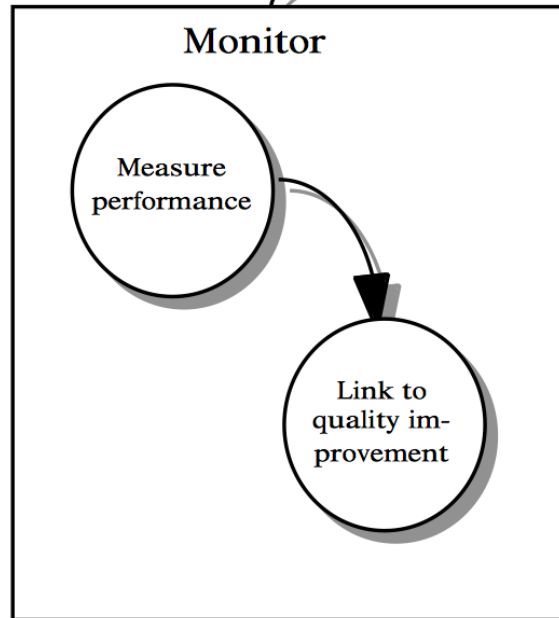
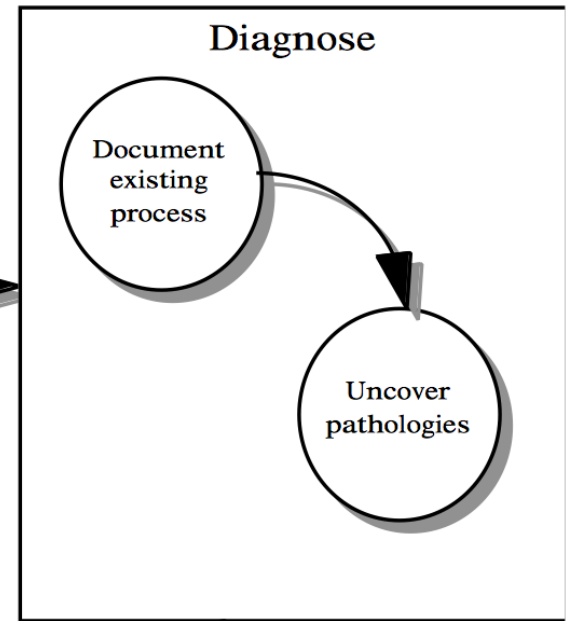
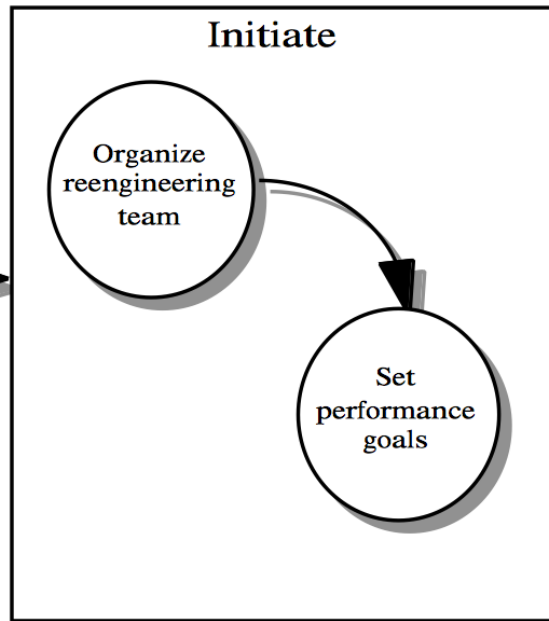
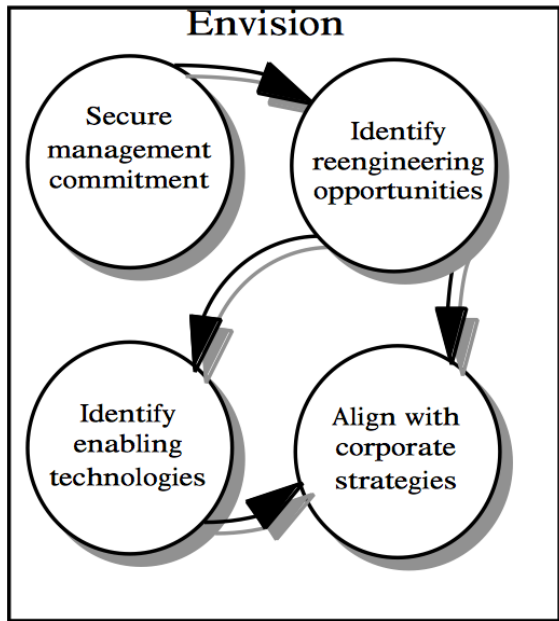
## Information Technology

- **Mean Time to Repair** – Average time needed to repair the system / software / app after an emergency
- **Support Ticket Closure rate** – Number of support tickets closed by the support team divided by the number opened
- **Application Development** – The time needed to fully develop a new application from scratch
- **Cycle Time** – The time needed to get the network back up after a security breach

Source: <https://tallyfy.com/business-process-reengineering/#So-What-is-Business-Process-Reengineering>







# BPR objectives

When BPR was first introduced, the objectives included

- customer focus
- Speed
- compression
- flexibility
- quality
- innovation
- productivity.

=====

In order to apply BPR to industries that are heavily regulated and often multinational, Jochen Martin overhauled the BPR objectives in 2011. They now include:

- contact reduction
- task elimination
- task automation
- process integration
- waiting time reduction
- data quality
- data completeness.

These objectives are focused more on governance and compliance

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>

# Benefits from BPR

- Increased effectiveness – identifying the core functions as well as any that are inefficient or obsolete
- Reduced overall cost
- Meaningful work for staff – the process promotes greater staff involvement
- Improved organizational approach – realize business rules from the past, decreasing new product and process activity time
- Solidifies business focus
- Business growth – improving the industry position with radical improvements

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>





# Critique of BPR

The main criticisms of BPR are as follows:

- The methodologies used to implement BPR do not address a **changing business** landscape.
- There is no way to validate the **assumption** that the main limiting factor for performance is processes; the expectations are grossly exaggerated.
- BPR totally **ignores** where the company's **current status** and assumes that “all new” is better.
- **Incremental** changes may be better for a business model.
- There is extreme American cultural **bias** in the use of BPR.
- BPR ignores the organization's constraints.

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>

# Reasons for BPR failure

- Trying to fix a process instead of changing it.
- Not focusing on business processes.
- Ignoring everything except process redesign (e.g. reorganization, reward system, labor relationships, redefinition of responsibility and authority).
- Neglecting people's values and beliefs (need to reward behavior that exhibits new values and behavior).
- Be willing to settle for minor results.
- Quitting the process too early.
- Placing prior constraints on the definition of the problem and the scope for the reengineering effort.
- Allowing existing corporate cultures and management attitudes to prevent reengineering from getting started. (e.g. consensus, short termism, bias against conflict).
- Trying to make reengineering happen from the bottom up.
- Assigning someone who doesn't understand reengineering to lead the effort.
- Skimping on the resources to reengineer.
- Burying reengineering in the middle of the corporate agenda.
- Dissipating energy across a great many reengineering projects.
- Attempting to reengineer when the CEO is close to retirement.
- Failing to distinguish reengineering from other business improvement programs (e.g. quality improvement, strategic alignment, right-sizing, customer-supplier partnerships, innovation, empowerment, etc.).
- Concentrating exclusively on design (forgetting implementation)
- Trying to make reengineering happen without making anyone unhappy.
- Pulling back when people resist making reengineering changes.
- Dragging the effort out (one year is long enough).

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>



# BPR success factors

- BPR **team composition** – BPR initiatives need executive support, and teams that are carefully chosen with in-depth knowledge of either the business itself or BPR methodology.
- Business **needs analysis** – The company's business strategy and long-term objectives should be taken into account during analysis.
- Adequate **IT infrastructure** – The current IT should be capable of implementing the reengineered processes; IT solutions alone cannot transform the processes
- Effective **change management** – The expectations, timeline, and business impact should be managed.
- Ongoing **continuous improvement** – The only thing that is constant is change (Source: Heraclitus).

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>

# BPR and IS

---

- Historically, information technology has played a very important part in BPR, linking the owners of process and those who implement it.
- Even though BPR has its roots in IT management, it is mainly a business initiative.
- In the earliest iteration of BPR, IT was used to replace some human workers in processes.
- In the most recent iteration of BPR, IT serves as an already existing infrastructure that may be capitalized upon.
- The implementation and improvement of IT serves to save time and improve the accuracy of information exchange, giving the business a competitive advantage.

Source: <https://www.smartsheet.com/newbies-business-processing-reengineering-guide-experts-insights>

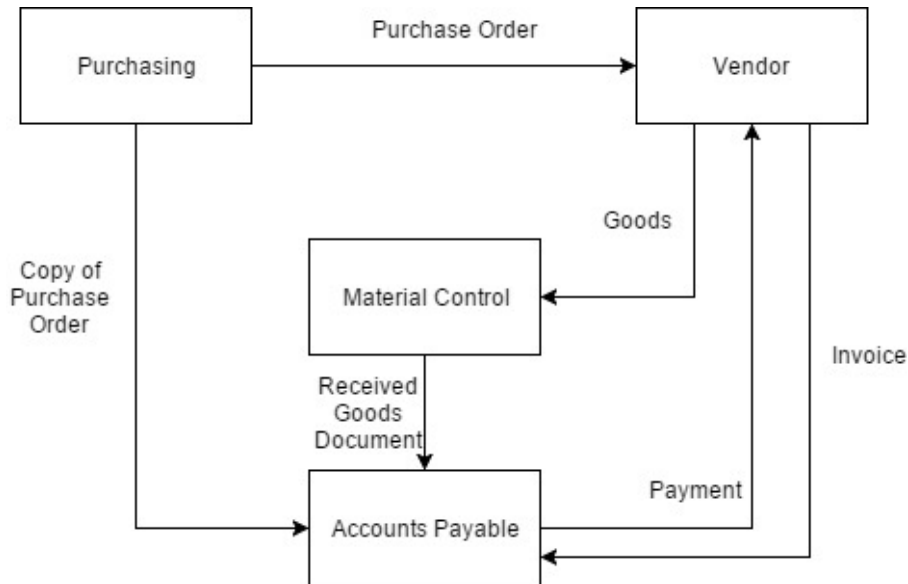
# BPR case study (Ford Motors)

- One of the most referenced business process reengineering examples is the case of **Ford**, an automobile manufacturing company.
- In the 1980s, the American automobile industry was in a depression, and in an **attempt to cut costs**, Ford decided to scrutinize some of their departments in an attempt to find **inefficient processes**.
- One of their findings was that the accounts payable department was not as efficient as it could be: their accounts payable division consisted of 500 people, as opposed to Mazda's (their partner) 5.
- While Mazda was a smaller company, Ford estimated that their department was still 5 times bigger than it should have been.
- Accordingly, Ford management set themselves a quantifiable goal: to reduce the number of clerks working in accounts payable by a couple of hundred employees.
- Then, they launched a business process reengineering initiative to figure out why was the department so overstaffed.

Source: <https://tallyfy.com/business-process-reengineering/#So-What-is-Business-Process-Reengineering>

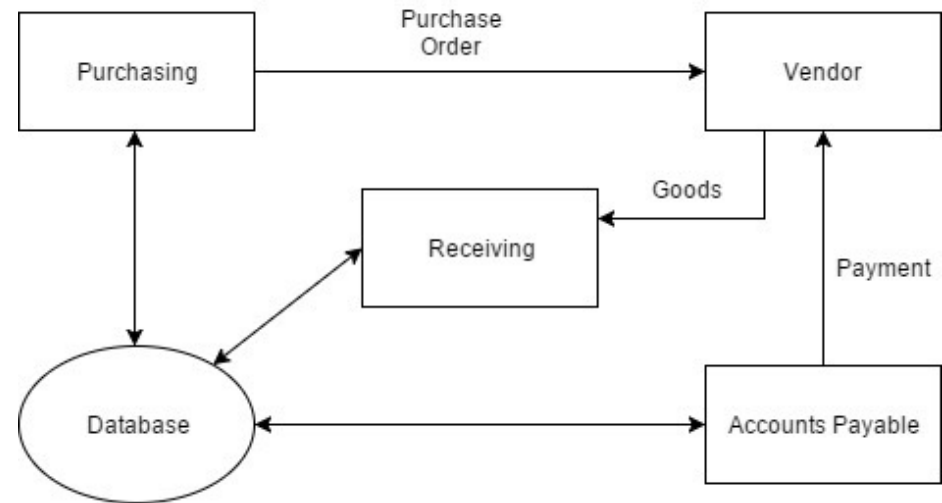
# Ford Motors BPR

## Old process



Then, the clerk at the accounts payable department would have to match the three orders, and if they matched, he or she would issue the payment. This, of course, took a lot of manpower in the department.

## New process



Source: <https://tallyfy.com/business-process-reengineering/#So-What-is-Business-Process-Reengineering>

# View on BPR tools & steps

## Business Process Reengineering

Business Process Reengineering (BPR) refers to an attempt to improvise the operation of the business on a broad scale. The primary aim of BPR is to cut down process redundancies and enterprise costs.

### Tools

- Customer and Process Focus
- Visualization for End Process and Benchmarking
- Change Management
- Business Process Mapping

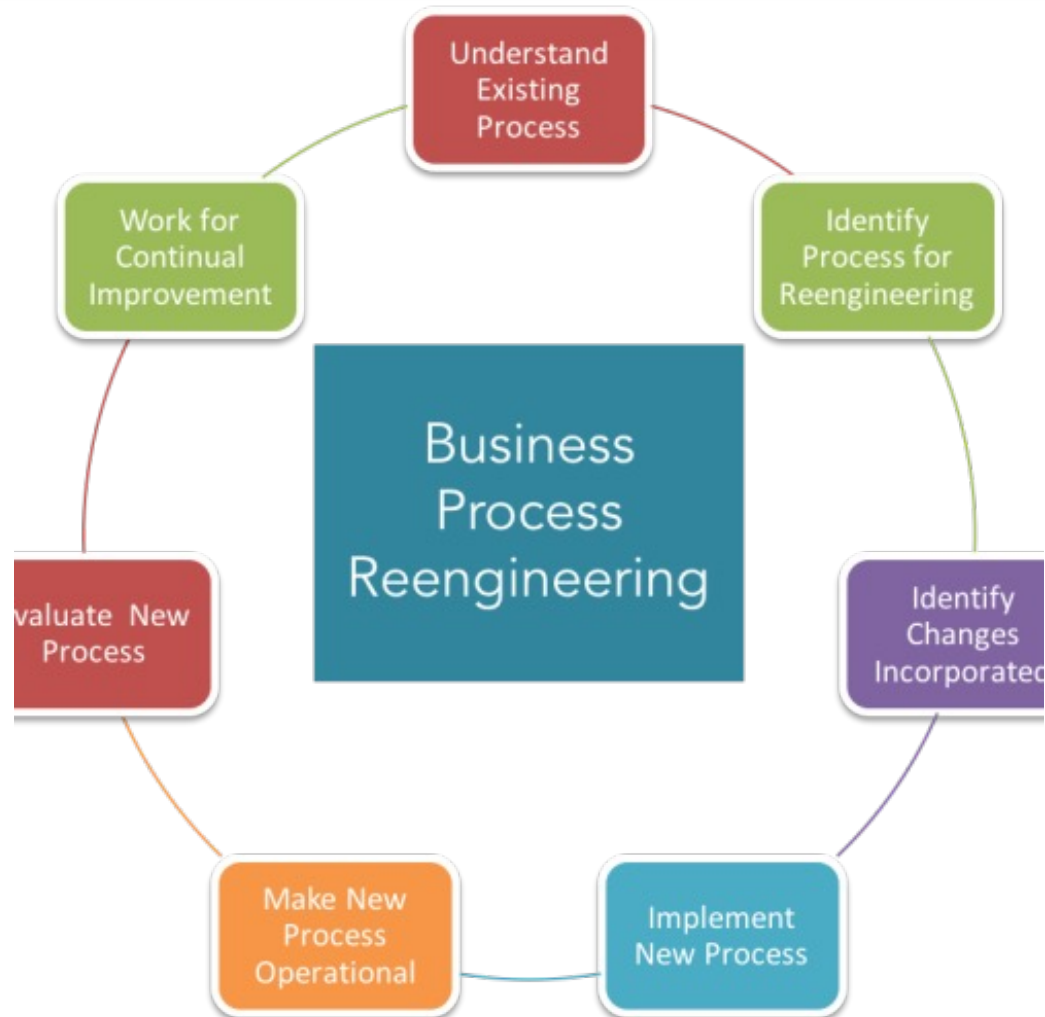
### Steps

1. Define Objectives and Framework
2. Identify Customer Needs
3. Study the Existing Process
4. Formulate a Redesign Business Plan
5. Implement the Redesign

Source: <https://efinancemanagement.com/corporate-restructuring/business-process-reengineering>



# View on BPR steps



Source: <https://www.sweetprocess.com/business-process-reengineering/>



# View on BPR steps



Source: <http://www.pragmaticconsultancy.in/business-process-reengineering.htm>

# View on BPR steps

## Envision New Process:

- Secure management support
- Identify reengineering opportunities
- Identify enabling technologies
- Align with corporate strategy

## Initiating Change

- Set up reengineering team
- Outline performance goals

## Process Diagnosis

- Describe existing processes
- Uncover pathologies in existing processes

## Process Redesign

- Develop alternative process scenarios
- Develop new process design
- Design HR architecture
- Select IT platform
- Develop overall blueprint and gather feedback

## Reconstruction

- Develop/install IT solution
- Establish process changes
- Change Management

## Process Monitoring

- Performance measurement, including time, quality, cost, IT performance
- Link to continuous improvement

Source: <https://slideplayer.com/slide/3003718/>



# Comparable Approaches

- **TQM:** Widely considered the “mother” of process improvement methods, Total Quality Management (TQM) is a management approach that is primarily concerned with productivity and improvements that lead to customer satisfaction.
- **Six Sigma:** Many say that TQM evolved into Six Sigma. Six Sigma’s intent is an error-free business process. Six Sigma is a data-driven approach that focuses on variation reduction to eliminate defects from processes.
- **Lean:** Lean is also based on the idea of eliminating waste. Lean organizations eliminate extra layers of management, making everyone closer to the process.
- **BPM:** Business Process Management (BPM) is both a management discipline and a software system. BPM is concerned with automating and reusing processes over a lifecycle.
- **DSS:** Decision Support System (DSS) is an informational computer application that reviews and analyzes the data of a business to assist with decision-making.
- **ERP:** Enterprise Resource Planning (ERP) is an integrated suite of business management software that can help manage and automate business needs.

g.dafoulas@mdx.ac.uk

**Thank you for your attention!**

