MTAT.03.231
Business Process Management (BPM)
(for Masters of IT)

Lecture 1: Introduction

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Course Objective

The objective of this course is to introduce the principles and methods of business process management.

The course emphasises the role of process modelling as an instrument to understand and analyse business operations, and to drive the design of IT systems for process automation.

The course relates to:

- Software Economics (business case analysis)
- Enterprise System Integration (orchestration)

Structure of the course

- 12 lectures covering:
  - Principles of BPM
  - Process Modeling & BPMN
  - Process Analysis & Simulation
  - Process Automation
  - Process Mining
- 12 practice sessions
  - Intro to process modeling (on paper)
  - Process modeling & simulation
  - Process Automation
  - Process Monitoring and Mining (ProM)
- Team Project

Vambola Leping
Practice coordinator

Grading

- Five assignments worth 4 points each (to be announced in the practices sessions)
- Project (30 points) – to be released on 14 April
  - Jointly with students from the Masters of ETM
- Exam (50 points)

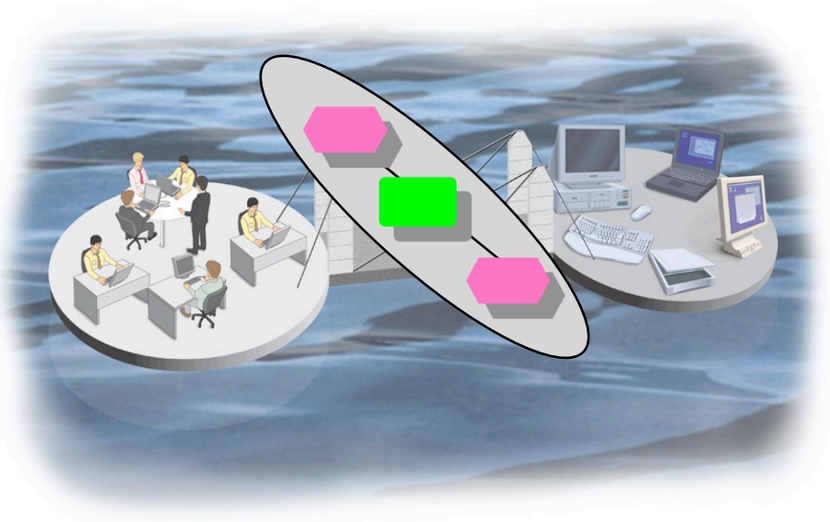
Readings and Resources

- Readings & resources listed in the course pages:
  - http://courses.cs.ut.ee/2011/bpm
- Additional readings will be distributed during the lectures
- For communication, we will use a Message Board:
  - http://www.quicktopic.com/45/H/pv4JEGjkKTG

Introduction to Business Process Management

BPM: What is it?

Body of methods to design, analyze, execute and monitor business operations involving humans, software, information and physical artifacts using process models.



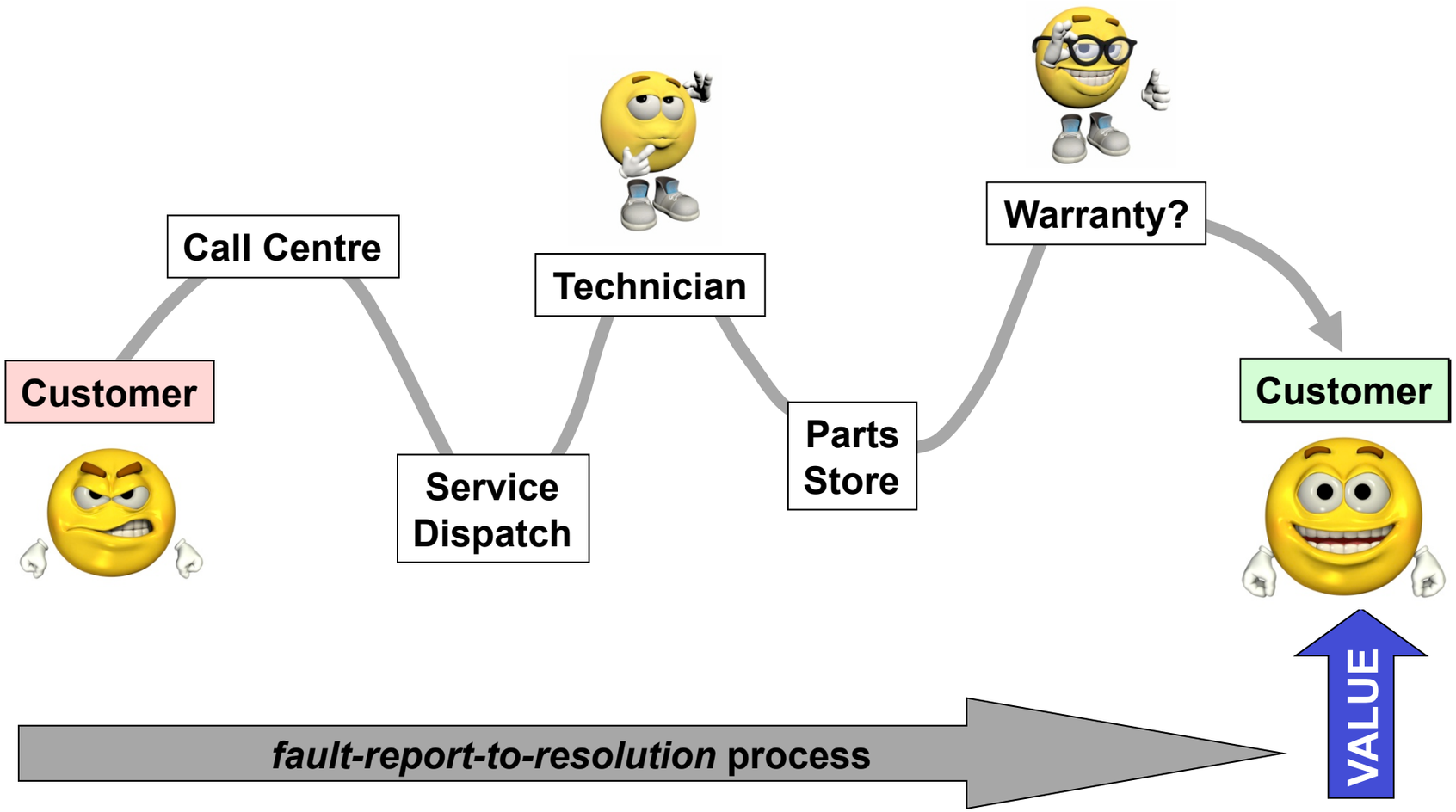
So What is a (Business) Process

Collection of logically-related events, activities and decisions, that involve a number of actors and resources, and that collectively lead to an outcome that is of value to an organization or its customers.

Examples:

- Order-to-Cash
- Procure-to-Pay
- Claim-to-Settlement (Insurance)
- Fault-to-Resolution

“My washing machine won’t work!”



Background to BPM
Organisational Management
- Adam Smith (1776)

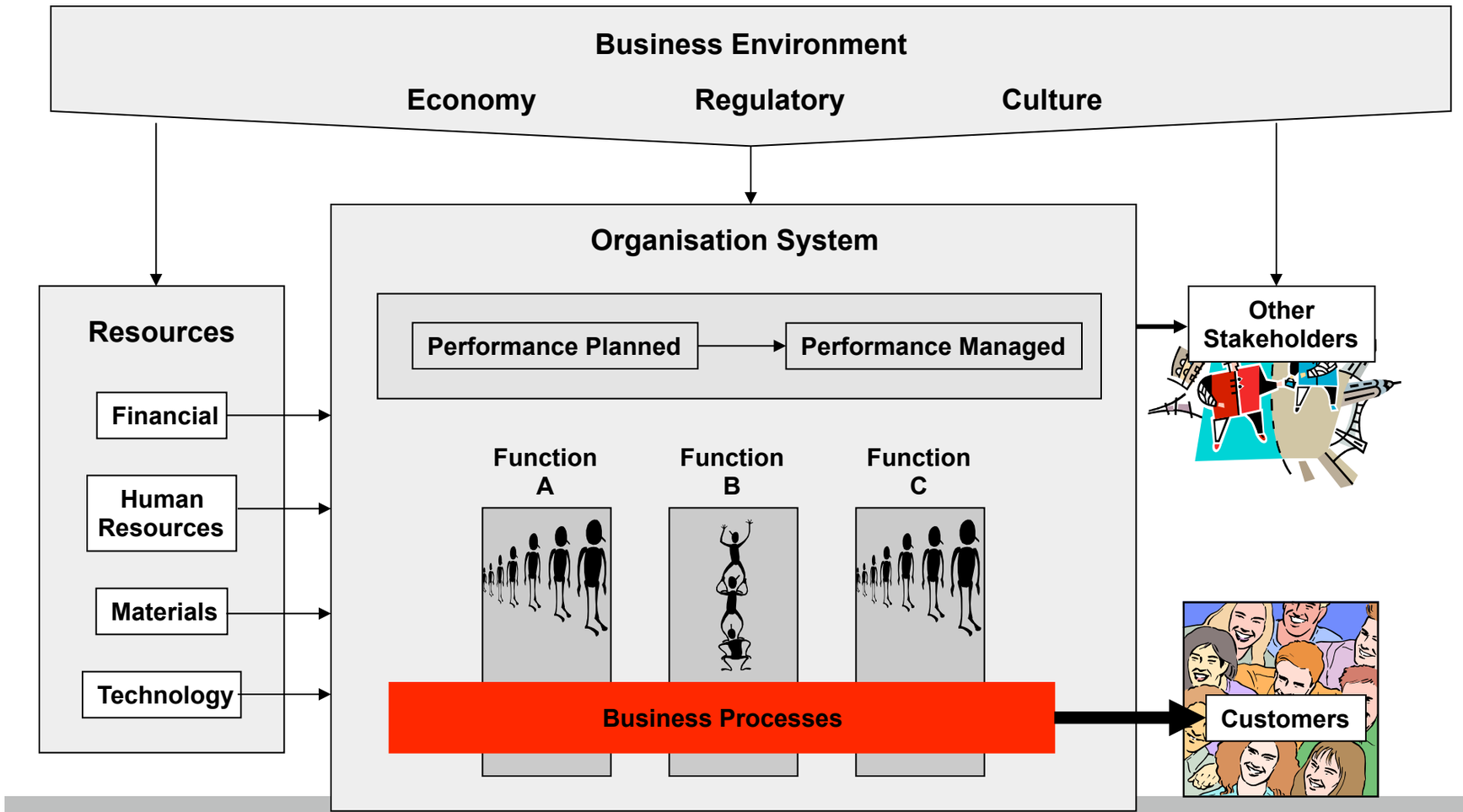
Observation: “a number of specialized workers, each performing a single step in the manufacture of a pin, could make far more pins in a day than the same number of generalists.”

Quoted from Hammer & Champy 1993

Limitations of Functional Organisation

- Focus on skills and resource utilization rather than outcomes
- Reward systems tailored to functional units, not the overall firm
- Group behavior and cultures fostering an “us versus them” mentality (silos)

Complementarity of Functional and Process Views



[after Rummler 1984]

Why BPM?

"The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency.
The second is that automation applied to an inefficient operation will magnify the inefficiency."

Why BPM?

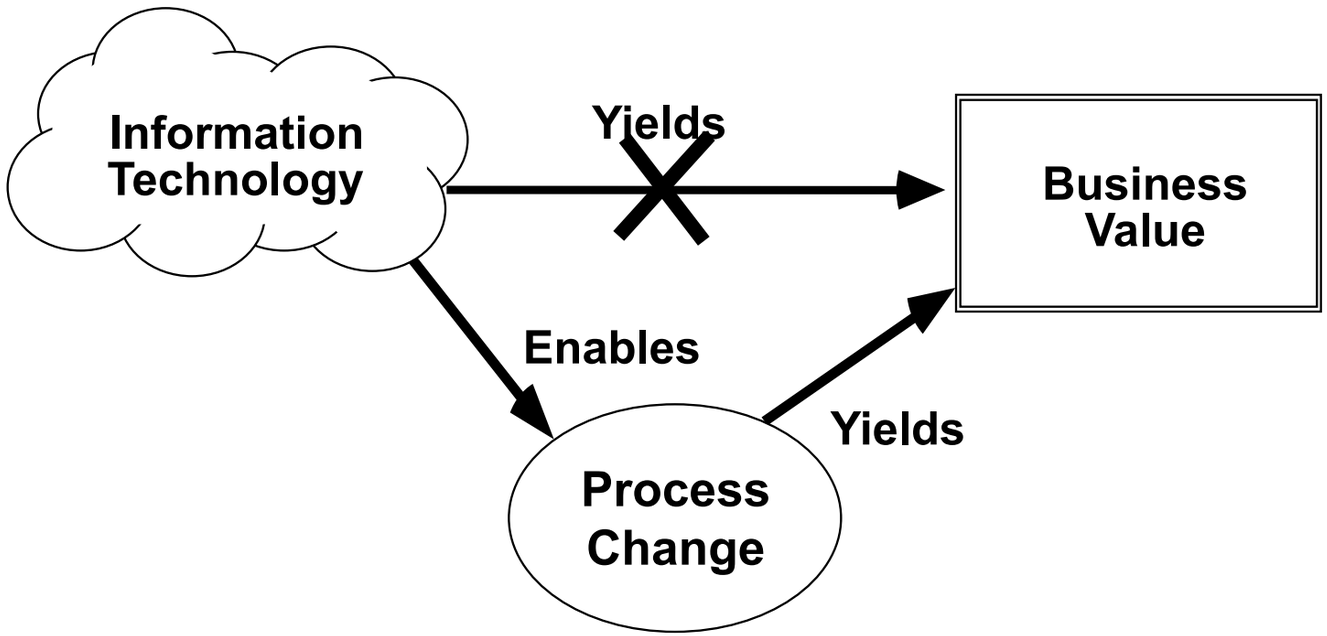
Improving Business Processes = #1 business priority for CIOs internationally, 4 years in a row…

Top 10 Business Priorities 2009

Please select the top five business priorities for your enterprise/business unit in 2009?

Improving business processes	1
Cutting enterprise costs	2
Improving enterprise workforce effectiveness	3
Attracting and retaining new customers	4
Increasing the use of information/analytics in decision making	5
Creating new products or services (innovation)	6
Managing enterprise change initiatives	7
Targeting customers and markets more effectively (more effective service delivery	8
Expanding current customer relationships (expanding “wallet share”)	9
Consolidating business operations	10

Why BPM?



Index Group (1982)

How to engage in BPM?

Two complementary BPM approaches:

1. **Continuous Process Improvement (CPI)**
   - Does not put into question the current process design, but rather seeks to identify issues and resolve them incrementally, one step at a time and one fix at a time
2. **Business Process Re-Engineering (BPR)**
   - Put into question the fundamental assumptions and principles of the existing process design
   - Aims to achieve breakthrough, for example by removing costly tasks that do not directly add value

The Ford Case Study (Hammer 1990)

Ford needed to review its procurement process to:

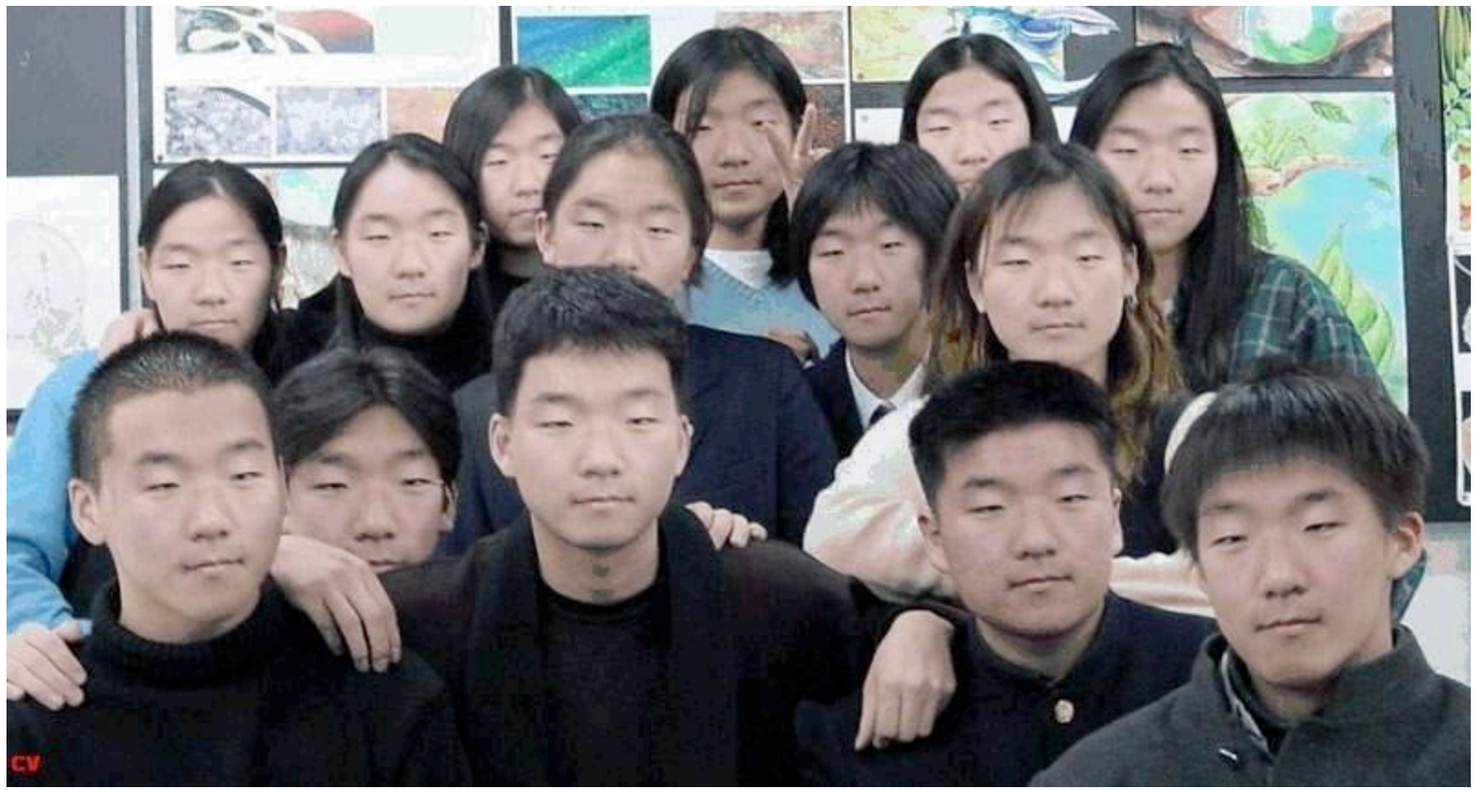
- Do it cheaper (cut costs)
- Do it faster (reduce turnaround times)
- Do it better (reduce error rates)

  Accounts payable in North America alone employed > 500 people and turnaround times for processing POs and invoices was in the order of weeks

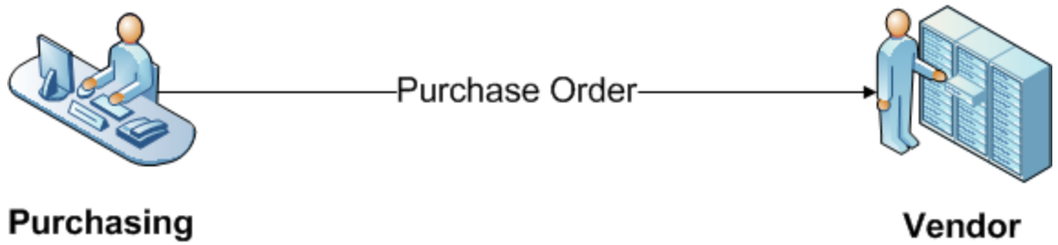
The Ford Case Study

- Automation would bring some improvement (20% improvement)
- But Ford decided not to do it… Why?
  a) Because at the time, the technology needed to automate the process was not yet available.
  b) Because nobody at Ford knew how to develop the technology needed to automate the process.
  c) Because there were not enough computers and computer-literate employees at Ford.
  d) None of the above

The correct answer is …
Mazda's Accounts Payable Department



How the process worked? (“as is”)



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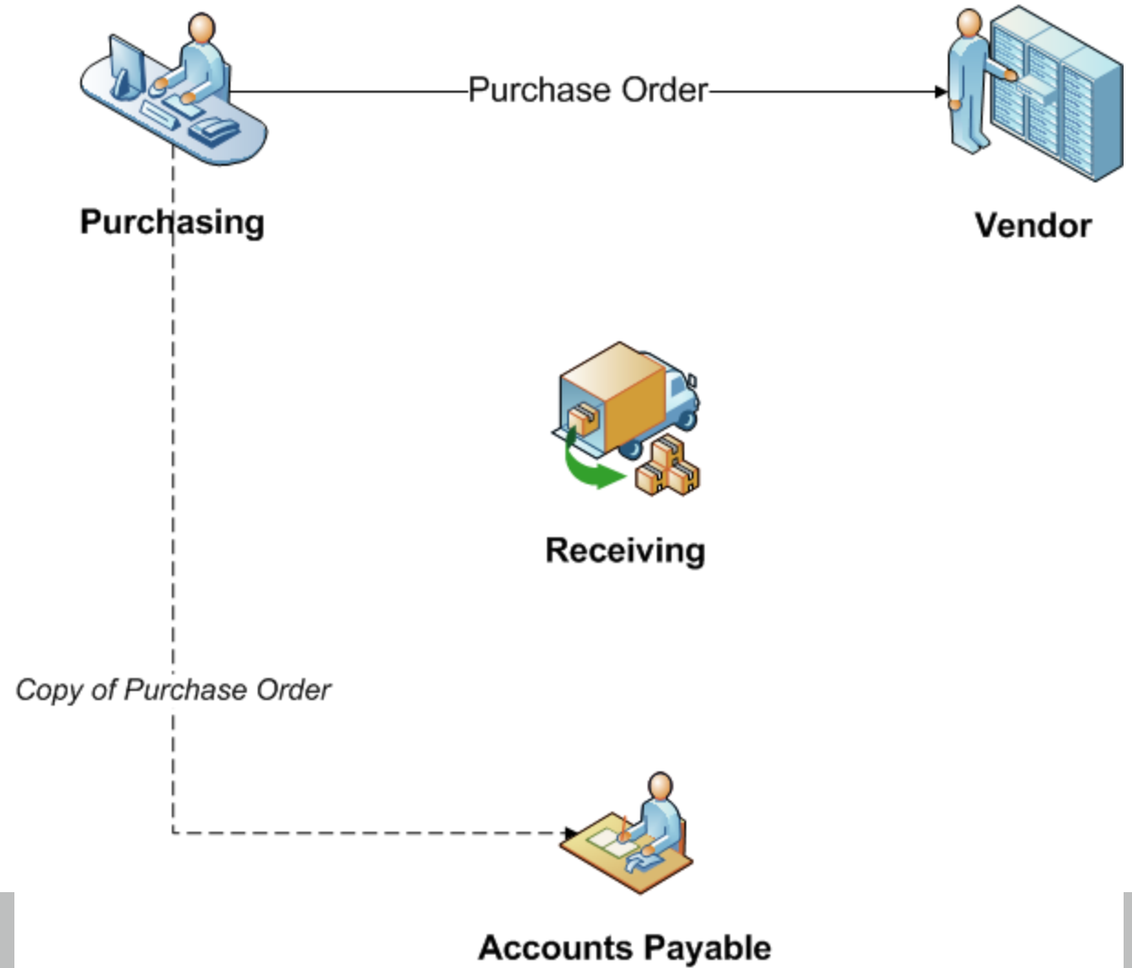

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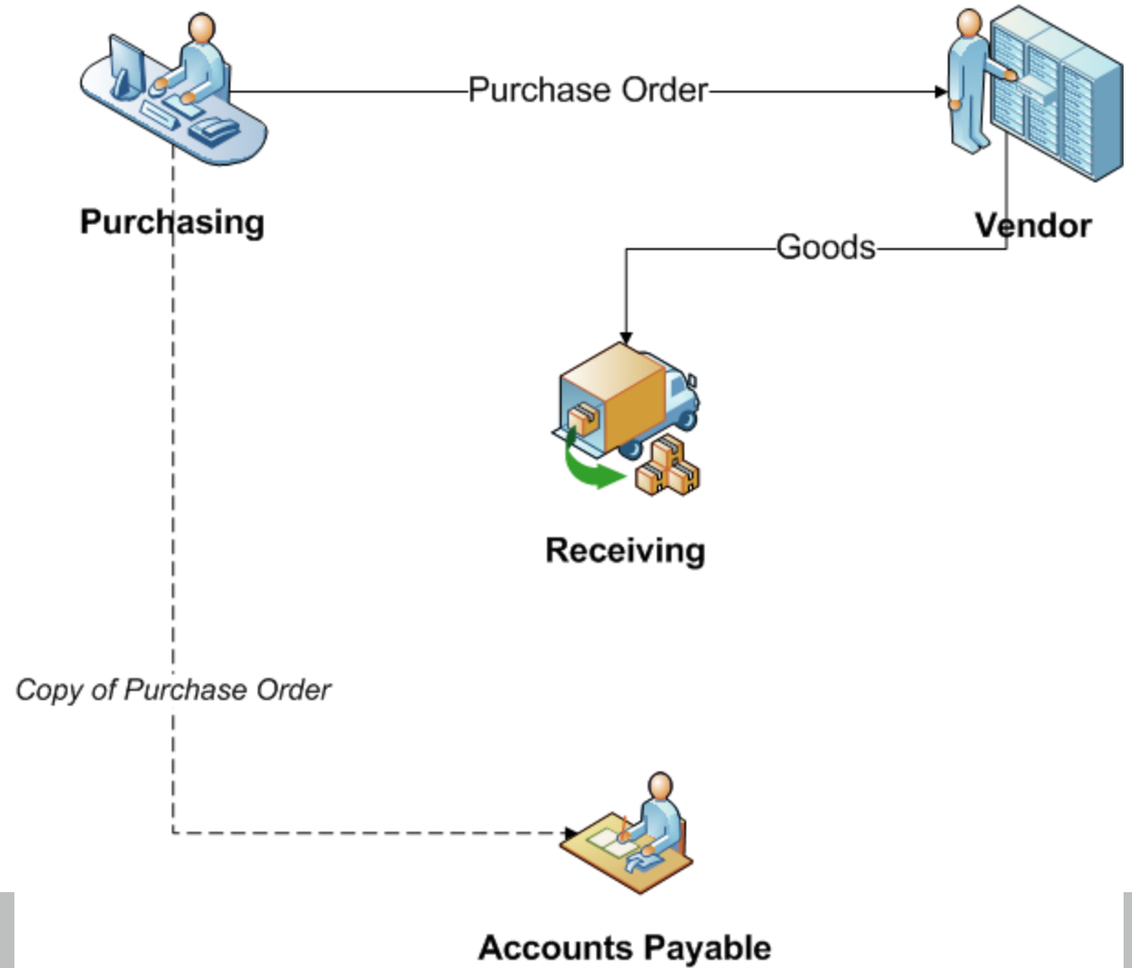

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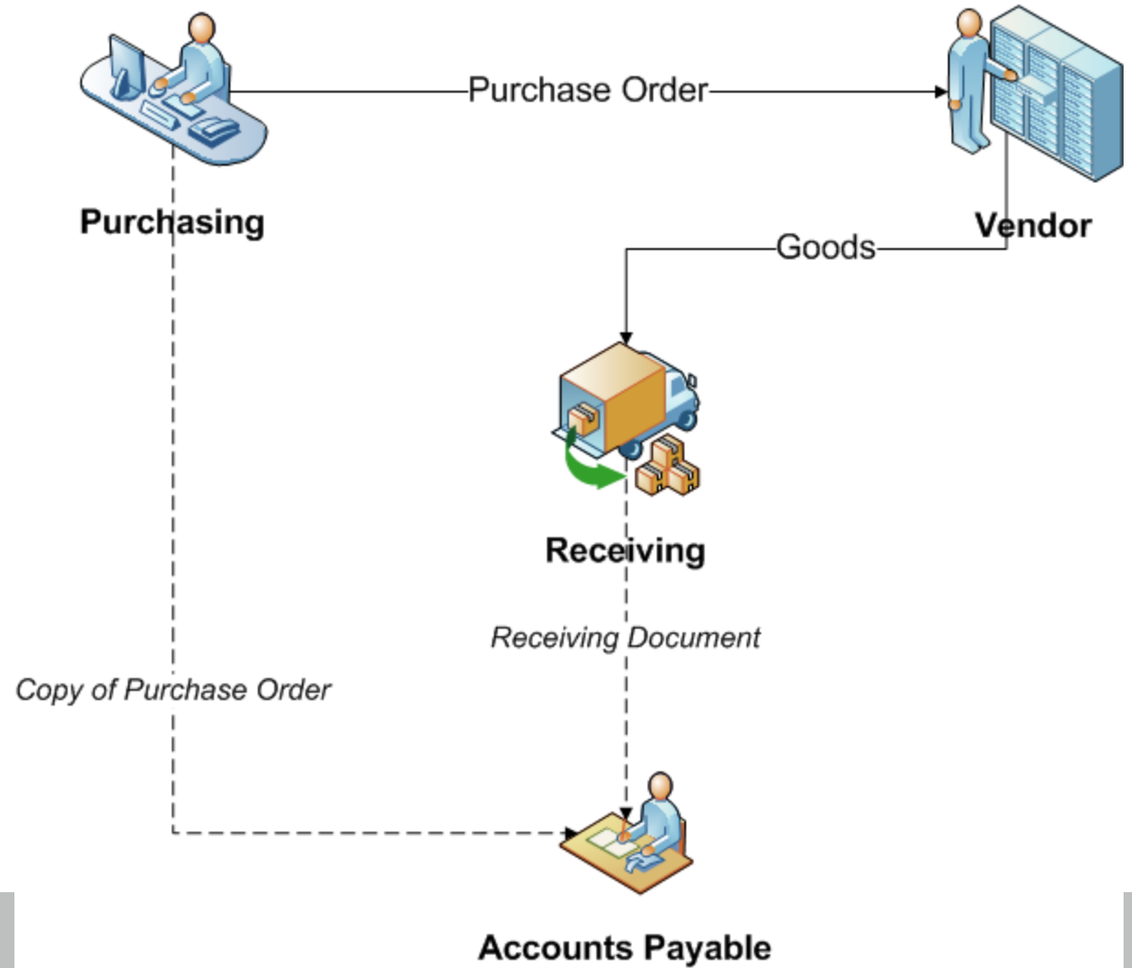

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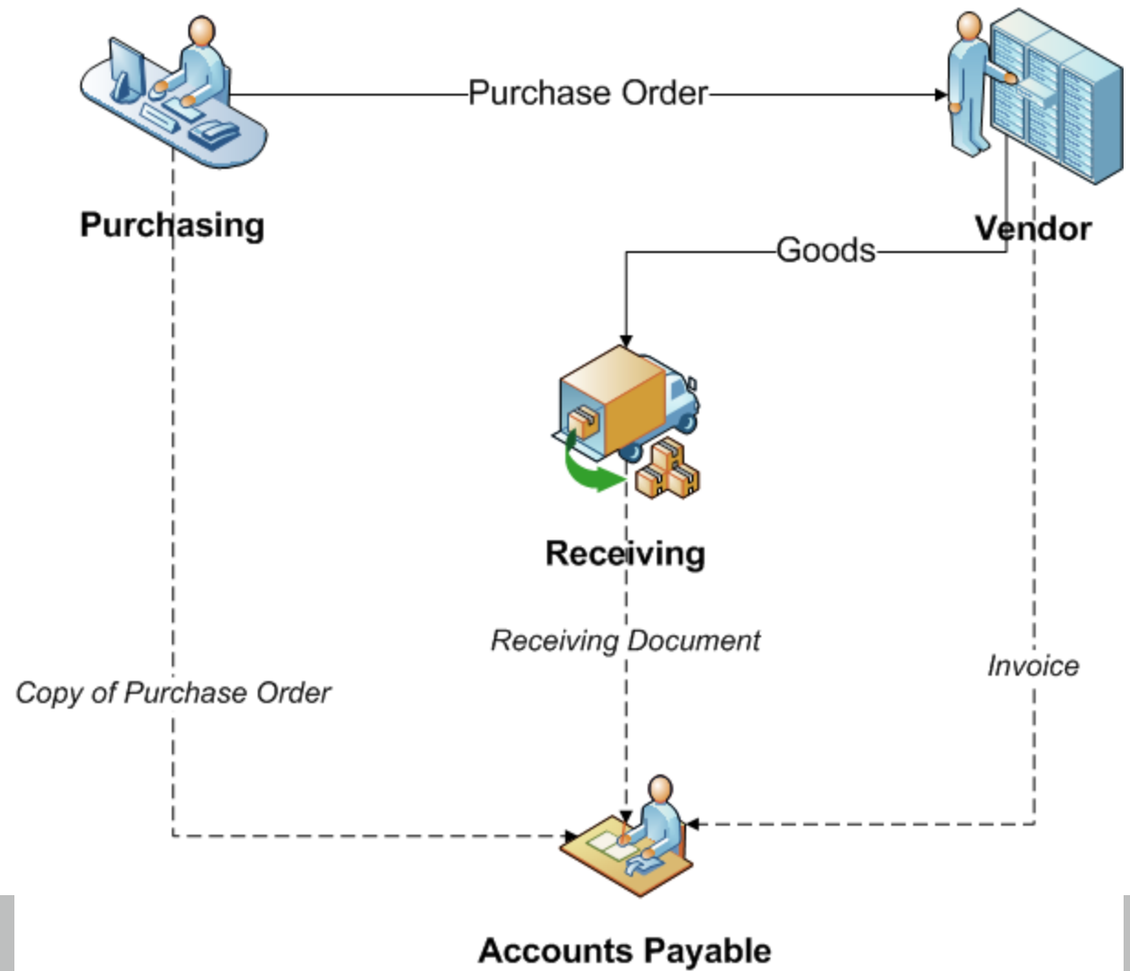

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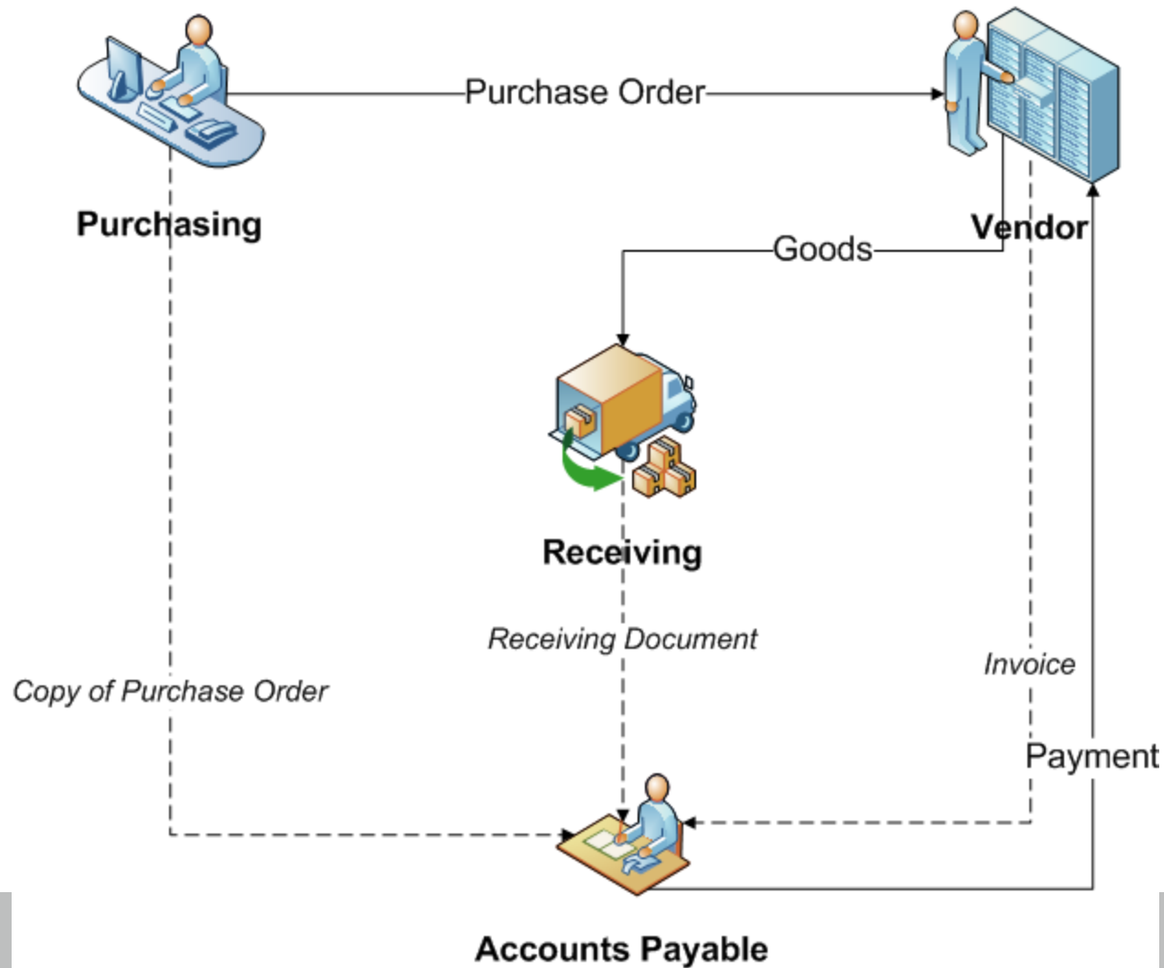
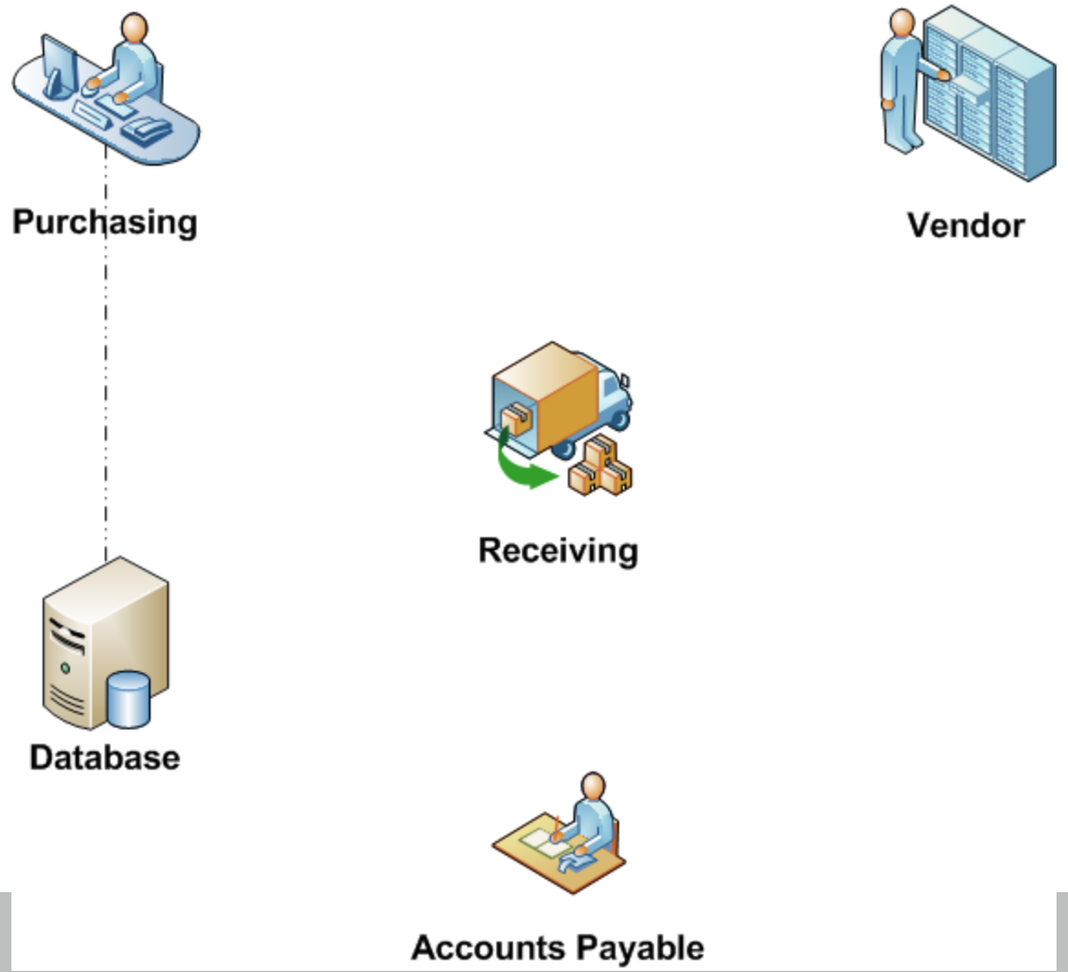


Reengineering Process (“to be”)



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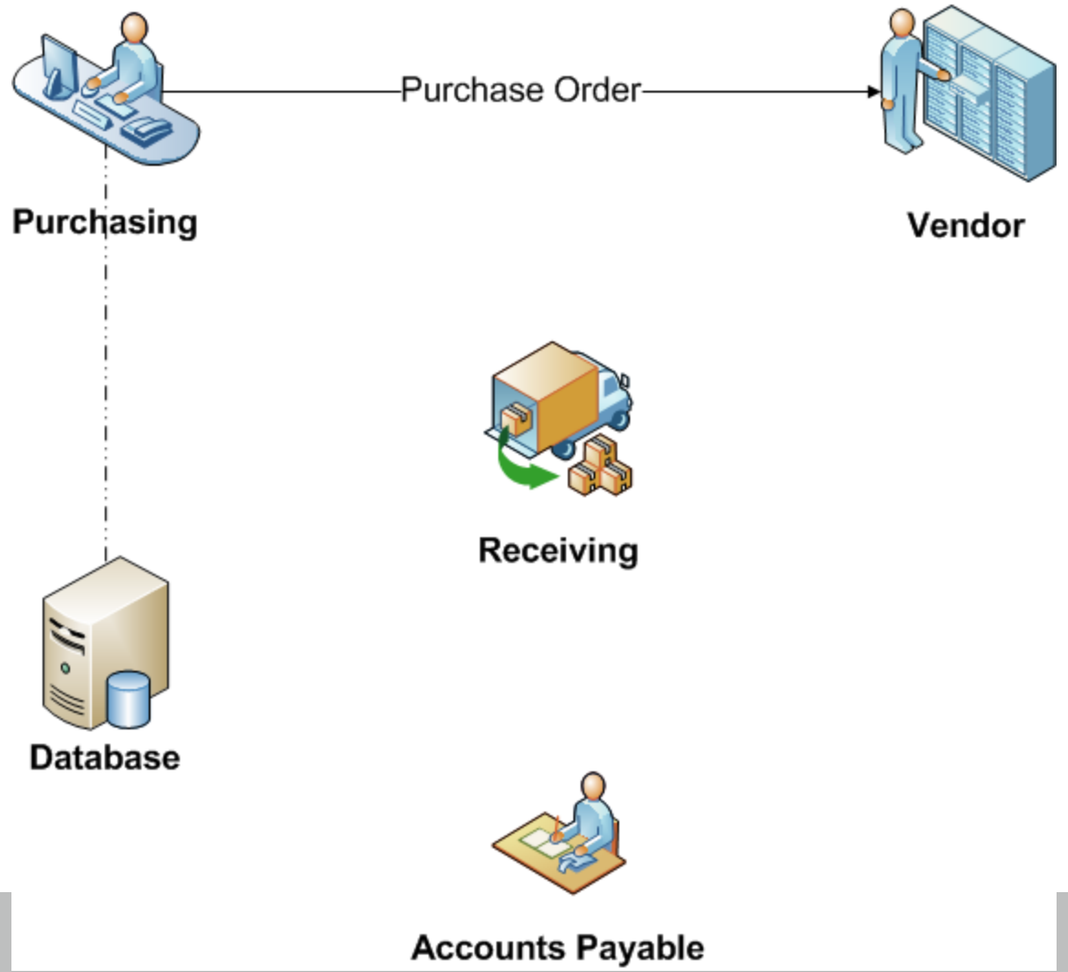

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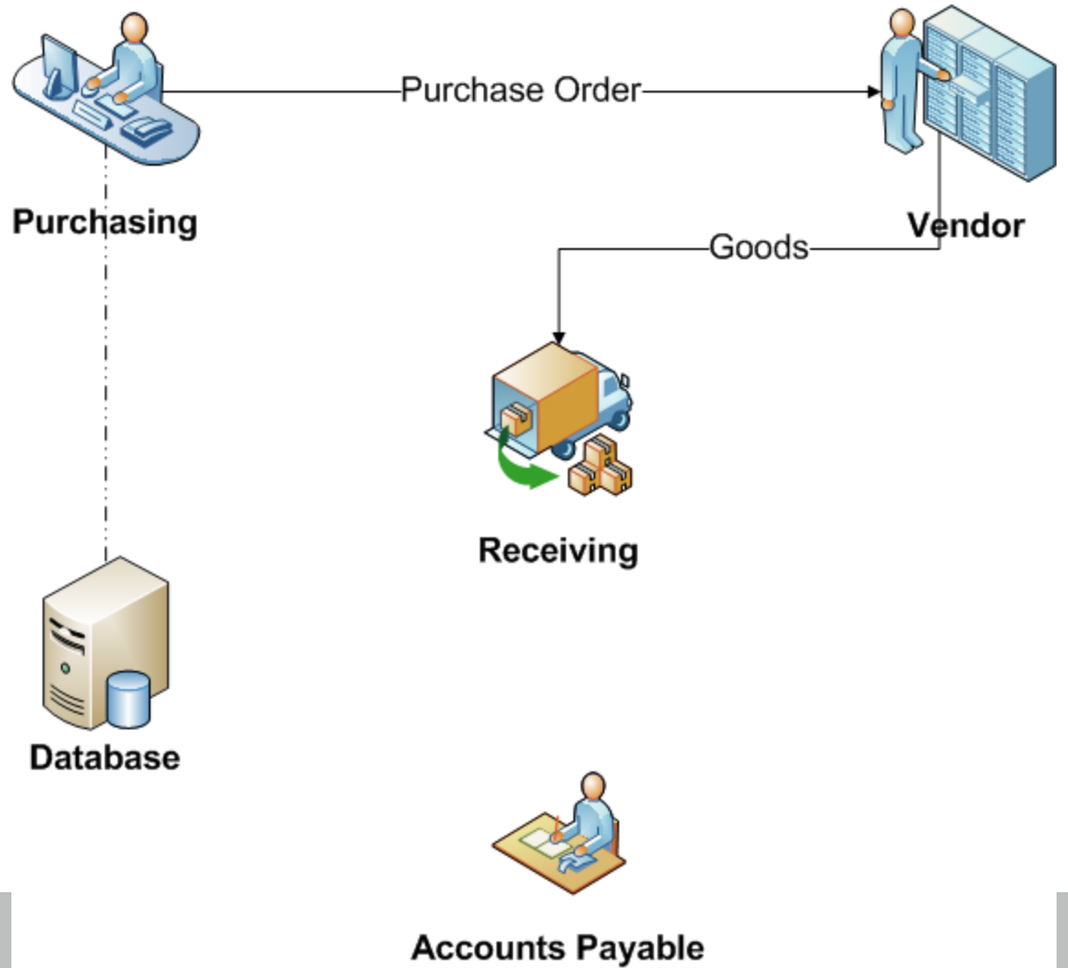

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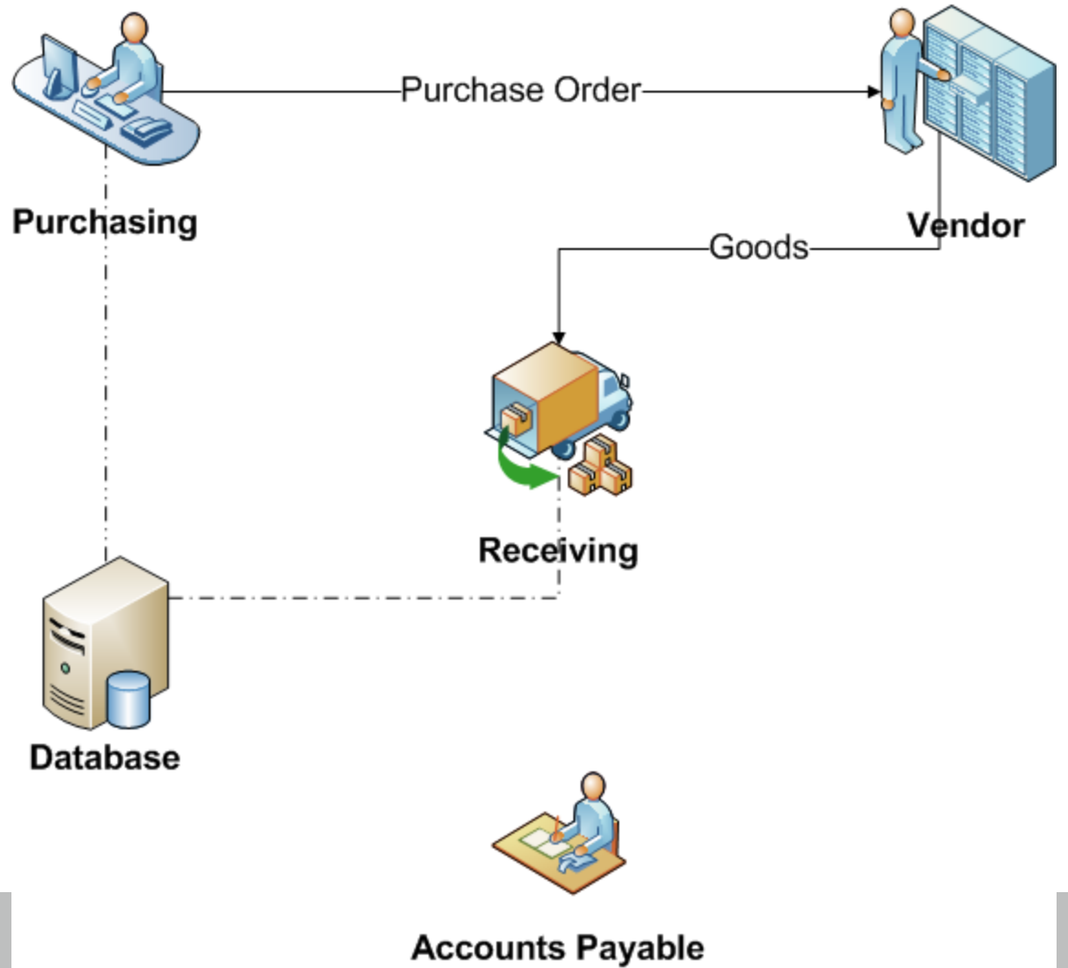

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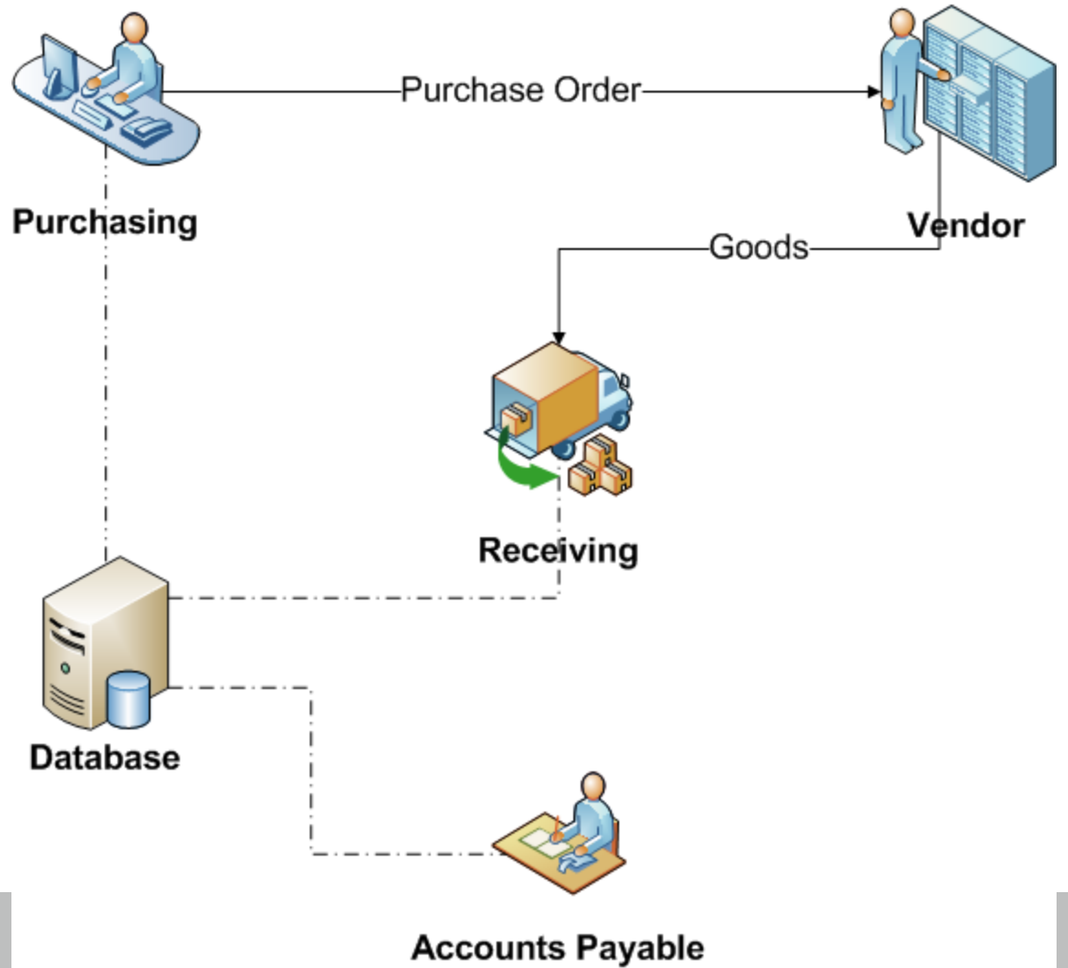

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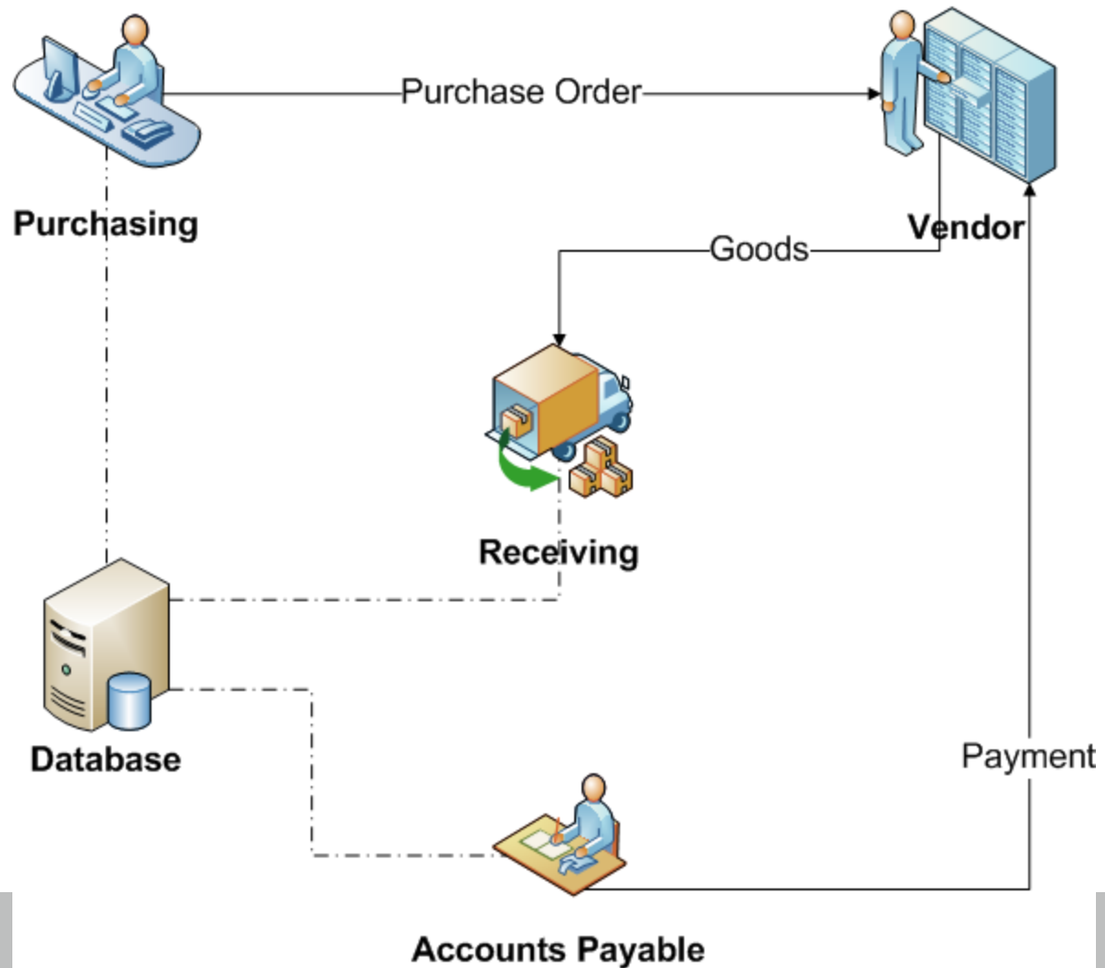


The result…

- 75% reduction in head count
- Material control is simpler and financial information is more accurate
- Purchase requisition is faster
- Less overdue payments

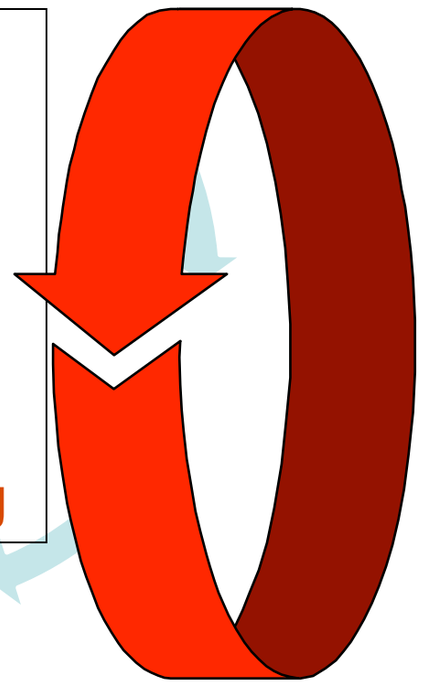
➔ Why automate something we don’t need to do?

Principles of BPR

1. Have those who use the output of the process perform the process
2. Subsume information-processing work into the real work that produces the information
3. Treat geographically dispersed resources as if they were centralized
4. Link parallel activities instead of integrating their results
5. Capture information once and at the source

How to engage in BPM?

1. Opportunity assessment
2. Process modelling (as-is)
3. Process analysis
4. Process re-design (to-be)
5. Process implementation
6. Process monitoring/controlling



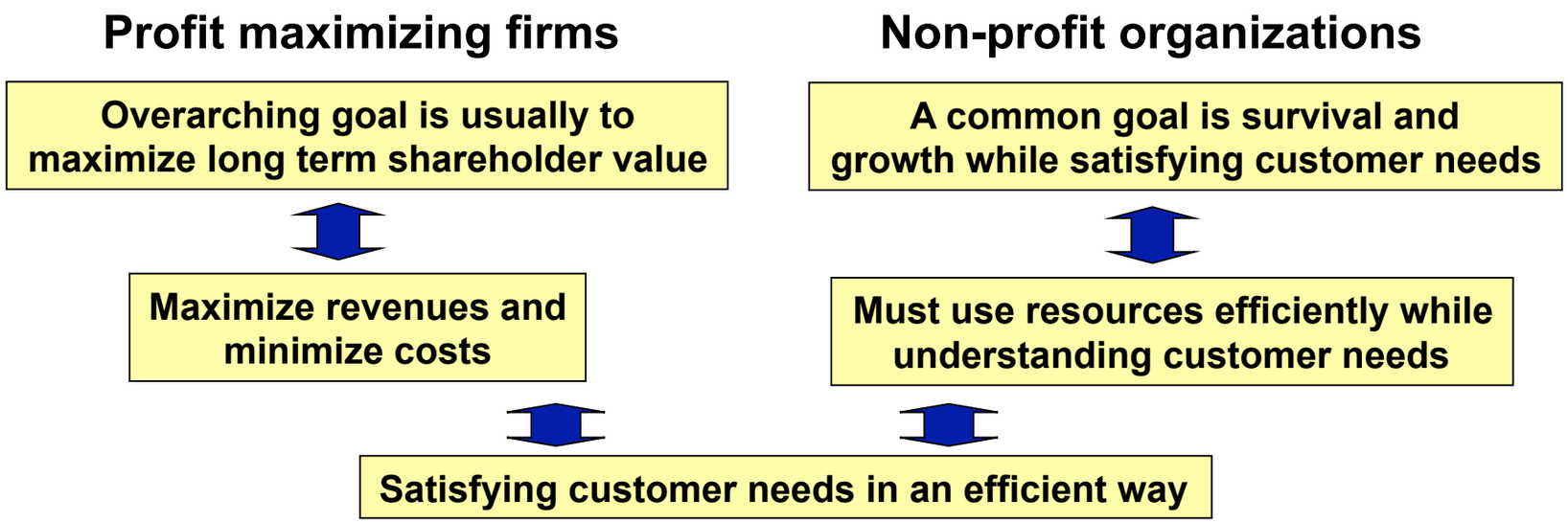
Process Modeling Tools

Process Management Systems

How to engage in BPM?

Phase 1: Opportunity assessment

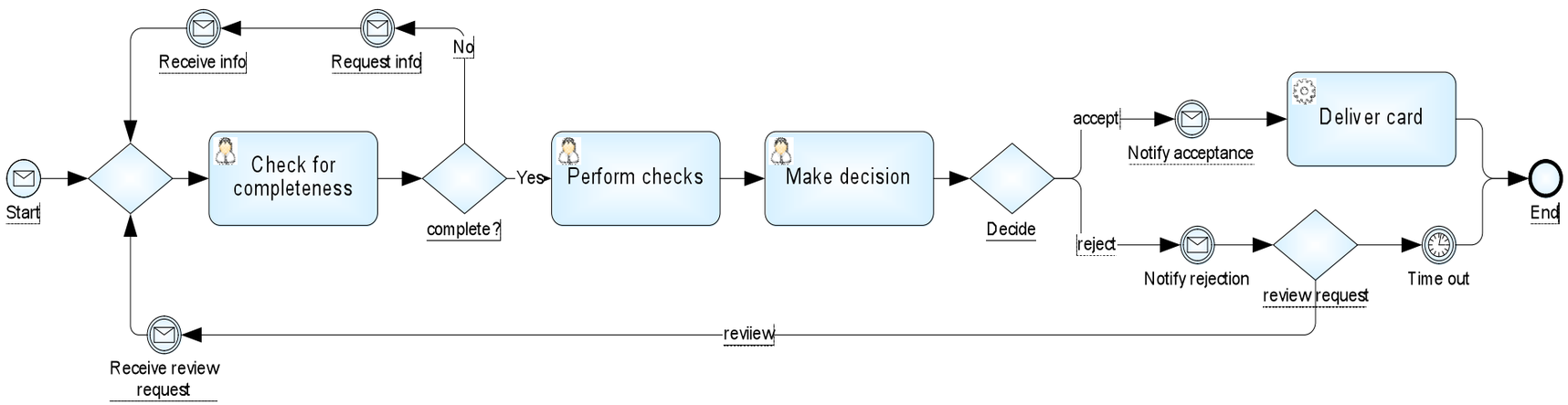
Define the strategic goals, link them to measurable objectives and quantify the benefits



Classification of process metrics

- Cost-related
  - Cost per execution
  - Resource utilization
  - Waste
- Time-related metrics
  - Cycle time
  - Waiting time / time spent in non-value-added tasks
- Quality metrics
  - Error rates (negative outcomes, wrong info)
  - Missed promises

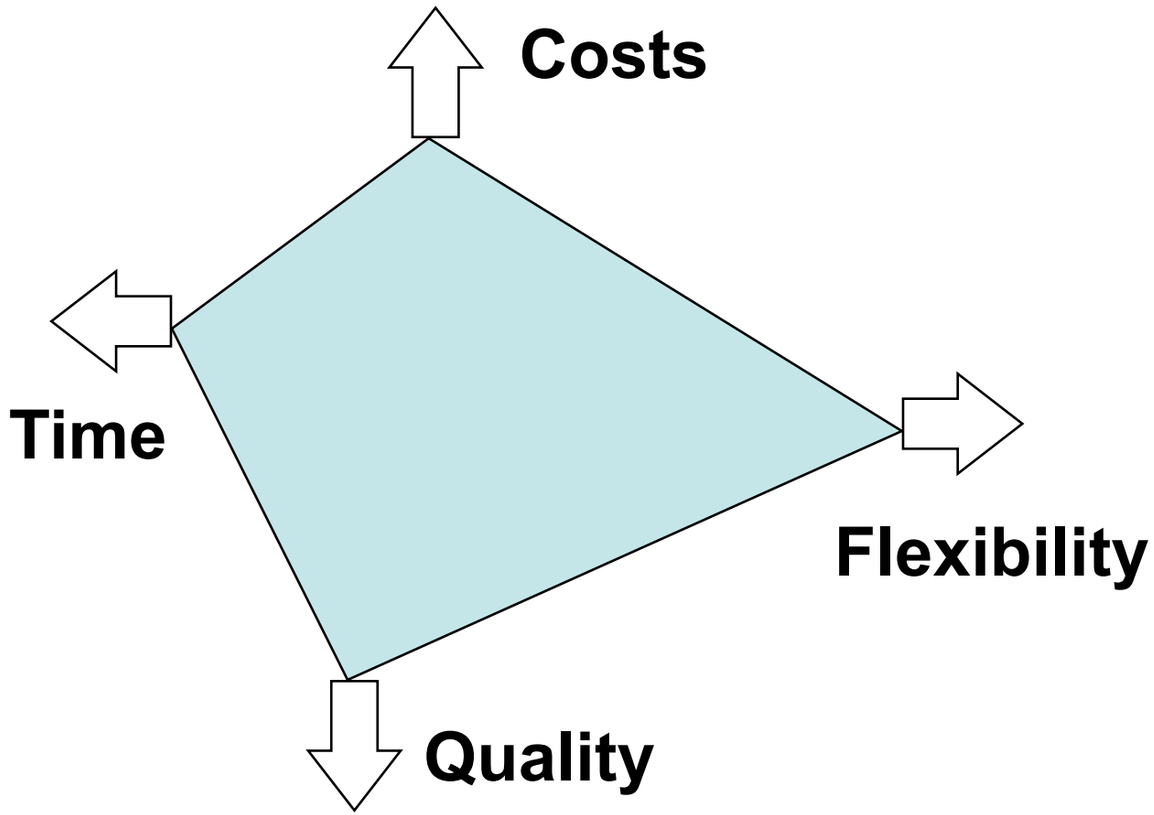
Phase 2: Process Identification and "As Is" Modeling



Phase 3: Analysis

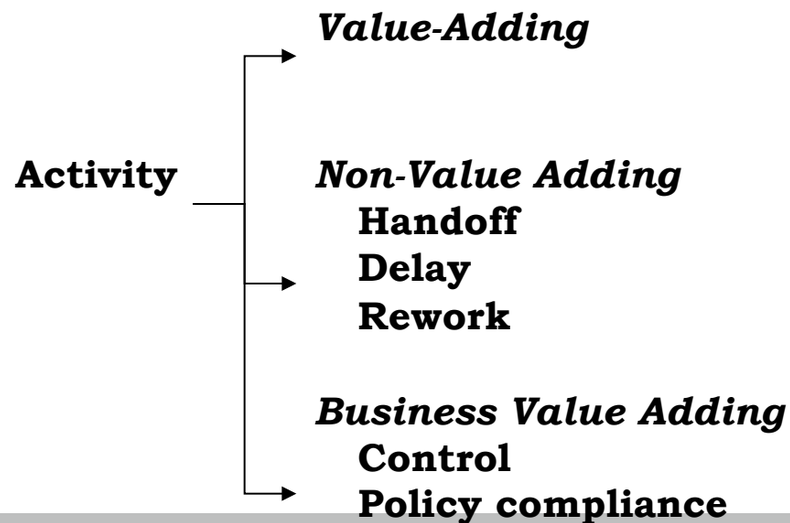
- Qualitative analysis
  - Scenario analysis
  - Cause-Effect-Analysis
  - Issue Register
- Quantitative Analysis
  - Cycle Time Analysis
  - Capacity Analysis
  - Queuing Theory
  - Process Simulation

Phase 4: Process Re-Design



Basics of Process Re-Design: Activity Classification

- A key step in process re-design is classifying of the process activities into value-adding and non-value adding
  - Crucial in identifying waste and inefficiencies in existing processes



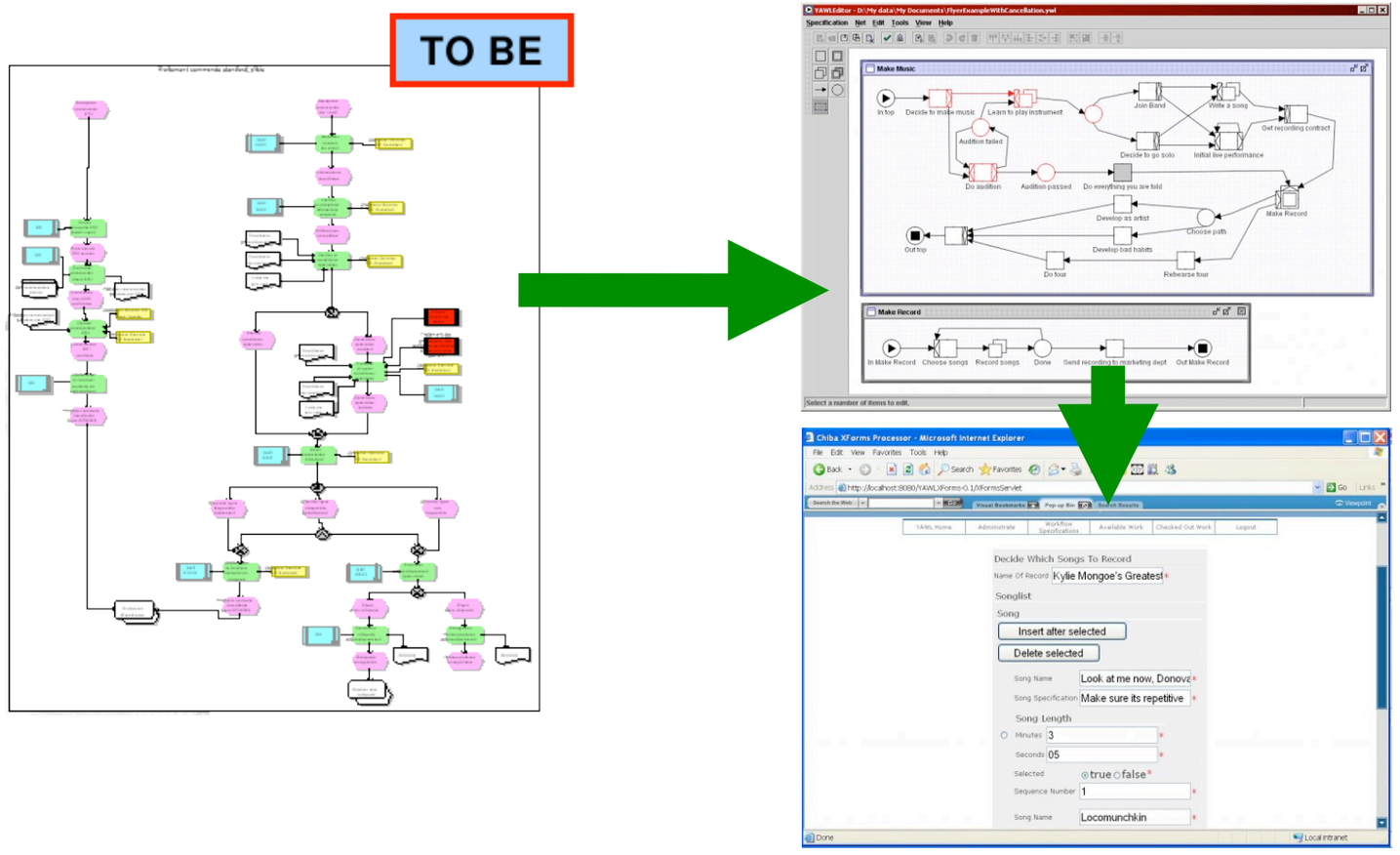
Activity Classification

- Customer value-adding activities
  - Essential in order to meet customer expectations
  - Activities the customer would be willing to pay for
  - Involves doing the right things right
    - Performing the right activities
    - Doing them correctly, with high efficiency
- Business value adding activities
  - Control activities
  - Do not directly add customer value but are essential to conducting business
- Non-value adding activities
  - Activities the customer is not willing to pay for

Activity Classification

- Elimination of non-value adding activities is a key first step in redesigning business processes
  - Often achieved through task or activity consolidation
- Task and activity consolidation reduces
  - Hand-offs
  - Need for control activities
  - Process complexity

Phases 5-6. When technology Kicks in..



Process Execution Engines

- BPMN-based: BizAgi, Savvion, …
- BPEL-based
  - Oracle SOA Suite
  - ActiveBPEL
  - IBM Websphere Process Engine
- Microsoft
  - BizTalk
  - Windows Workflow Foundation
- YAWL

Summary: The Value of BPM

- BPM combines business analysis with IT in order to achieve maximum businesses impact
- BPM is a valuable approach when considering cross-functional chains of activities
  - Inefficiencies related to handing off work from one station or person to another – delays and errors
  - Inefficiencies and errors related to capturing and transferring information

References and acknowledgments

- Some slides are companion slides of Laguna & Marklund's book "Business Process Modeling Simulation and Design"
- Other resources are listed on the course Web page
- Next week: Introduction to Process Modeling