BUSINESS PROCESSES

MAPPING, ANALYSING, MEASURING AND IMPROVING

Agenda

- Business processes

- An example of BPR: DECI project

- Let's work on a case

- Discussion

Learning goals

- Understanding the logics of business process orientation, its advantages and usefulness

- Understanding the principles of business process management

- Recognizing and representing business processes

- Measuring the performance of a business process

- Analyzing and improving business processes

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- **Business processes**

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What is a business process

A business process is an organized set of activities and decisions, aimed at creating an output that is actually required by a customer, to which she attributes a well-defined value
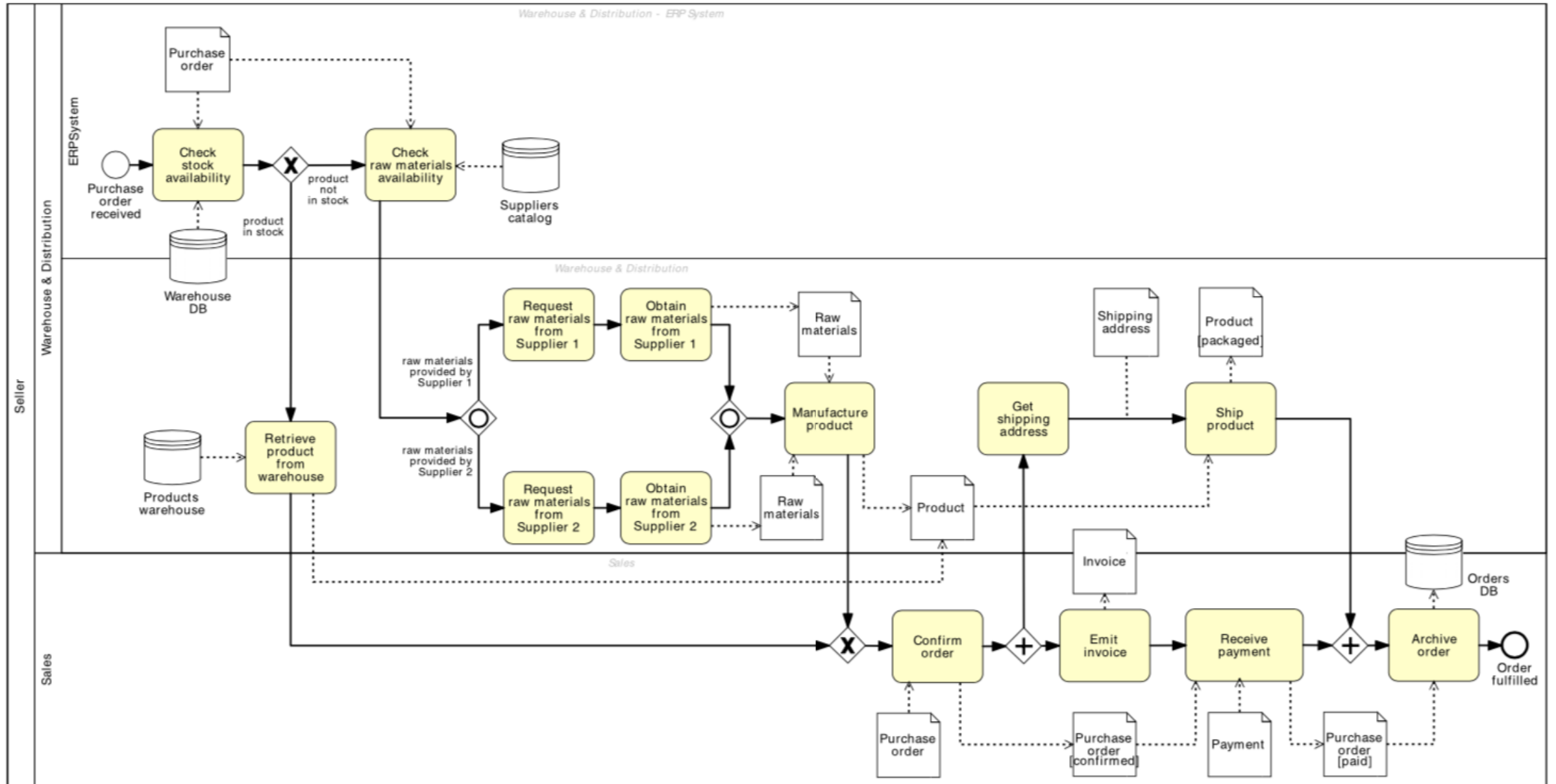
The business processes:

- Represent how work is actually accomplished within firms
- Link the activities of an organization to the requirements of its customers
- Embed, in their execution, the organizational strategy, creating opportunities to produce a competitive advantage
- Generally are cross-functional and horizontal
- Can extend beyond corporate boundaries
- Describe what is outside the traditional hierarchic structures
- "Force" employees to collaborate
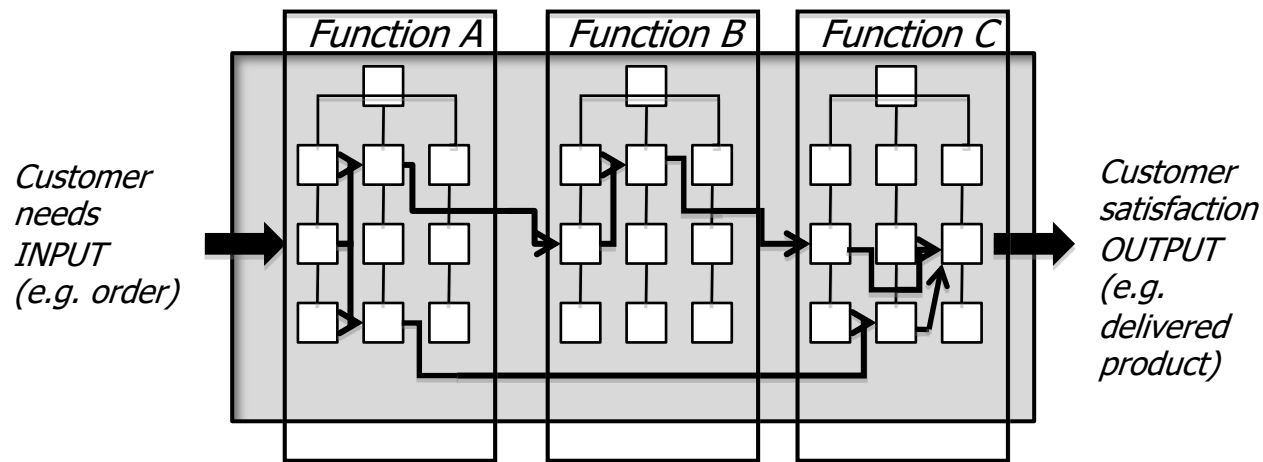
Example of a process: a description

- The order fulfillment process is carried out by a seller's organization which includes two departments: the sales department and the warehouse & distribution department.

- The purchase order received by warehouse & distribution is checked against the stock. This operation is carried out automatically by the ERP system of warehouse & distribution, which queries the warehouse database.

- If the product is in stock, it is retrieved from the warehouse before sales confirm the order. Next sales emit an invoice and wait for the payment, while the product is shipped from within warehouse & distribution. The process completes with the order archival in the sales department.

- If the product is not in stock, the ERP system within warehouse & distribution checks the raw materials availability by accessing the suppliers catalog. Once the raw materials have been obtained the warehouse & distribution depart- ment takes care of manufacturing the product. The process completes with the purchase order being confirmed and archived by the sales department.

Example of a process: a graphical representation

Why processes matter

- Customer centrality

- Performance improvement

- Co-creation of value

Process orientation vs. Business Process Managegement (BPM)

- **Process orientation:** organizational approach that emphasizes business processes with respect to hierarchical structures, with a strong emphasis on results and customer satisfaction

- **Basic assumptions:** organizations do not create value and profits through organizational units but through business processes

- **Business Process Management:** systematic and structured approach to analyze, manage, control and improve business processes over time with the aim of integrating activities and improving the overall performance of products and services
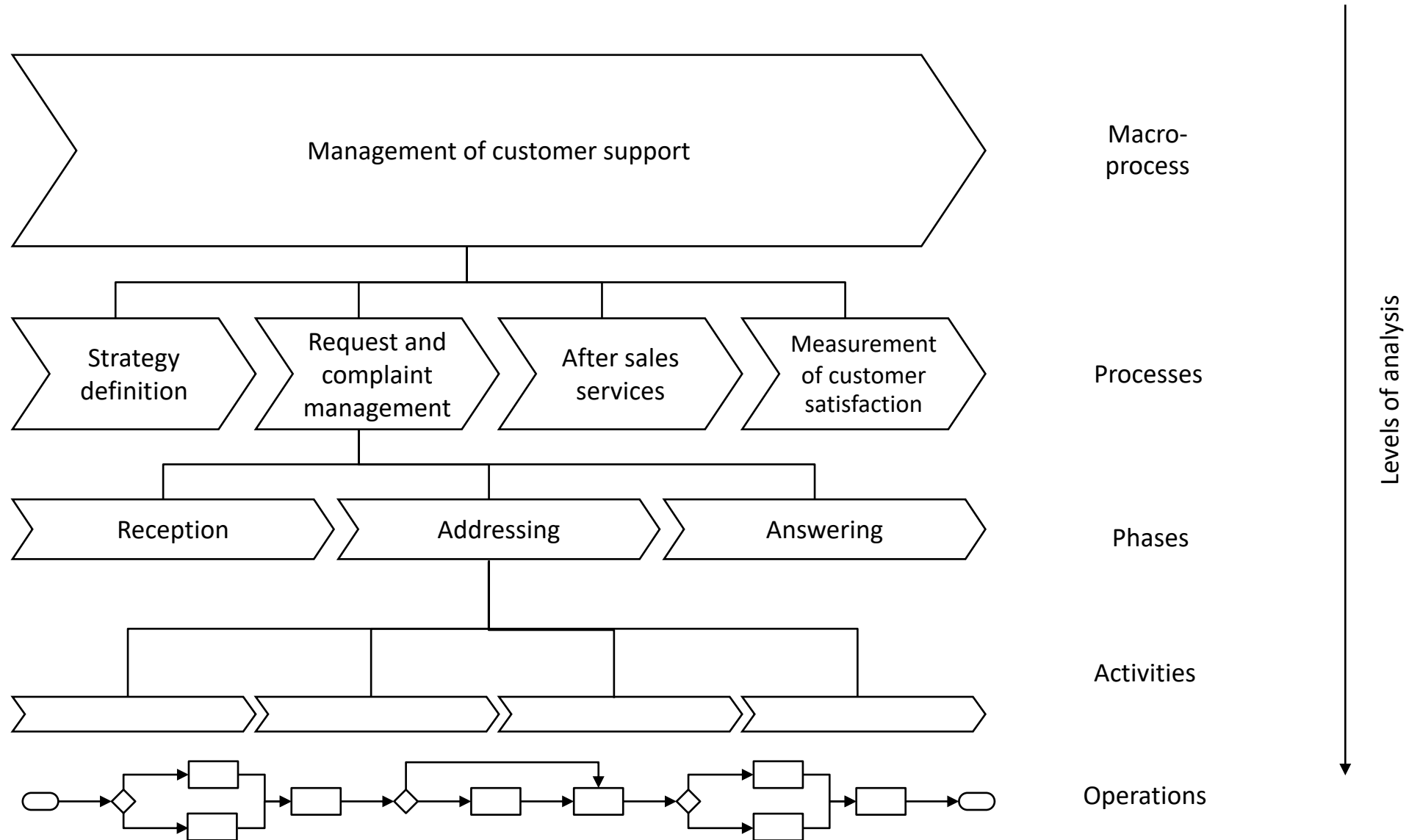
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Interest of firms for Business Process Management

Source: BPTrends, Survey 2016
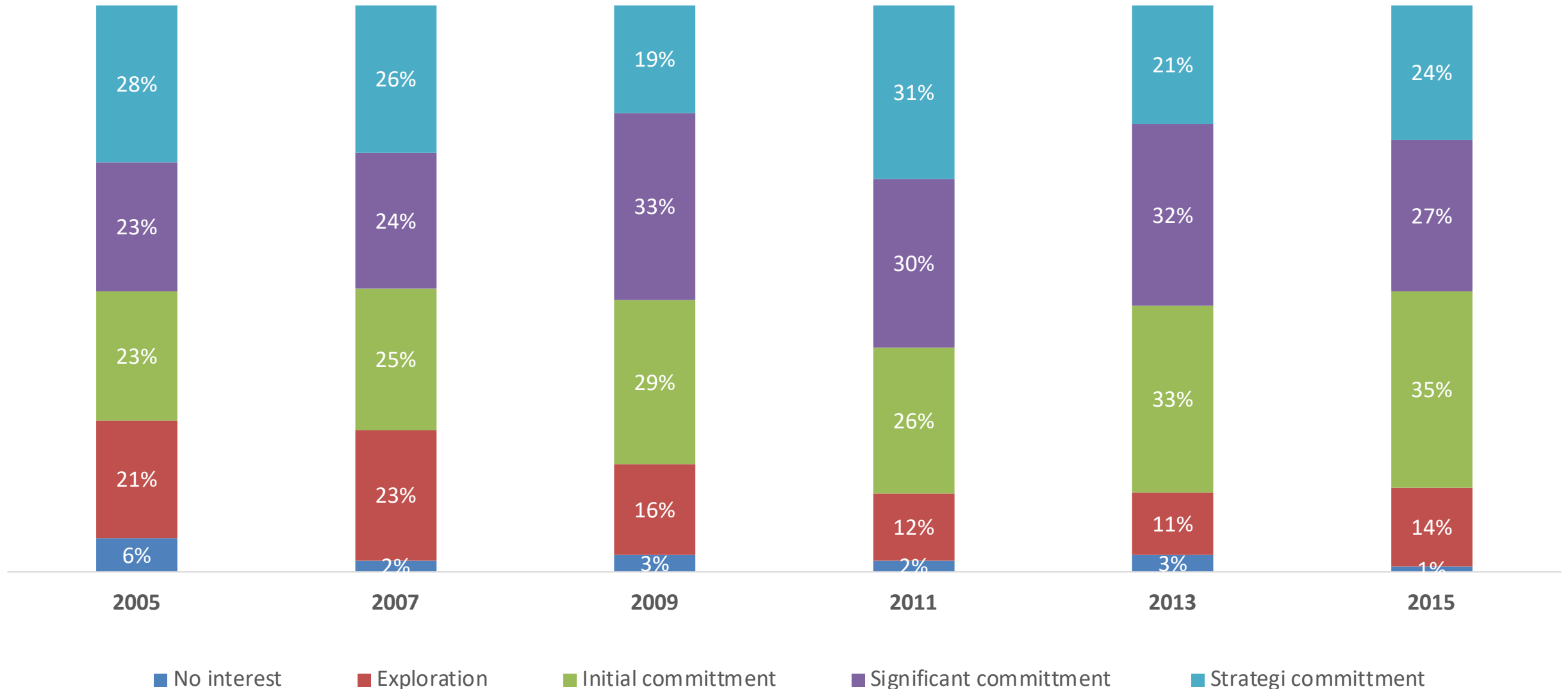
Why firms are interest in Business Process Management

What are the major business drivers causing your organization to focus on business process change? (Choose one or more)	2005	2007	2009	2011	2013	2015	
Need to save money by reducing costs and/or improving productivity	33%	56%	56%	57%	54%	53%	58
Need to improve existing products, create new products or enter new lines of business to remain competitive	19%	36%	36%	28%	34%	33%	36
One time event (merger or acquisition)	2%	4%	4%	4%	3%	5%	5
Government or business risk management(Sarbanes-Oxley, ISO 9000)	11%	17%	17%	13%	13%	17%	19
Need to improve customer satisfaction to remain competitive	19%	37%	37%	31%	37%	46%	50
Need to improve management coordination or organizational responsiveness	23%	51%	51%	38%	35%	30%	33
Need to improve management of IT resources (ERP applications)						15%	16
Need to reduce cultural resistance to process change						17%	19
Other, Please Specify						12%	13

Source: BPTrends, Survey 2016

Levels of analysis of a business process

Management of customer support — Macro-process

Strategy definition | Request and complaint management | After sales services | Measurement of customer satisfaction — Processes

Reception | Addressing | Answering — Phases

Activities

Operations

Levels of analysis
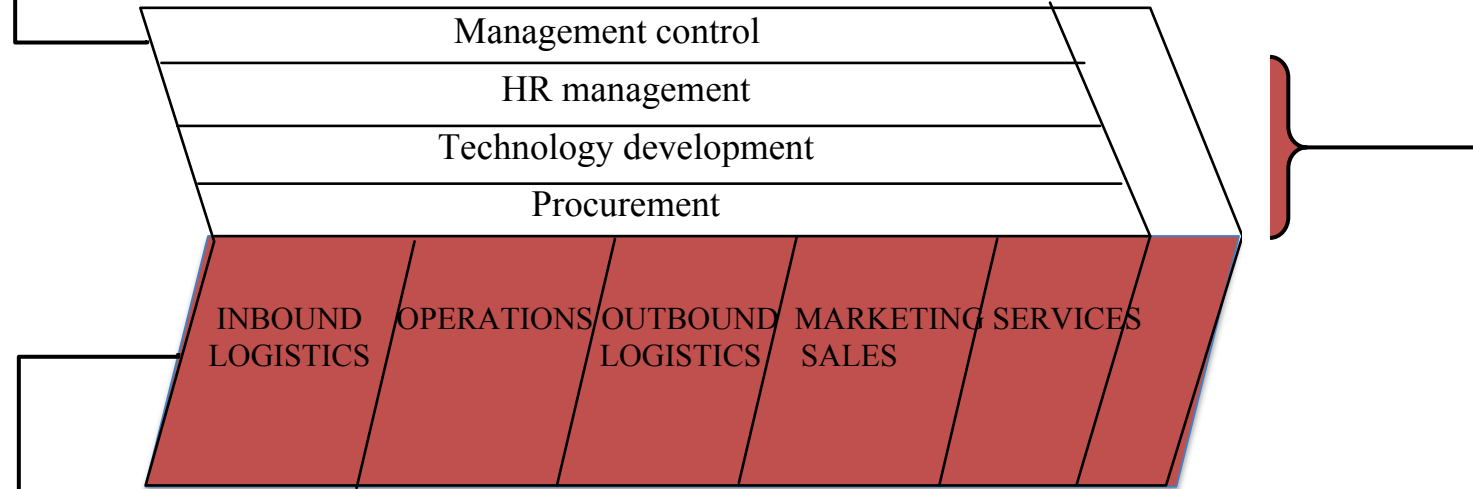
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Key elements of a business process

- **Output:**
    - Defined starting from the customer needs
    - Both physical as well as informational

- **Input:**
    - Physical or informational factors from outside or from other processes
    - They are necessary to the development of the process (transformation of the inputs)

- **Controls:** data and information that provides rules, procedures to be followed

- **Phases:**
    - Sets of activities and decisions that, interacting among each other, enable to achieve the outputs
    - Heterogeneous nature: e.g. transformation, delivery, information elaboration, decisions, etc.

- **Interdependences:**
    - Logical and priority links among phases, activities and decisions
    - They are sequential, mutual or generic

- **Events:** situations that affect the process flow

- **Resources:**
    - Human competences
    - Technologies (machine tools, plans, information systems, SW, automatic procedures)

- **Management methods: basic** logics through which coordinate activities, make decisions and check the process progress

Process classification

**Government processes:** provides tools to support decision making (their "customers" are managers and stakeholders)

Operational support processes: produce services and info for the business deployment (they have internal customers)

Management control

HR management

Technology development

Procurement

INBOUND LOGISTICS

OPERATIONS

OUTBOUND LOGISTICS

MARKETING SALES

SERVICES

Primary processes: directly create value for the external customers

Processes and organizational functions

- **Functions:**
  - Objective: resource management
  - Activities grouped according to similarities
- **Processes:**
  - Objective: realize an output for a peculiar customer
  - Activities grouped according to physical/informational streams
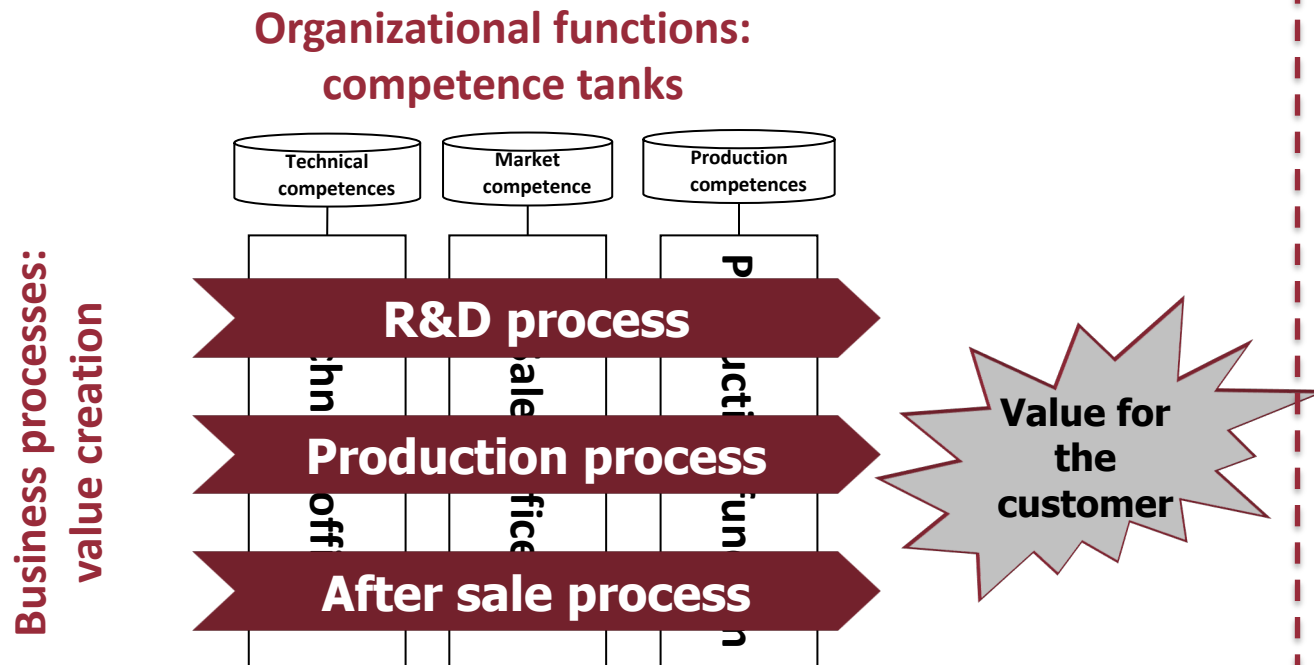
Which role can the organizational structure have in enabling a strong integration of the processes?

- Horizontal structure (process-based)

- Business processes like an additional organizational dimension (matrix structure or usage of integrating managers)

Organizational functions: competence tanks

Business processes: value creation

Technical competences | Market competence | Production competences

R&D process

Production process

After sale process

Value for the customer

Business process management principles
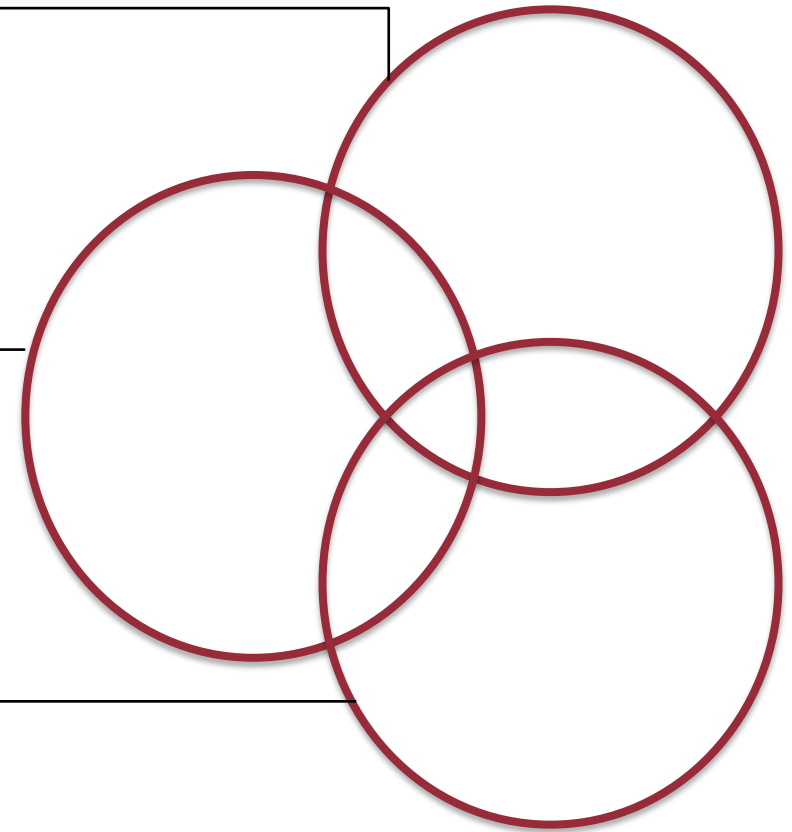
- **_Cultural principles_**
  1. Pervasiveness of process orientation
  2. Customer-supplier logic

- **_Organizational principles_**
  3. *Process ownership*
  4. Jobs and roles redesign

- **_Management principles_**
  5. Process documentation
  6. Process measurement
  7. Process flow optimization
  8. Decoupling point

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1. Pervasiveness of process orientation

- **Background logic/key elements:**

  Systematic and continuous approach over time to the management of business processes
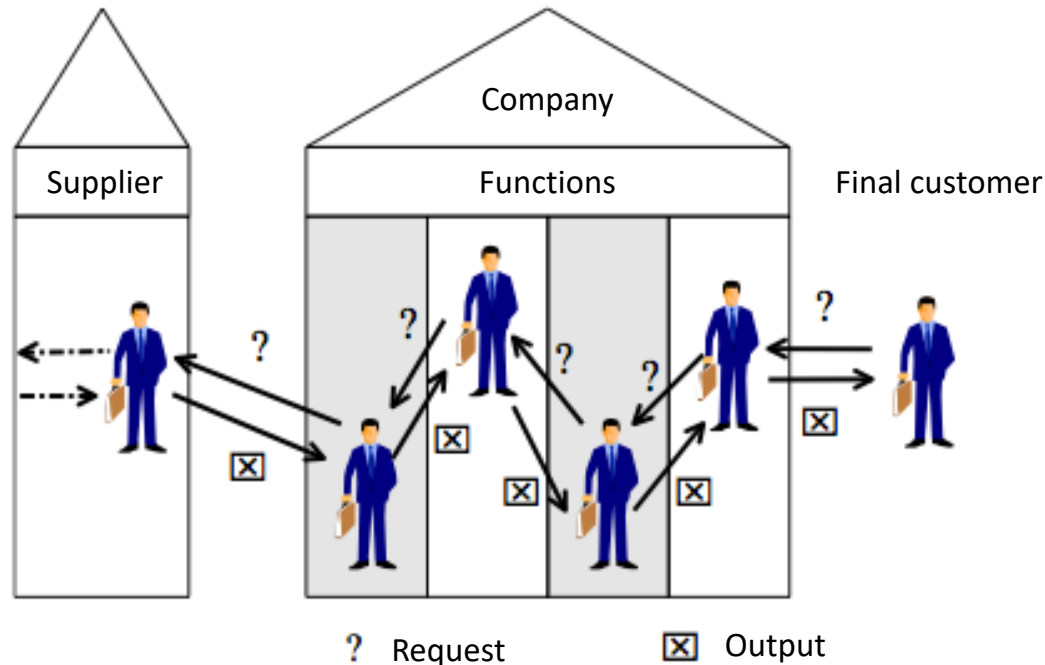
- **Levers:**
  - Process knowledge (**Mapping**)
  - Employees engagement
  - Modification of evaluation and incentive systems

- **Objectives/Benefits:**
  - Dissemination of an awareness of the downstream and upstream impacts of employee's activities
  - Dissemination of process culture

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2. Customer-supplier logic

Transforming the final customer's goals into goals for intermediate process customers (**deployment**)

Requires:
- Treat the downstream function as an external customer
- Work for the client and not for the boss
- Flexibility and response speed
- Extend the logic upstream and downstream (customer-supplier partnership)

2. Customer-supplier logic

- **Background logic/key elements:**
  - Deployment of objectives
  - Activation of customer-supplier chains

- **Levers:**
  - Interface measurement (e.g. SLA, transfer prices)
  - Application of partnership logics (joint implementation of the transaction, process management, exchange of know-how)
  - Process standardization (phases, inputs and upstream capacity) to isolate exceptions

- **Objectives/Benefits:**
  - Increased response speed
  - Effective response to customer needs

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A partucular case: managing support processes

- **Background logic/key elements:**

  "service culture" for support functions

- **Levers:**
  - Re-grouping of primary processes (e.g. maintenance, tooling, quality control)
  - Information production within processes
  - Outsourcing of support processes

- **Objectives/Benefits:**
  - Avoid "estrangement" and "self-referentiality" of support processes
  - Improve the timeliness of the support

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3. Process ownership

- **Background logic/key elements:**

    Supervision and support of the integration between "traditional" processes and organizational structures

- **Levers:**

    – Locate the process owner

    – Decide whether to employ a strategic or operational process owner

    – Consider the use of methodological process owners (perhaps third parties to guarantee objectivity)

- **Objectives/Benefits:**

    – Encourage the achievement of process objectives

    – Promote continuous improvement of the process

4. Job and roles redesign

- **Background logic/key elements:**
  Redesign of working methods with the aim of guaranteeing business process integration

- **Levers:**
  - **Job re-design:**
    - *Job enlargement*: multiple tasks in the same position
    - *Job enrichment*: more autonomy and decision-making power
    - *Working groups*: shared responsibility for process results
  - **Delegation of decision-making:**
    - Responsibility for process performance
    - Substantial as well as formal delegation (autonomy, decision levers)
    - Need for training
    - Delegation + increase in skills = staff empowerment

- **Objectives/Benefits:**
  - Reduce the need for integration/coordination along the business process
  - Employees' involvement

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5. Process documentation

- **Background logic/key elements:**

    Sharing and dissemination of processes

- **Levers:**

    – Mapping software

    – Repository, intranet

    – Sharing of process documentation

- **Objectives/Benefits:**

    – Recognize processes and responsibilities

    – Collect and encode data

    – Support process understanding and the identification of optimization opportunities

6. Process measurement

- **Background logic/key elements:**

  Recognize and explain the objectives and define and measure the results of the processes

- **Levers:**

  - Dashboard of Key Performance Indictors (e.g. balance scorecard or performance tree)
  - Process-oriented management control system
  - Incentive mechanisms consistent with process perspective

- **Objectives/Benefits:**

  - Performance management of business processes

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7. Process flow optimization

- **Background logic/key elements:**

  Designing the flow and the sequence of activities from a business process perspective
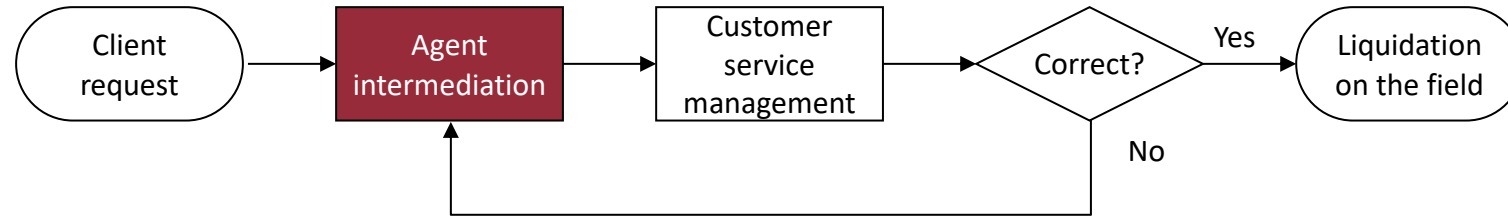
- **Levers:**

  – Elimination of redundant activities that do not add value

  – Streamlining of process flow (reduced feedback loops)

  – Parallelization or activities overlapping to reduce process leadtime

  – Rationalization of control activities (e.g. from complete to sample-based)
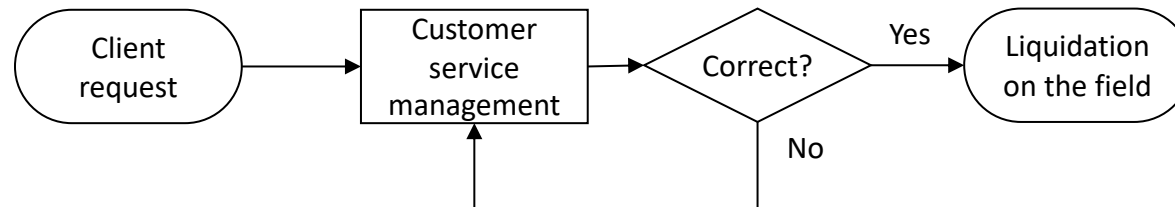
- **Objectives/Benefits:**

  – Create value for the end customer of the process

  – Make the process effective and efficient

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Elimination of redundant activities that do not add value

Before

Client request → **Agent intermediation** → Customer service management → Correct?

Correct? → Yes → Liquidation on the field

Correct? → No → Agent intermediation

After

Client request → Customer service management → Correct?

Correct? → Yes → Liquidation on the field

Correct? → No → Customer service management

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Streamlining of process flow (reduced feedback loops)

Before

Client request → Development of tech. spec. → Technically feasible? — Yes → Development of econ. spec. → Economically feasible? — Yes → Product development

Technically feasible? — No → Generation of alternatives

Economically feasible? — No

After

Client request → Development of tech/econ. spec. → Feasible? — Yes → Product development

Feasible? — No → Generation of alternatives
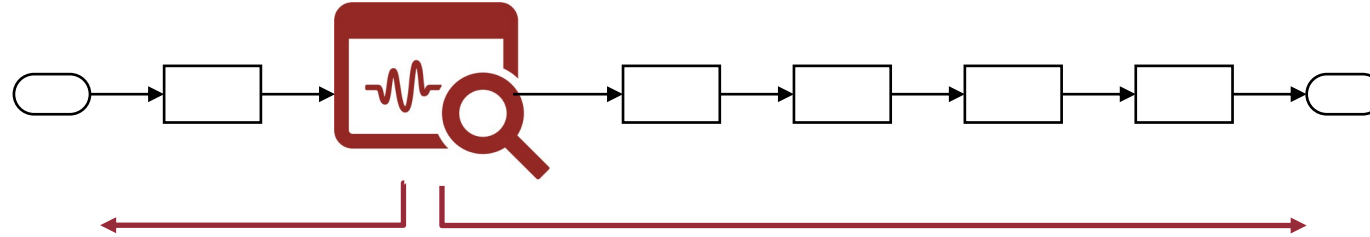
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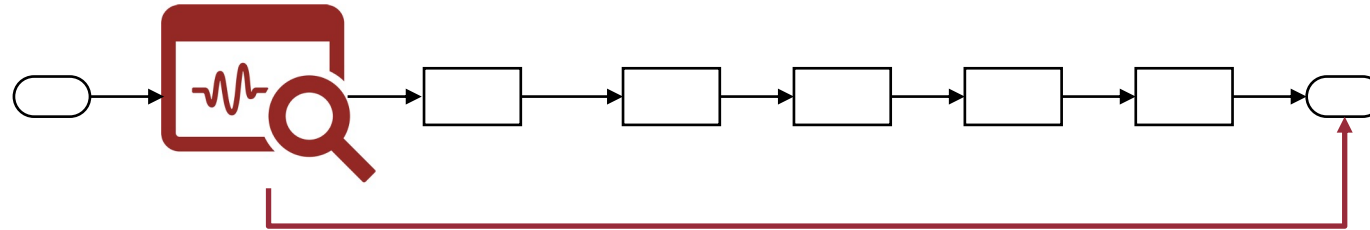
Activities overlapping (parallelization)
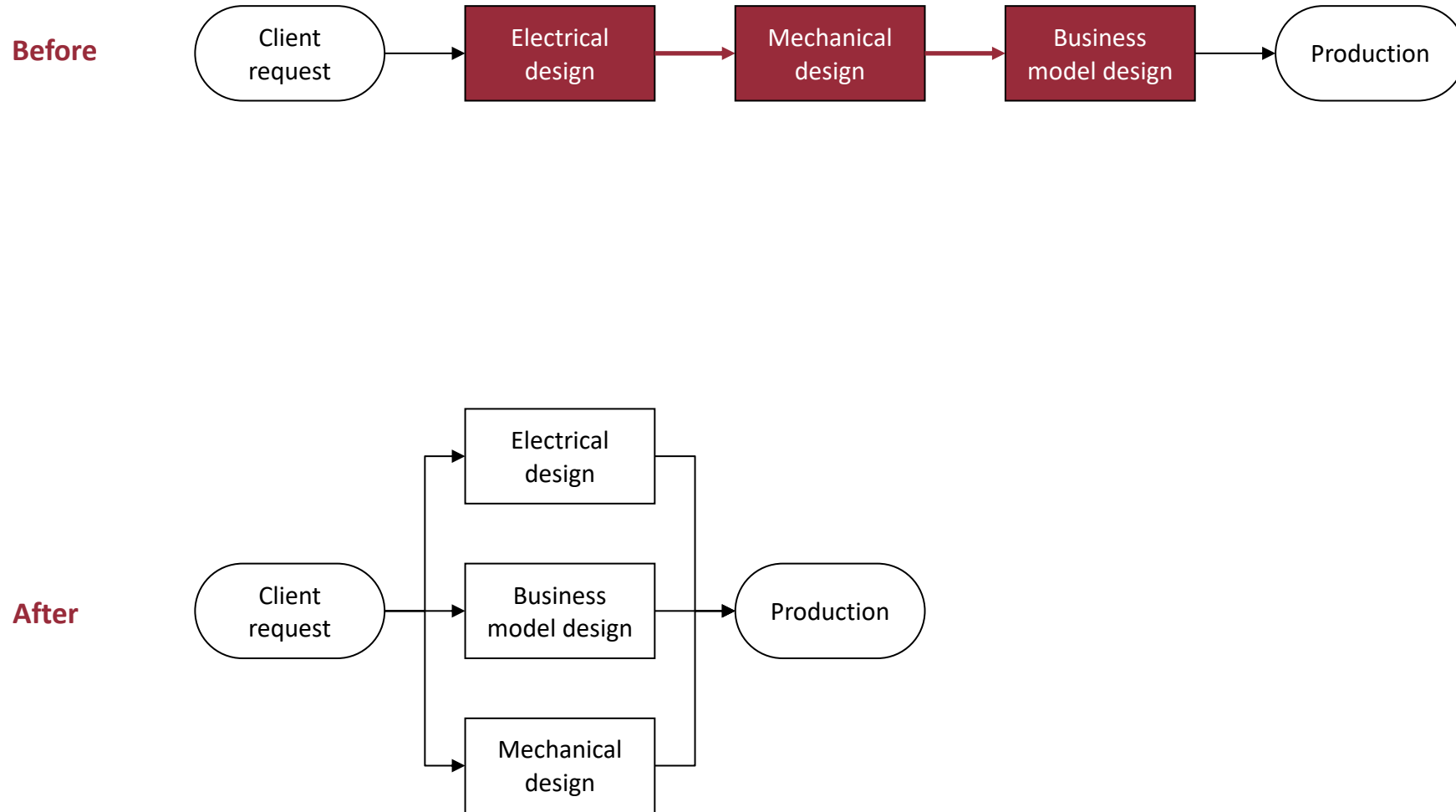
Rationalization of control activities (e.g. from complete to sample-based)

8. Decoupling point

- **Background logic/key elements:**

    Balance response speed and personalization

- **Levers:**

    – Detection of the decoupling point

    – Redesign of product/service architecture

    – Use of standard modules (e.g. flatbed vehicles of segment B)

    – Postponement (standardization of upstream activities and customization of downstream ones)

- **Objectives/Benefits:**

    – Create value for process customer

    – Make the process effective and efficient
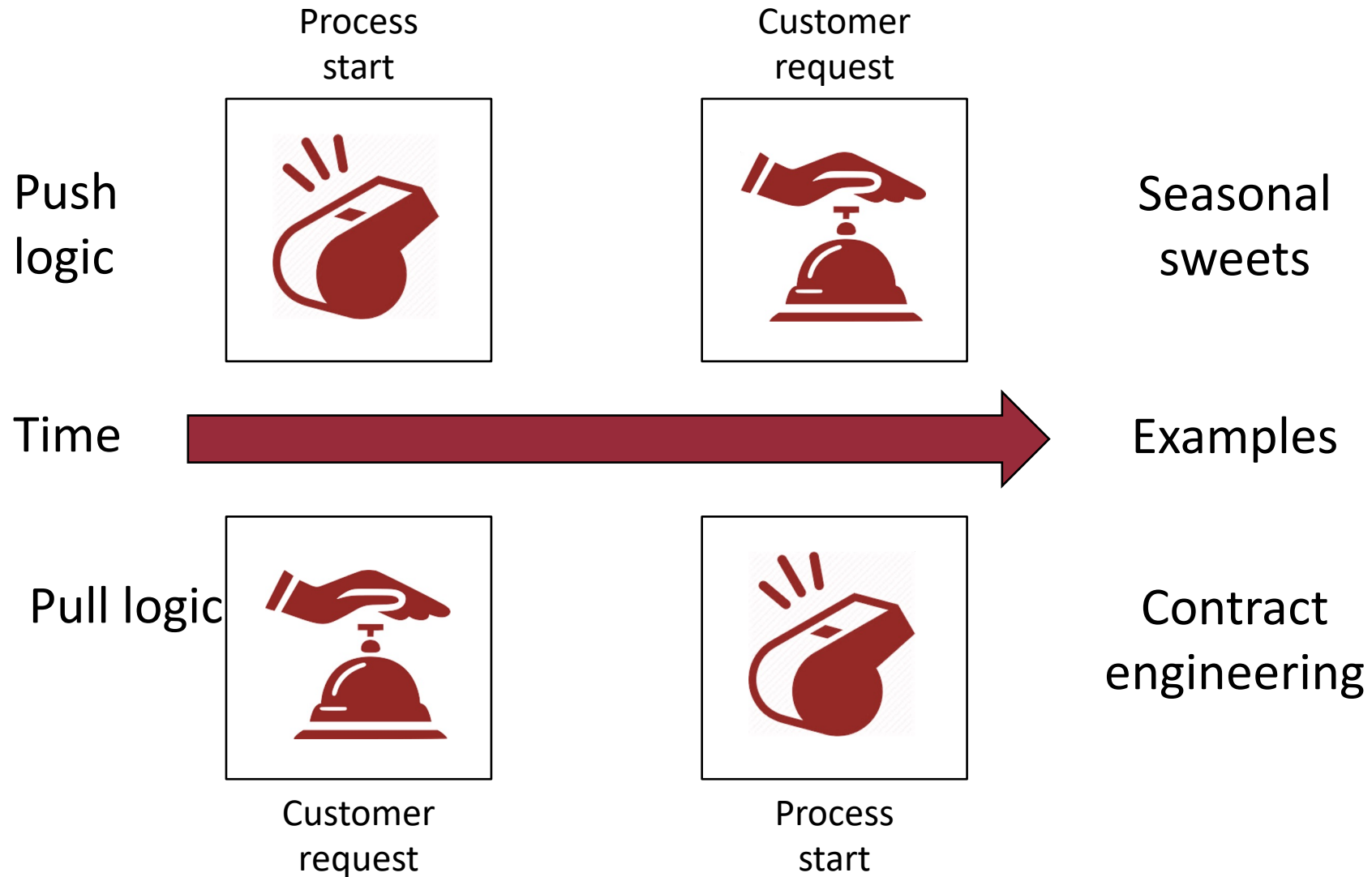
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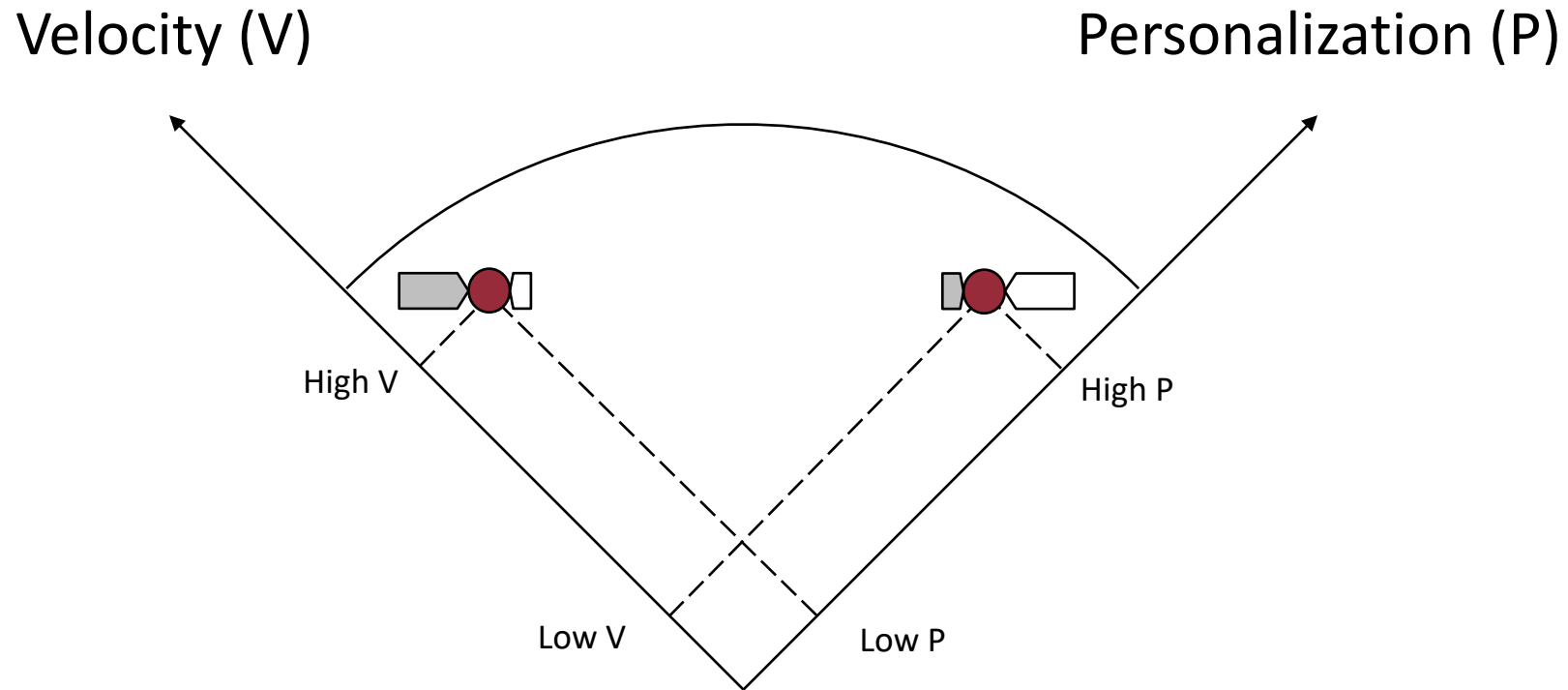
	Process start	Customer request	
Push logic			**Seasonal sweets**
Time			**Examples**
Pull logic	Customer request	Process start	**Contract engineering**

8. Decoupling point

Business process management principles

- **Cultural principles**
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The pivotal role of Information and Communication Technologies
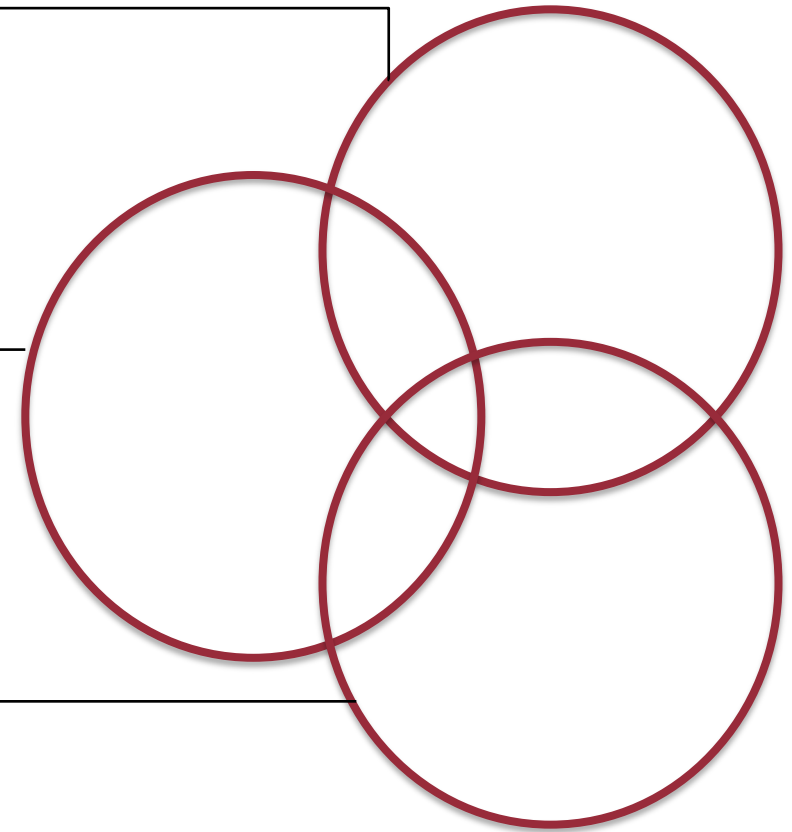
- Information and Communication Technologies (ICTs) play a pivotal role in configuring process-oriented organizations
  - Improved coordination
  - Facilitation of control
  - Dissemination of knowledge

- **Attention:** ICTs must not guide process redesign, but follow and support it!

- Two families of applications:
  - Support for process modeling and management (**Business Process Management Systems - BPMS**)
  - Support to *process execution and integration* (**Enterprise Systems - ES**)

The pivotal role of Information and Communication Technologies

Business Process Management Systems

Enterprise Systems

BPMS

Process modeling and management

ES

Process execution and integration

Monitoring, analysis and implementation

Execution

Simulation

Modelling

Graphical representation

Unified Modeling Language

(UML)

Business Process Modeling Notation

(BPMN)

Enterprise Resource Planning

(ERP)

Customer Relationship Management

(CRM)

Supply Chain Management

(SCM)

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Approaches to process improvement

Business Process Reengineering (BPR)

Develop a strategic vision
- Perceive the urgency to change
- Develop a *vision*
- Define the change programme
- Prepare the change

Design and realization of the various interventions
- Define the team
- Design the new organization
- Assess the interventions to be made
- Realize the change
- Institutionalize the cnahge

- Process mapping
- Performance analysis
- Process diagnosis
- Process re-design

Business Process Management (BPM)

- Process discovery (macro mapping)
- Process design (detail modelling)
- Process deployment (KPI definition)
- Process execution (development and results measurement)
- Process analysis and optimisation (critical analysis and improvement plan)
- Process maintenance (update and maintenance)

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An example of BPR: DECI Project

- European Horizon 2020 project: http://deci-europe.eu

- **Main goal:** developing a digital environment for cognitive inclusion

- Pivotal elements of the Project include a triple perspective, aimed at increasing Cognitive Impairment-affected elderly quality of life thanks to
  - A study of **organizational models and processes** and an evolution of traditional care models, aiming for a more effective, personalized and farsighted approach, increasing quality of life of patients, while simultaneously meeting organisational and economic goals;
  - An exploitation of **digital technologies**, whose features and capabilities will support the delivery of personalized services; thanks to the definition of traceable datasets, approaches, tools and functionalities that can directly support care activities;
  - A definition of **business plans and economic models**, which will be adapted to different application areas within different countries, granting economic feasibility and addressing cost coverage issues related to the implementation of new procedures and technological solutions

- See the attached slides and report for further details

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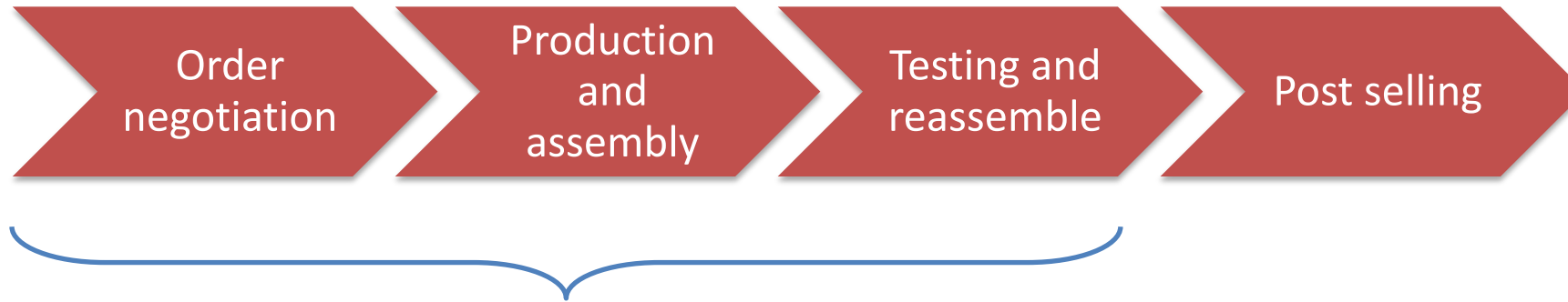
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Background information

- **Product sold**: custom-made machines for bottling of cosmetics and food (washing machines, fillers, labelling and capping)

- **Market**: B2B at the international level

- **Key numbers**: 65 employees; 15 million turnover

- **Critical success factors**:
  - **Historical**: quality, personalisation, innovativeness
  - **New**: service level, delivery time (**great issues**)

- **Focus of the analysis** : launch and implementation of a commissioned contract

- **Other information**:
  - Main competitors focused on prise
  - Fill achieved a ISO-9001 certification but processes are not completely known
  - Informal exchange of information
  - Coordination simplified from technological knowledge acquired in the past
  - Key decisions took with firm owner

Key Actors

- Final customer (**CUS**)

- Commercial Department (**COM**)

- Planning Department (**PLA**)

- Design Department (**DES**)

- Production, Logistics and Purchasing Department (**PRO**)

- Quality Department (**QUA**)

- Warehouse (**WAR**)

- Administration (**ADM**)

- HR Management (**HR**)

- Information and Communication Technologies (**ICT**)

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Macro phases

```
Order          Production      Testing and      Post selling
negotiation    and             reassemble
               assembly
```

- Focus of the case

- Subdivision of the class into groups

- Goals:
  - Understanding the main issues associated to each phase
  - Proposing BPR interventions and a set of related KPIs

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THANK YOU

For contacting me

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