Business Process Management

Paolo Bottoni

Dipartimento
di Informatica

Sapienza
Università di Roma

Lecture 3: Process Identification

Adapted from the slides for the book :
Dumas, La Rosa, Mendling & Reijers: Fundamentals of Business Process Management, Springer 2013

http://fundamentals-of-bpm.org/wp-content/uploads/2013/02/INB320.INN320_Lecture_week_11.2.2013_nc.pptx

The Core Elements of a Process

- **Activities**
  - active elements (e.g. *'enter sales order'*)
  - time-consuming, resource-demanding
  - state-changing

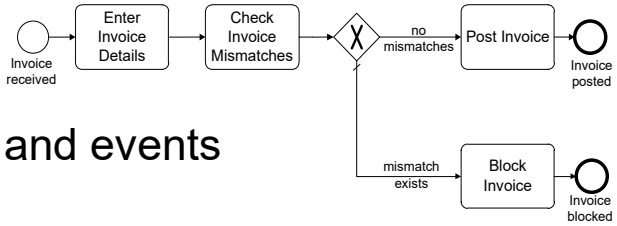
- **Events**
  - passive elements (e.g. *'sales order has been entered'*)
  - represent conditions / circumstances
  - atomic, instantaneous

The Core Elements of a Process

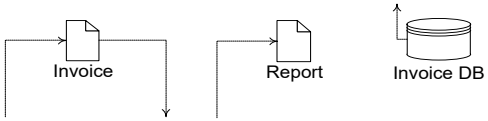
- **Business Objects (or Data)**
  - organizational artifacts that undergo state changes
  - physical or electronic information
  - examples:
    - sales order, digital object, consulting proposal
- **Actors (or Resources)**
  - entities performing activities and generating events
  - human and systems
  - examples:
    - financial officer, warehouse clerk
    - ERP, CRM, SAP, application X…

Process Perspectives

- Control Flow Perspective
  - "what needs to be done and when"
  - predecessor/successor relationship among activities and events
  - the central information depicted in a process model

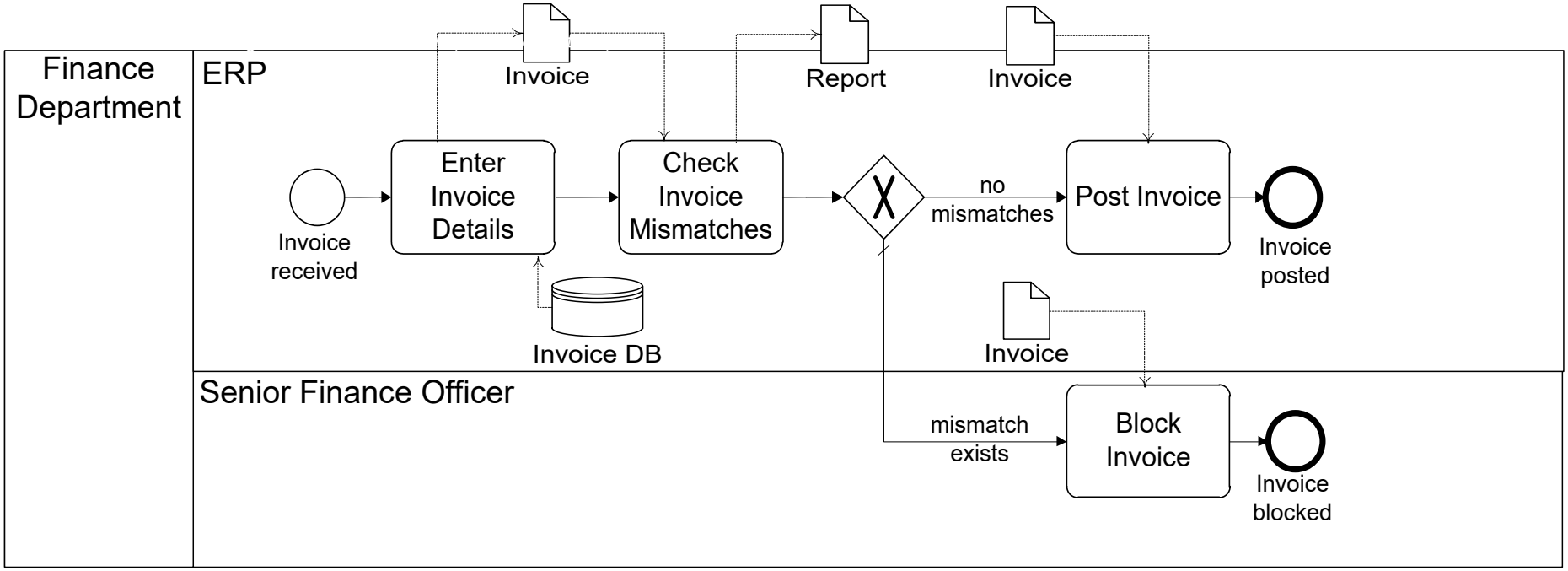


- Data Perspective
  - "what do we need to work on"
  - input/output data to activities
  - complements the control flow



- Resource Perspective
  - "who's doing the work"
  - human participants and systems that perform control flow activities and generate events
  - complements the control flow

Combining perspectives

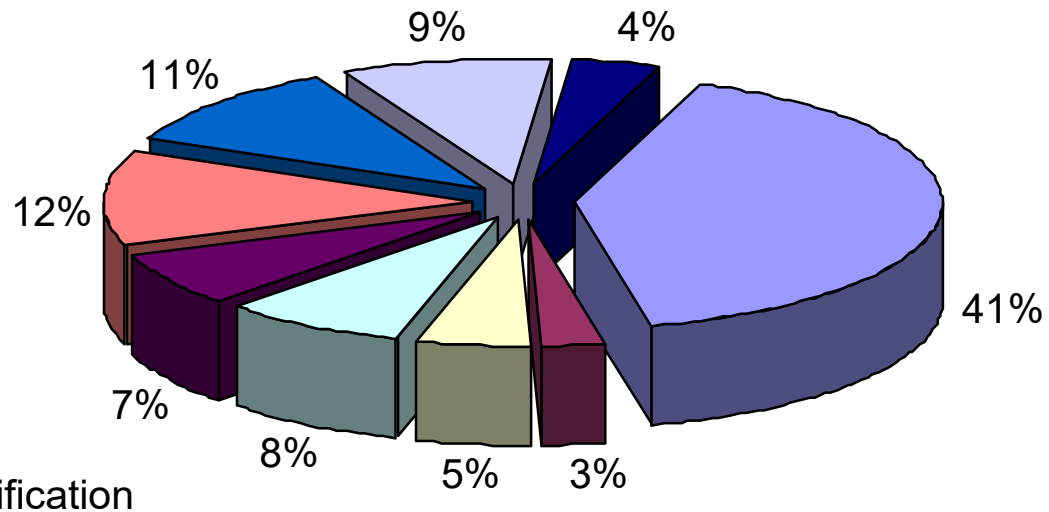


Further Potential Elements in a Process

- Objectives, Goals
  - link to strategy
- Risks
  - for risk-profiling the process
- Policies, Rules
  - for checking process compliance
- Knowledge
  - to depict expertise required
- …

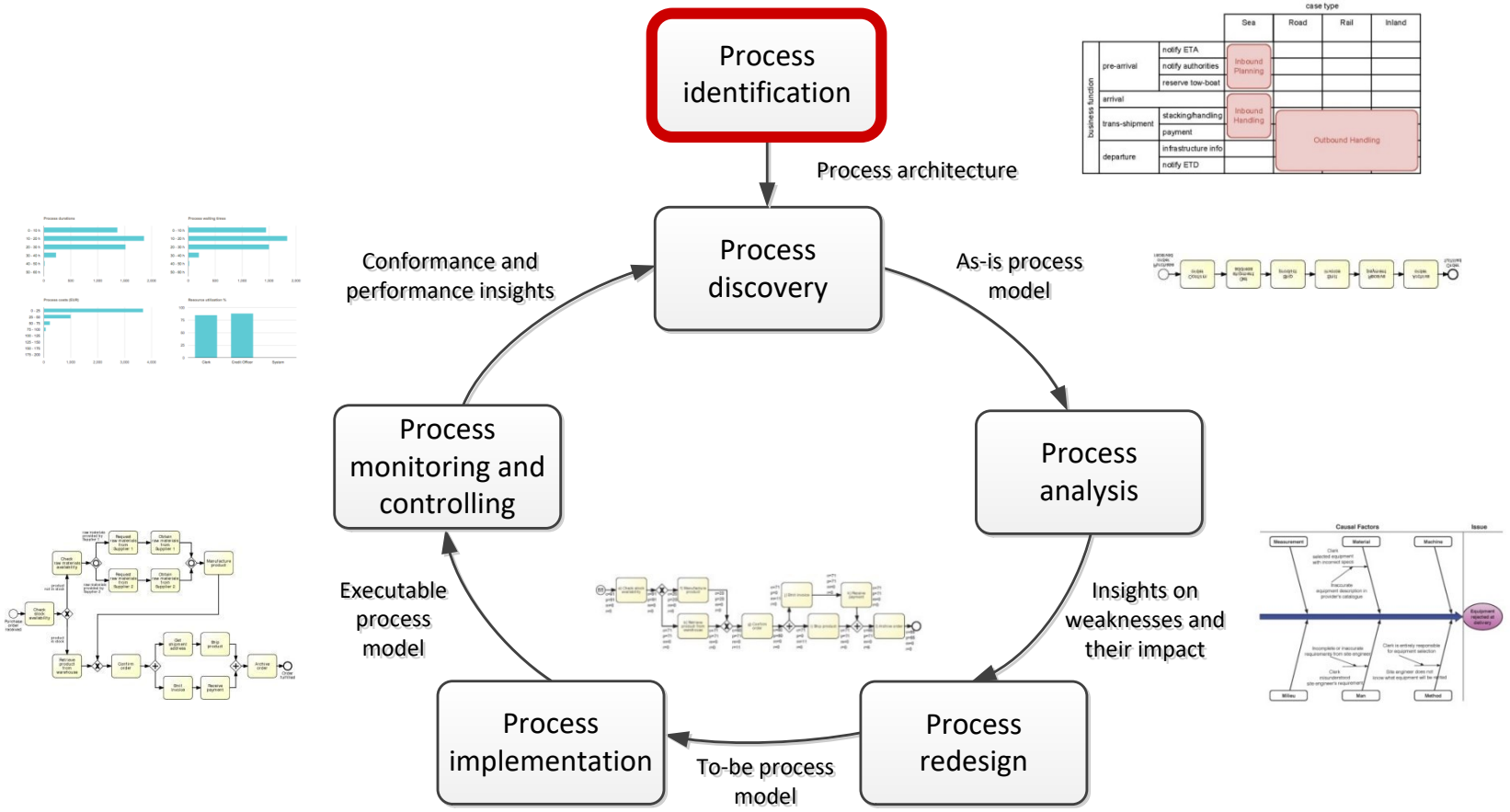
Time Investment in BPM Projects

- Process Discovery
- Project Team Selection
- Business Case
- Deployment and Training
- Testing and Debugging
- Implementation
- Tool Evaluation and Selection
- Functional and Technical Specification
- Project Documentation



BPTrends, 2006

BPM Lifecycle



Process Identification

What?

1. Define an organization's business processes
2. Establish criteria to prioritize their management

Why?

1. Understand the organization
2. Maximize value of BPM initiatives

Output: Process Architecture

- Captures business processes and their scope
- Serves as framework for defining priorities and scope of subsequent BPM phases (e.g. modelling, redesign and automation).

Process Identification Steps

1. Designation phase
   - Enumerate main processes
   - Determine process scope: boundaries (horizontal and vertical) and interrelationships (order and hierarchical)
2. Evaluation phase (a.k.a. *Process Selection*)

   Evaluate processes'
   - Alignment with strategic objectives
   - Health (e.g. performance, compliance, sustainability…)
   - Culture & politics
   - Feasibility to being successfully improved
   - Risk of not improving them

After Davenport (1993)

Process Enumeration

- There is no “number fits all” - it really depends on organization’s domain and size

- Trade-off:
  - ensuring process scope is manageable, since
  - process scope determines potential impact

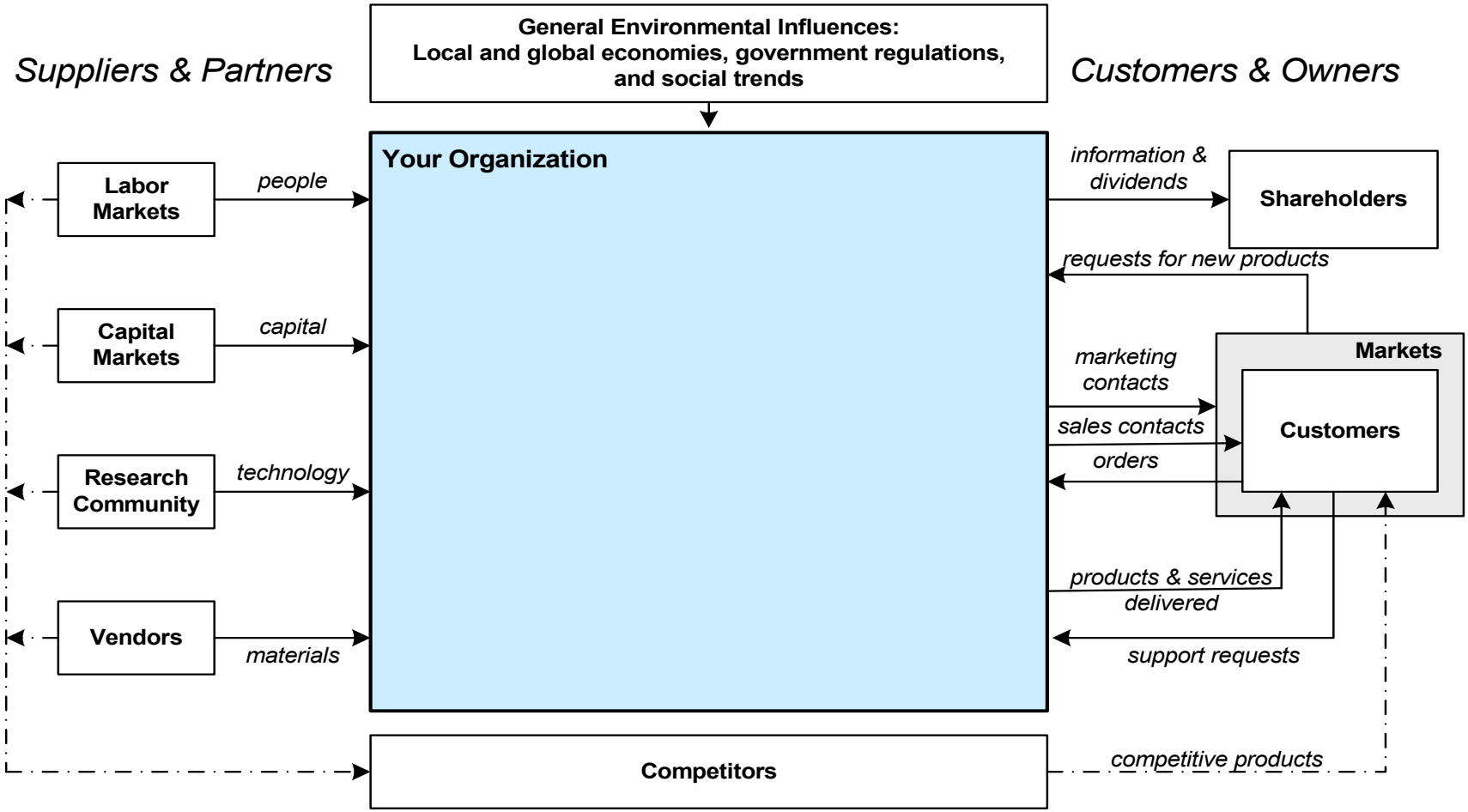
Process Scoping

- Processes are interdependent →

  Insights into interrelations required
  - Horizontal: upstream – downstream processes
  - Vertical: root (a.k.a. main) processes – sub-processes
- Processes change over time
  - identification should be exploratory and iterative
  - improvement opportunities are time-constrained

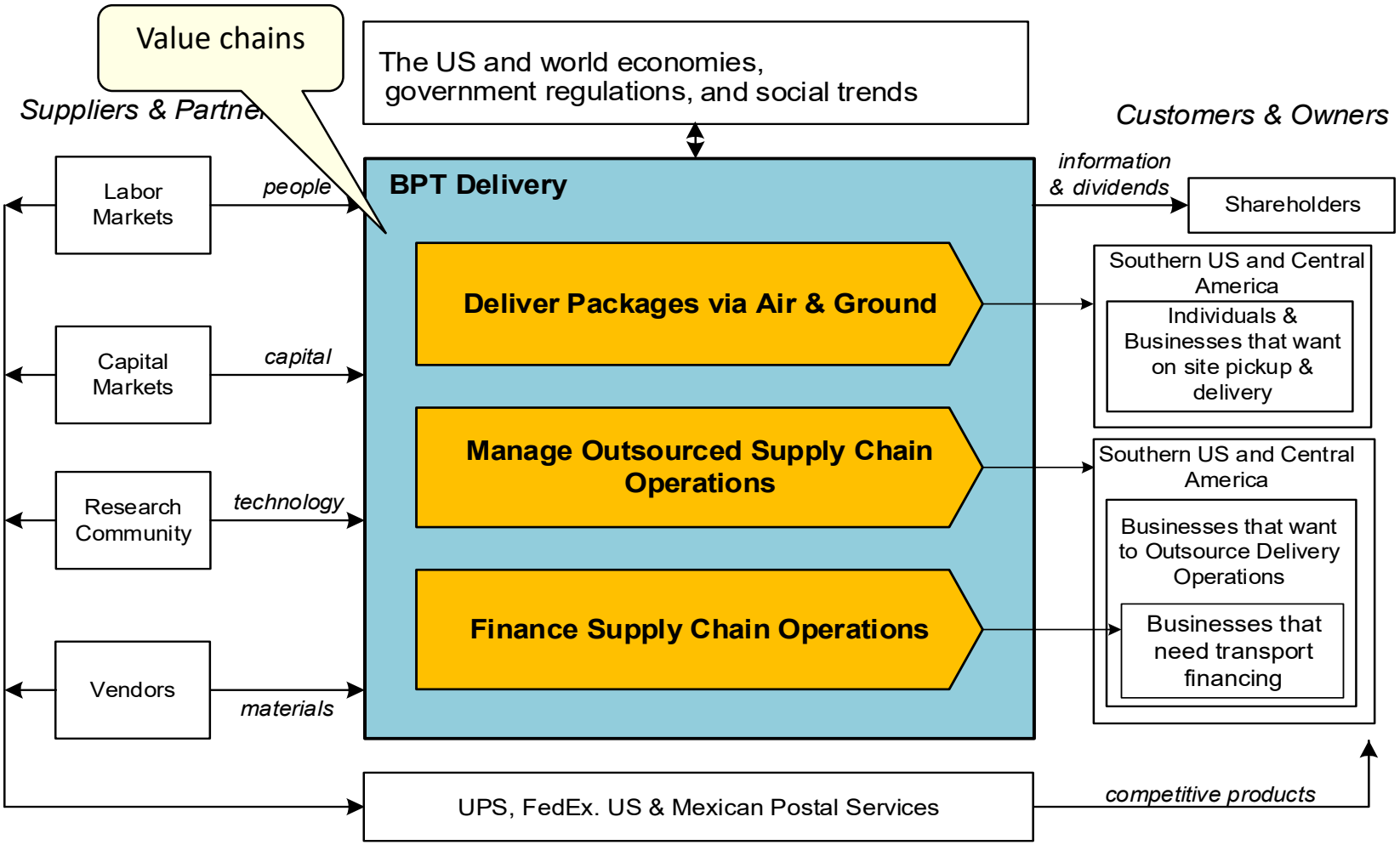
Process Architecture

Architecture: high level view of organisation

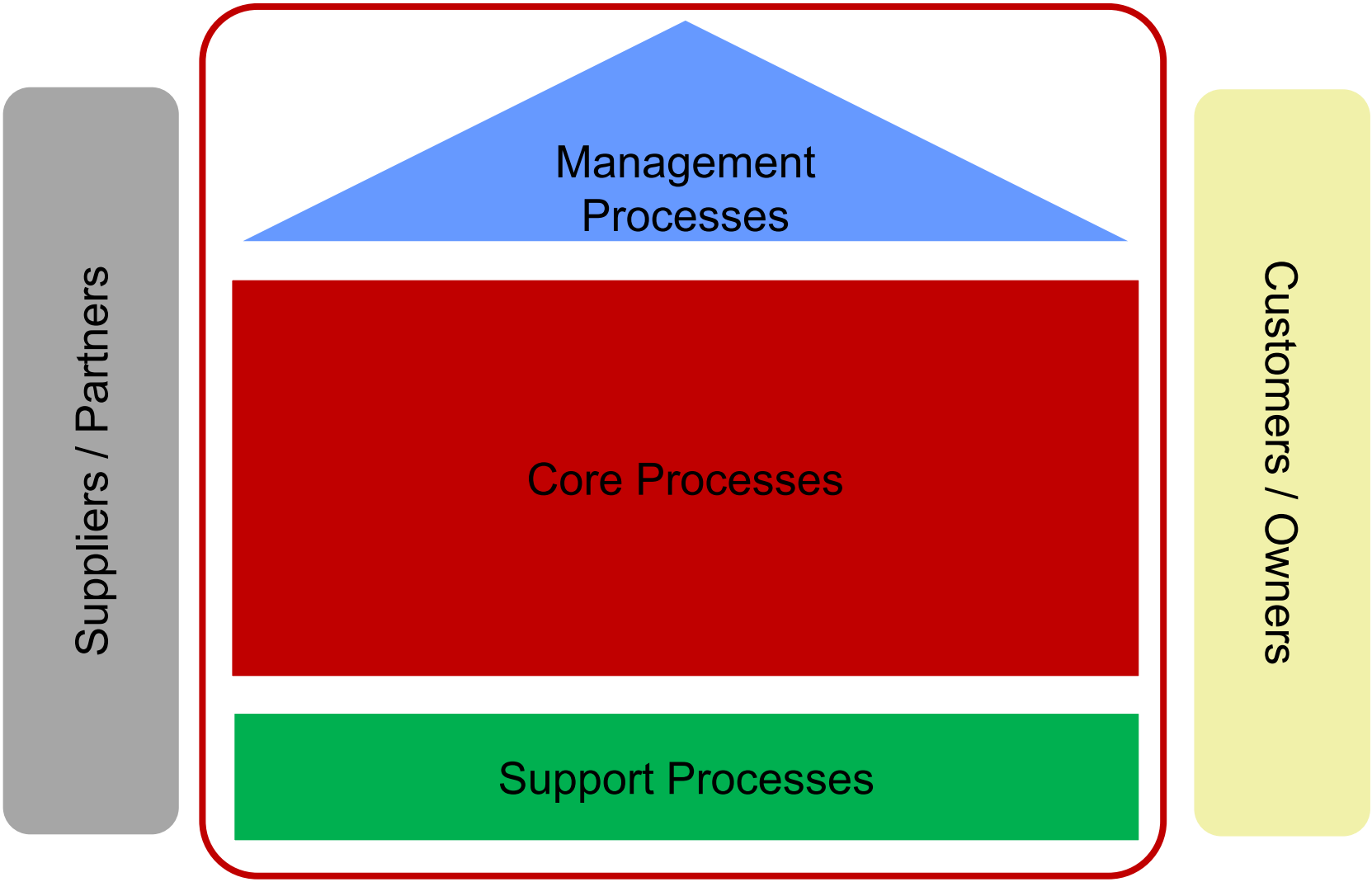


After Rummler and Brache (1990)

“Process” Architecture



Components of a Process Architecture

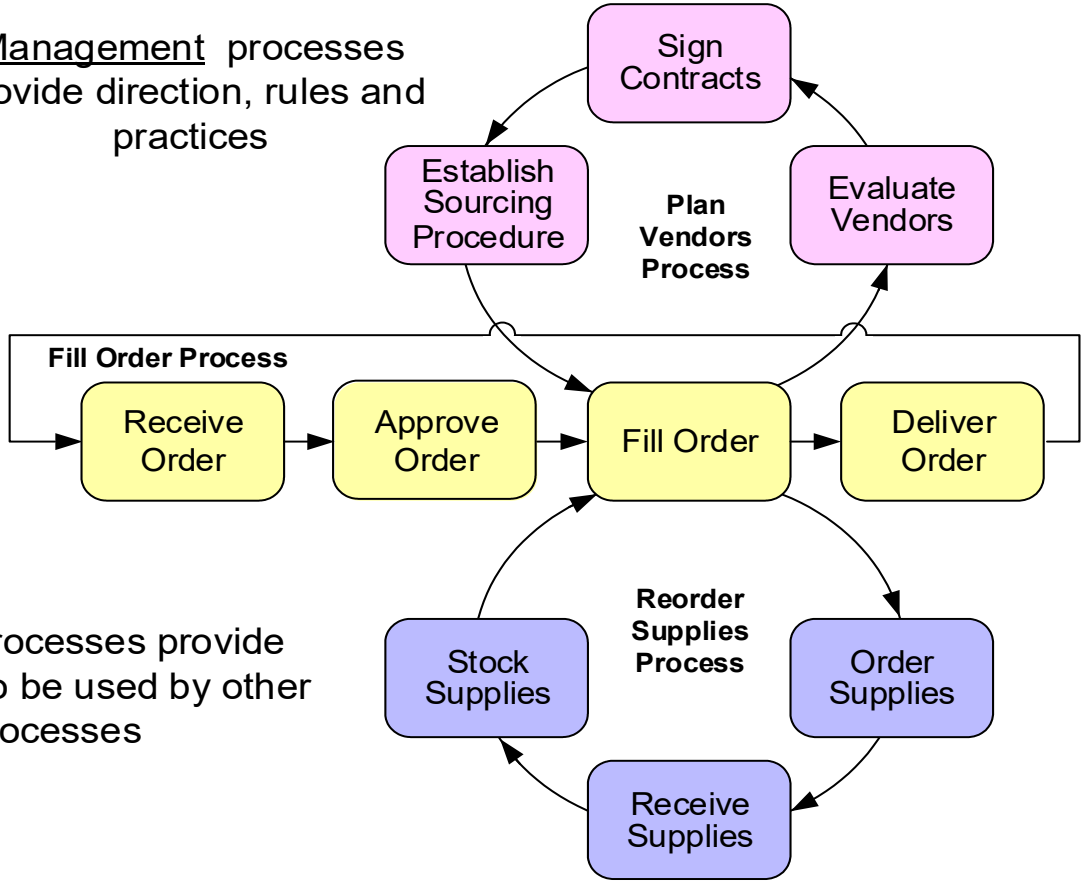


Core, Management and Support Processes

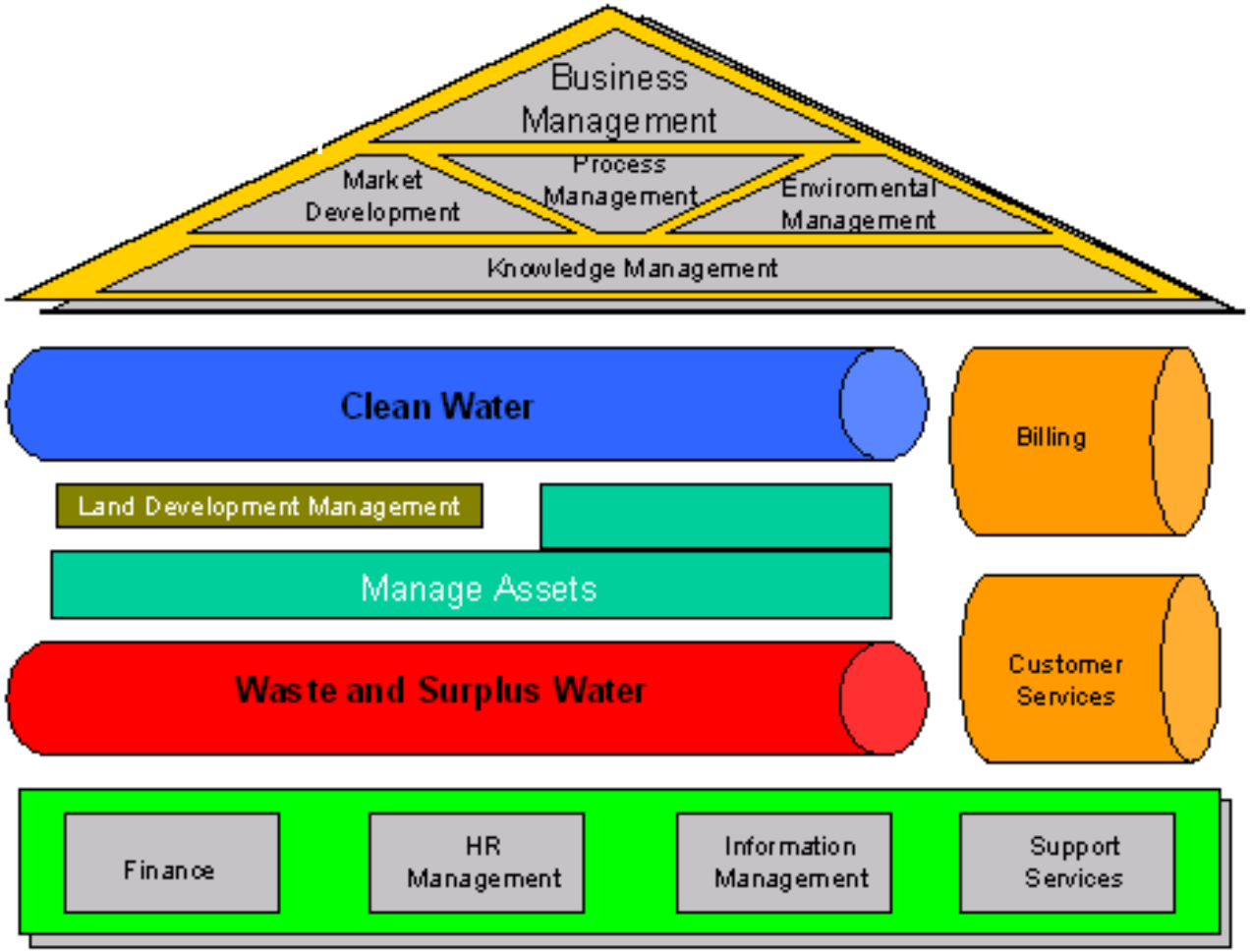
Management processes provide direction, rules and practices

Core processes generate value as they are directly linked to external customers

Support processes provide resources to be used by other processes

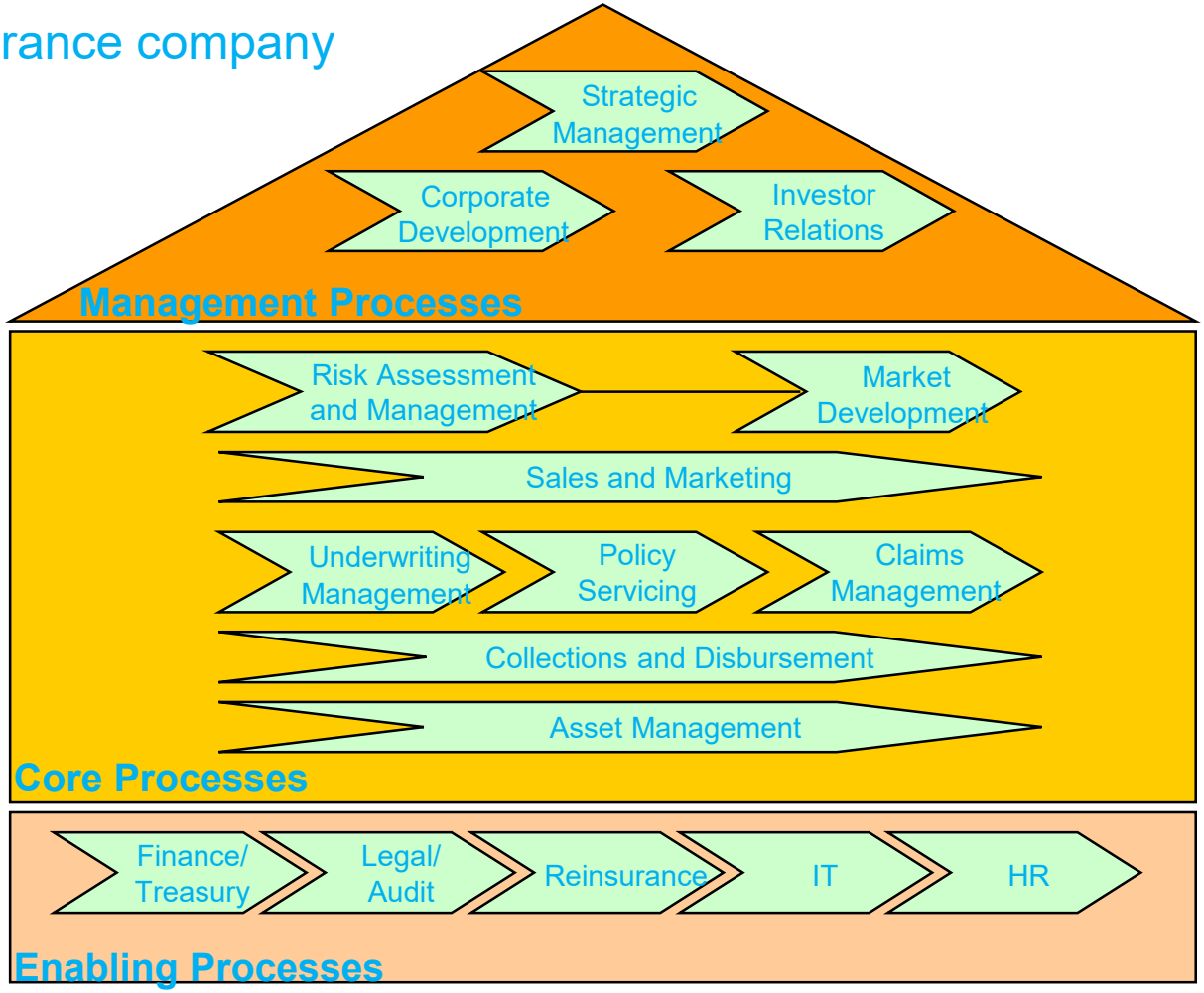


Process Architecture Example



Process Architecture Example

An insurance company



Selected questions for scoping a process

- If Process Architecture already in place: where does the process fit into the Process Architecture?
- On what level is the unit of analysis, i.e. end-to-end process, procedure or operation?
- What are the previous/subsequent processes and what are the interfaces to them?
- What variants does this process have?
- What underlying processes describe elements of this process in more detail?

Various techniques to scope a process

- Identify relevant stakeholders and objectives, e.g. via a Stakeholder-Objectives Matrix
- Identify relevant context, e.g. via a SIPOC (Suppliers, Inputs, Process, Output, Customers) Diagram
- Identify relevant process boundaries, e.g. via a Case/Function Matrix
- Identify relevant guides and enablers, e.g. via an IGOE (Input/Guides/Outputs/Enablers) Diagram
- A combination of the above

Identify Process Stakeholders

- **Process owner**, responsible for effective and efficient operation of process being modeled
- **Primary process participants**, directly involved in the execution of the process under analysis
- **Secondary process participants**, i.e. those who are directly involved in the execution of the preceding or succeeding processes

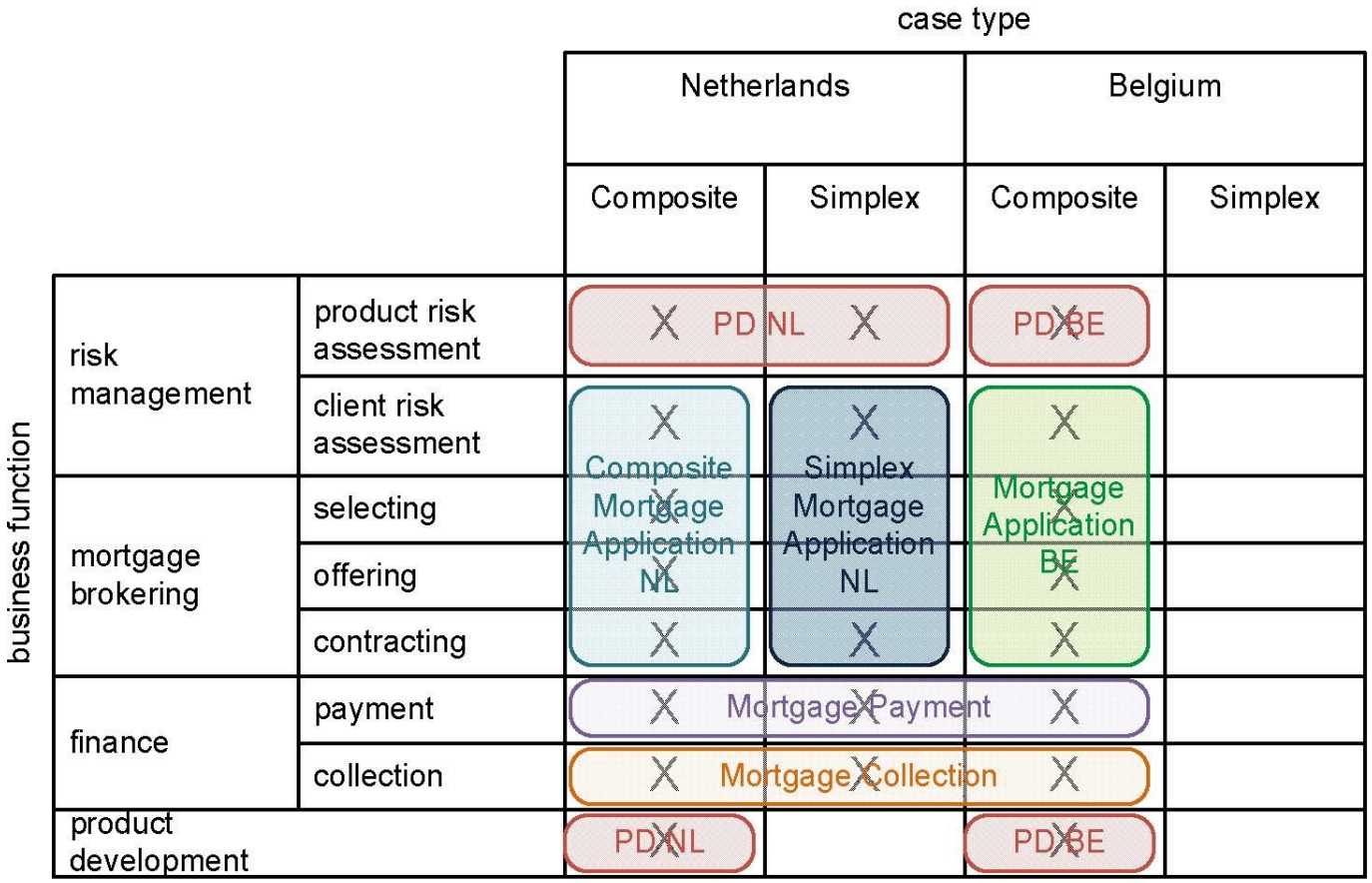
Identify Process Objectives

- **Primary (hard) process objectives**
  - Time, cost, quality (minimise, maximise)
  - satisfaction, compliance, flexibility, predictability
- **Secondary process objectives**
  - To purchase goods, to hire new staff members
- Accompany with appropriate process metrics
- Let involved stakeholders define their priorities

Guidelines to identify horizontal boundaries

1. Change of flow object in the process
2. Change of multiplicity of flow object in the process
3. Change of transactional state
4. Process contains logical separation
    1. in time
    2. in space
    3. in other dimension
5. Follow scope in reference model (see later)
6. Based on functions/cases covered

A stepwise method to build process architectures



Identify vertical boundaries: typical artefacts in a Process Hierarchy

Value chains

A major line of business, has direct effect on a company's business results and strategic importance. Stays at a high level. For example: presentation of a product to the market.

(Root/Main) Processes

Processes build up value chains and mutually affect each other. For example: market research.

Initial focus of Process Enumeration

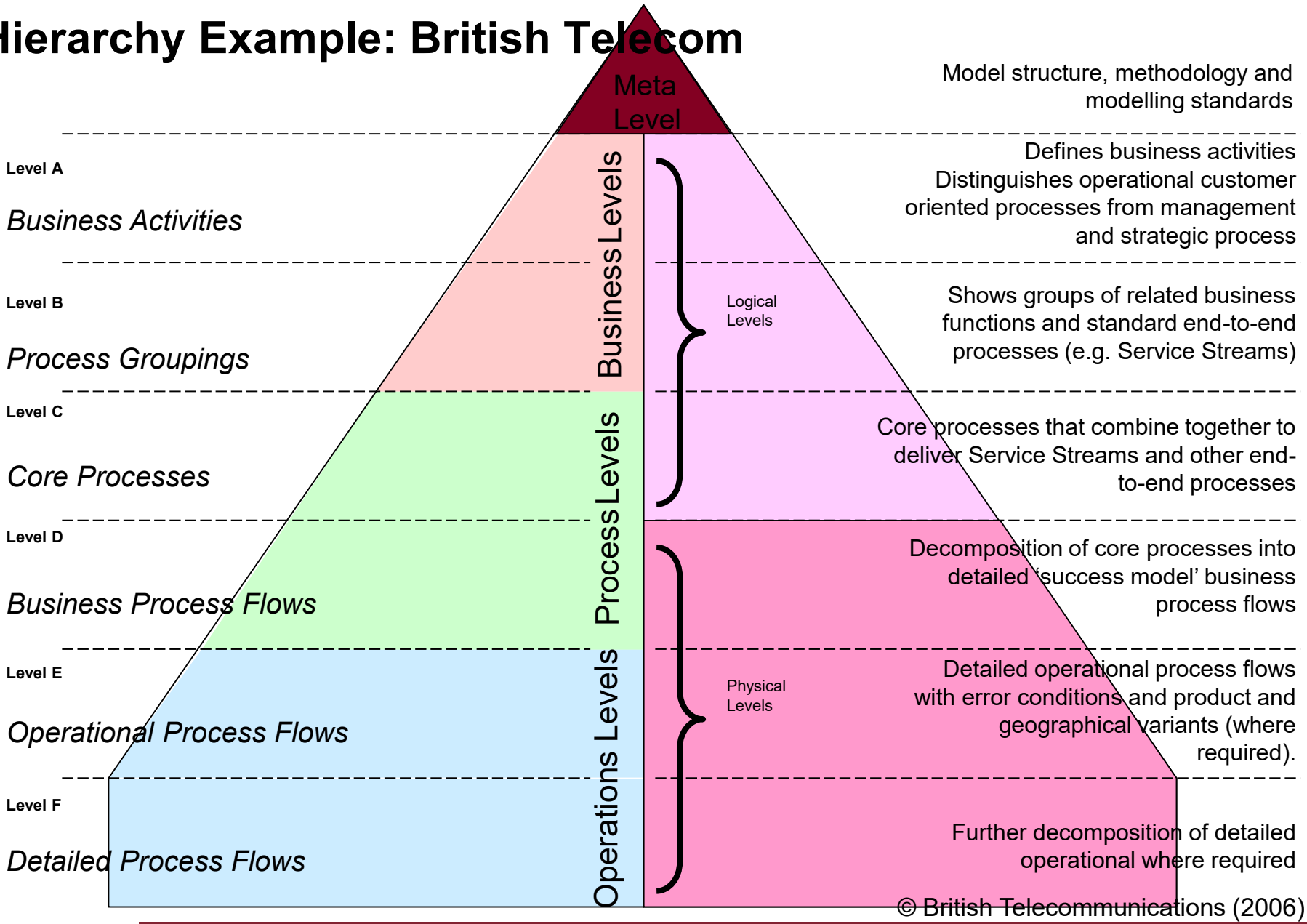
Sub-processes

Sub-processes build up processes. They involve multiple activities and can be layered on different levels of granularity (i.e. sub-sub-processes). For example: sales operation, preparation of sales budget, reception of customer orders.

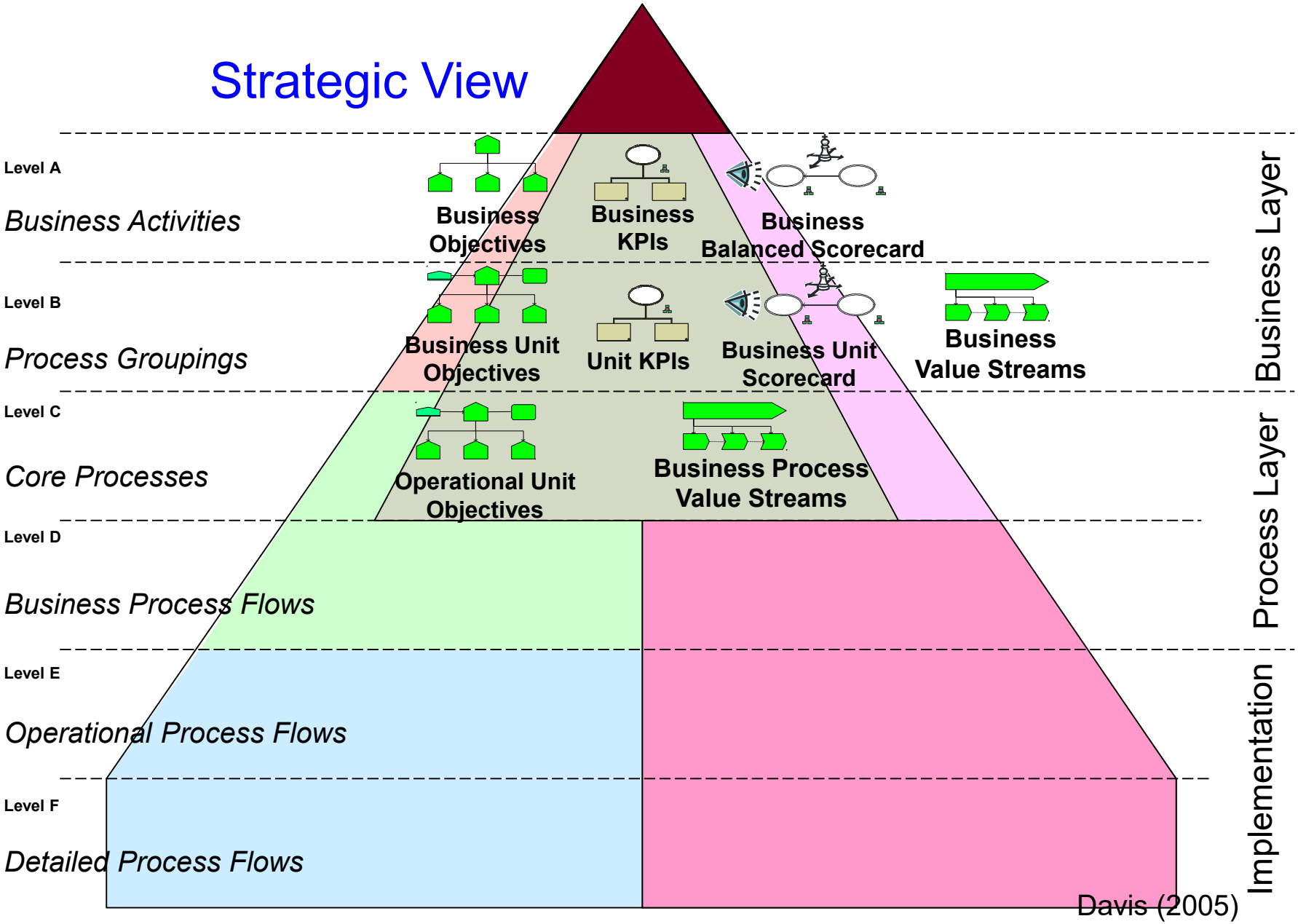
Process tasks

Process tasks build up processes and sub-processes. These tasks are conducted by one or more individuals within the same function. For example: reception of customer orders involves review of these orders and incorporating them into the system.

Hierarchy Example: British Telecom

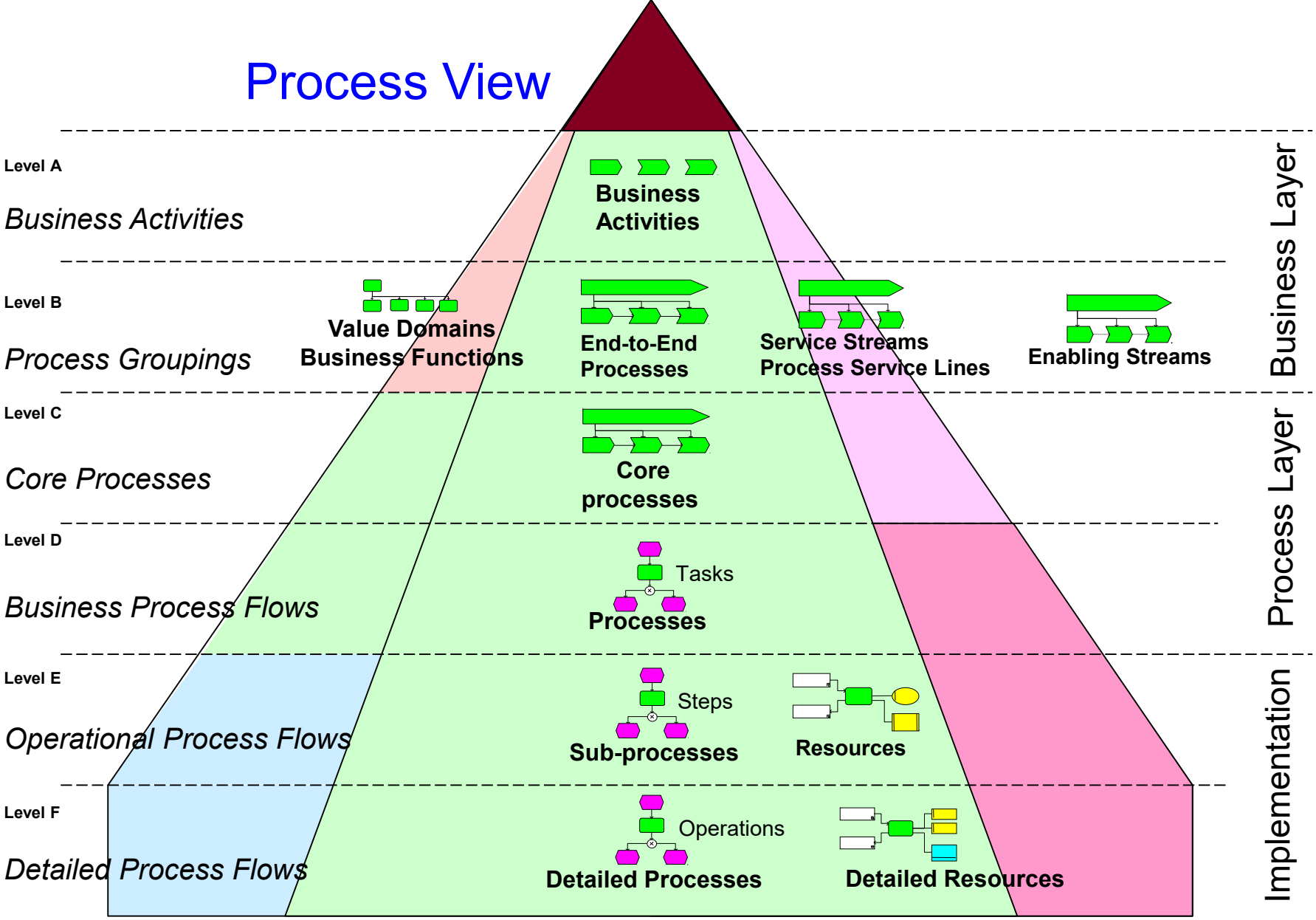


Strategic View



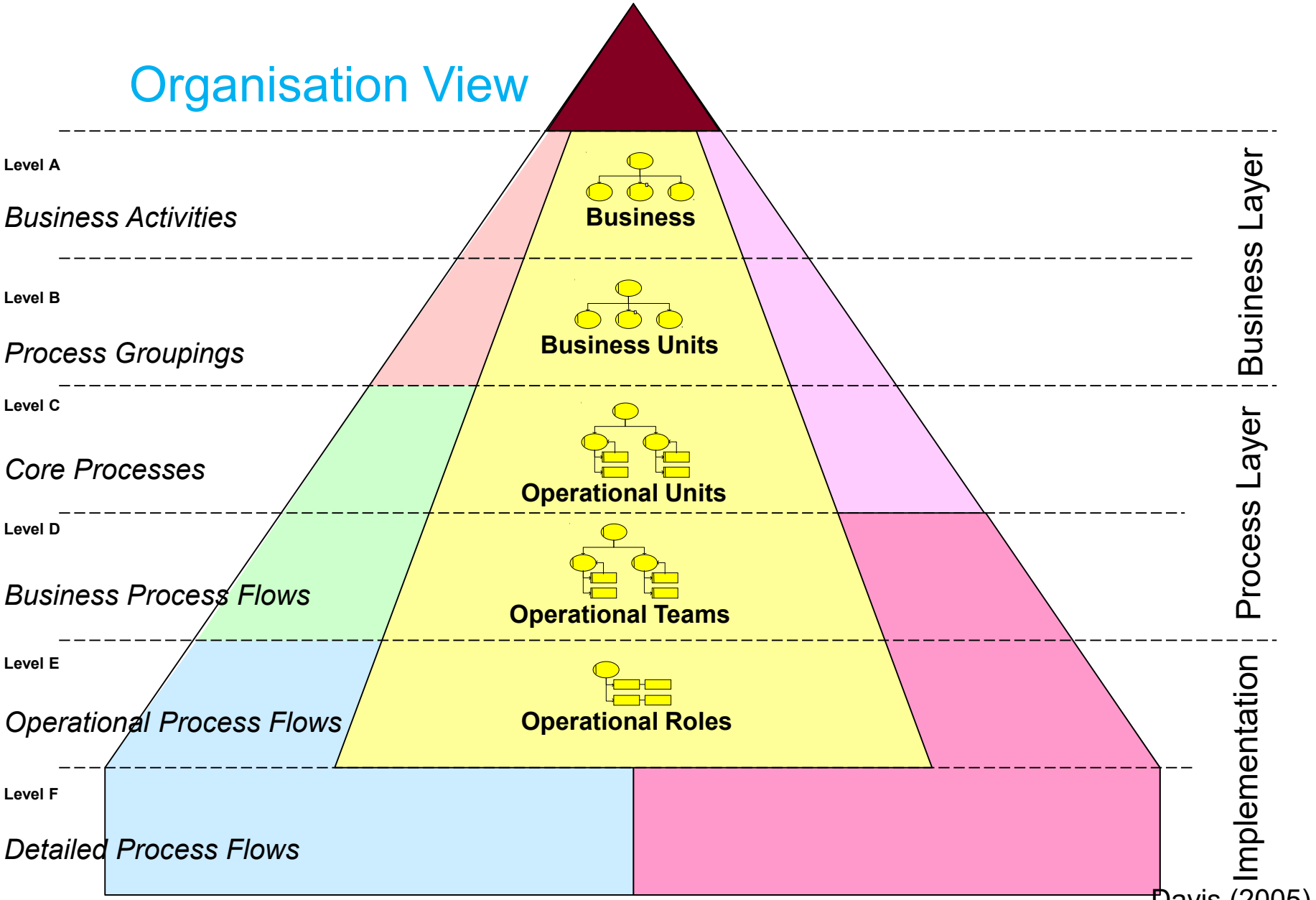
Davis (2005)

Process View



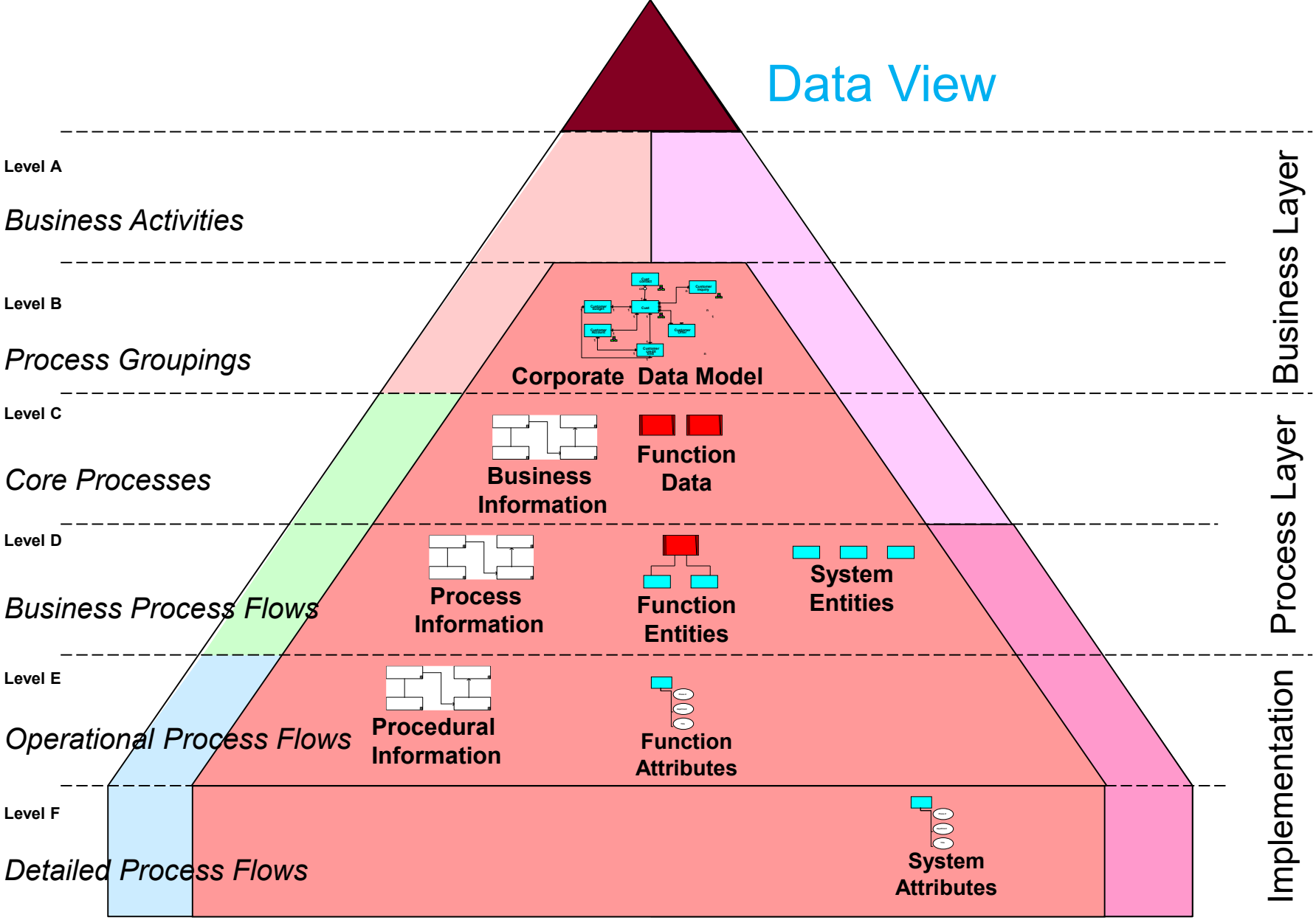
Davis (2005)

Organisation View



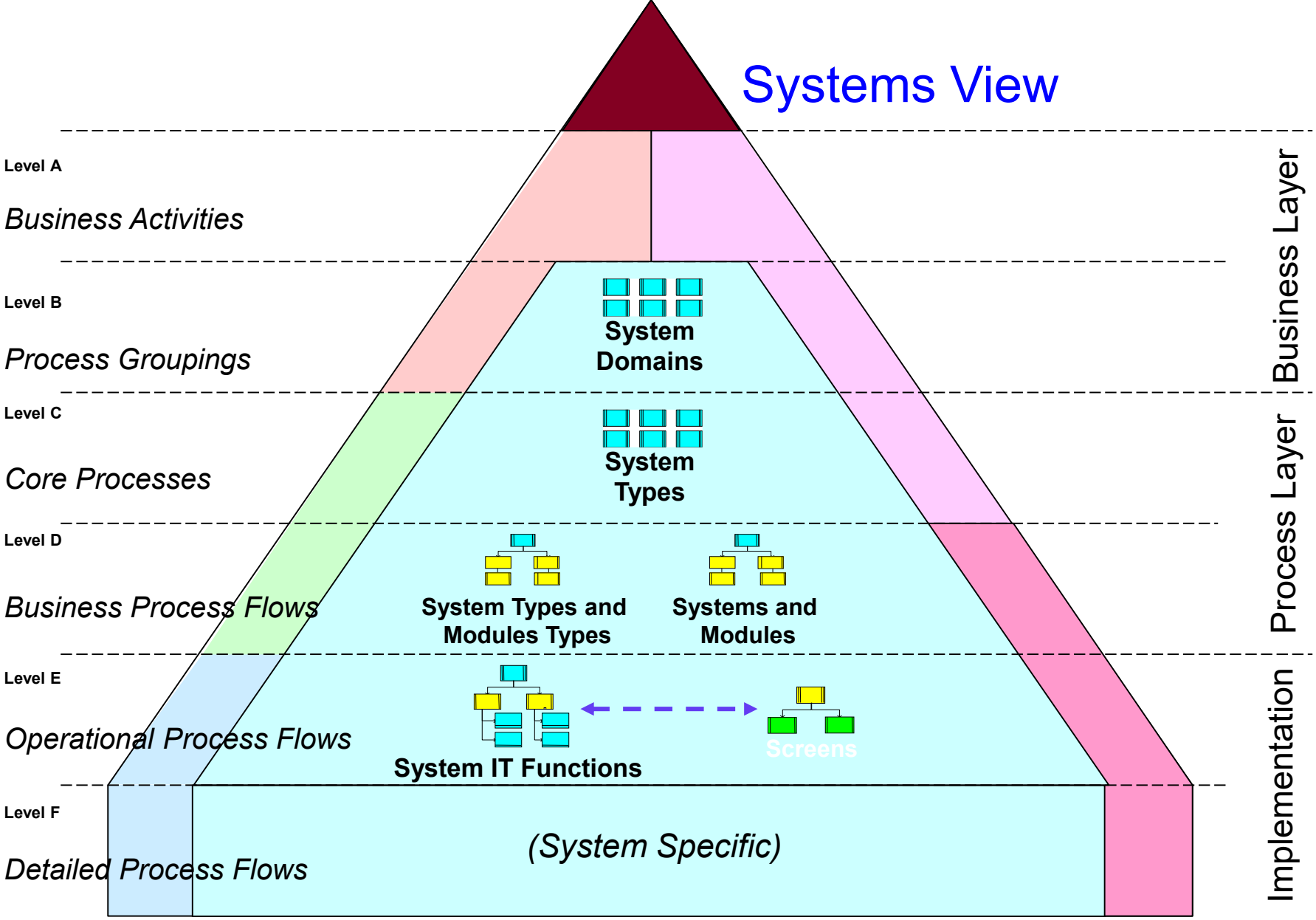
Davis (2005)

Data View



Davis (2005)

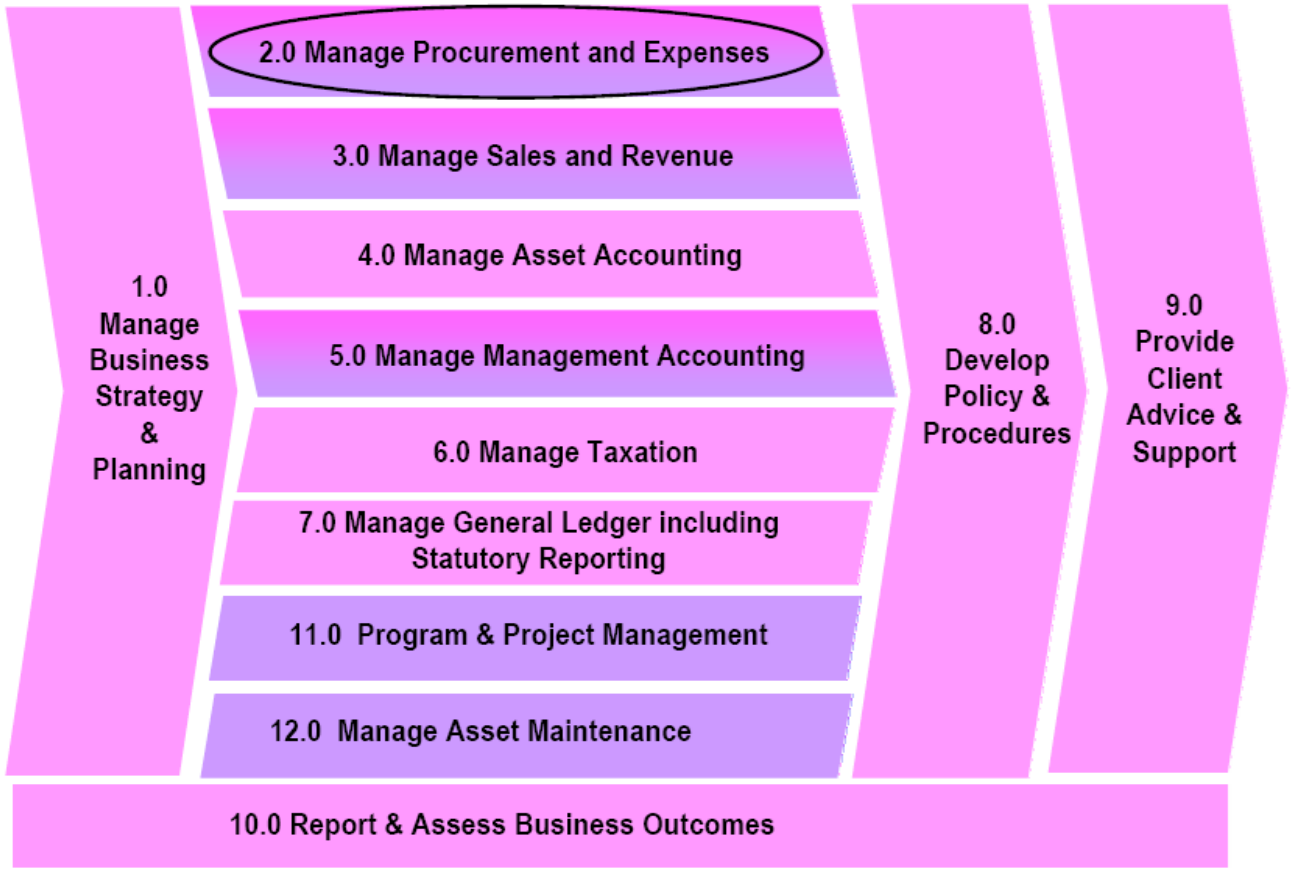
Systems View



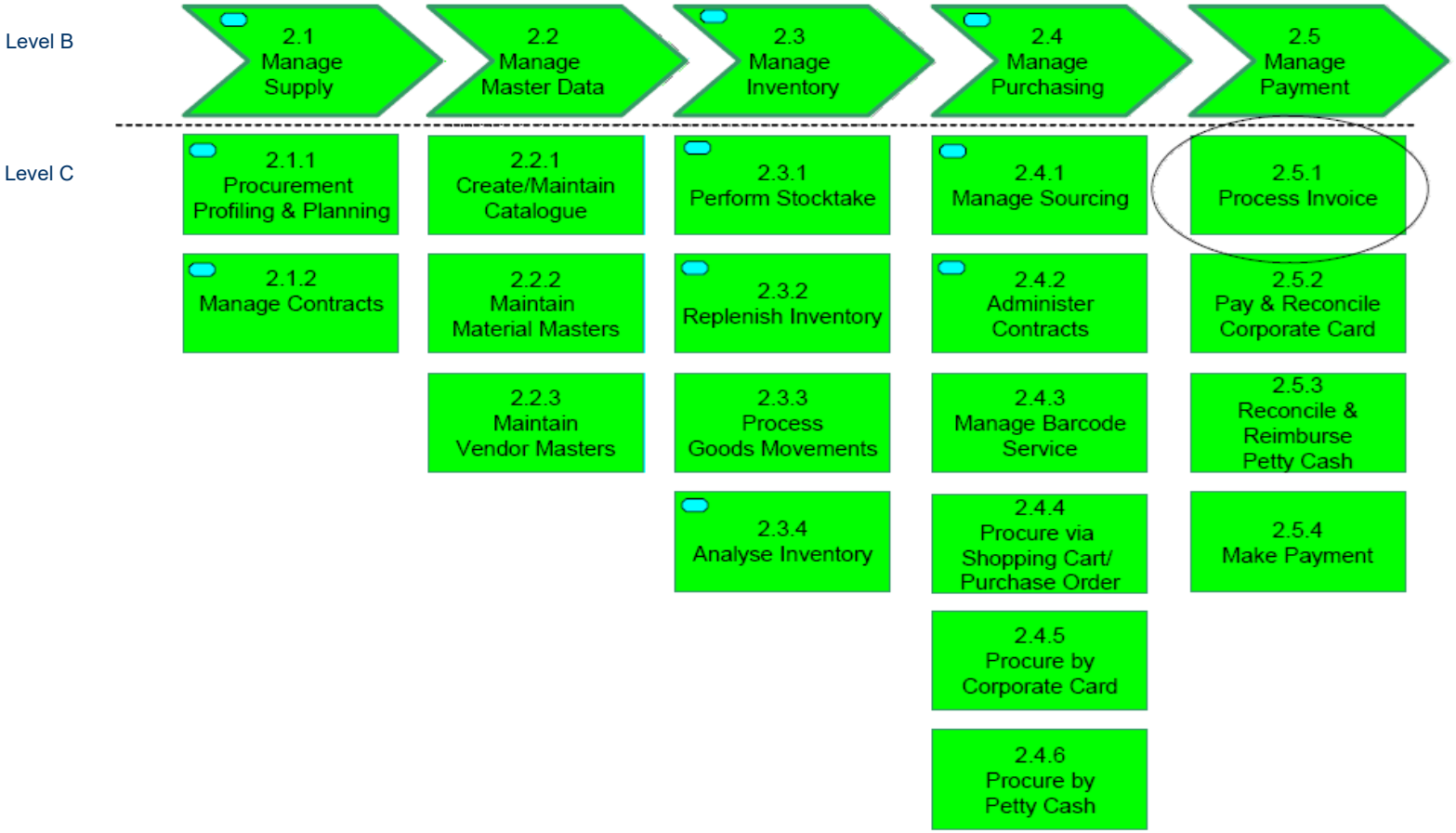
Davis (2005)

Hierarchy Example: QLD Shared Service Agency

Level A

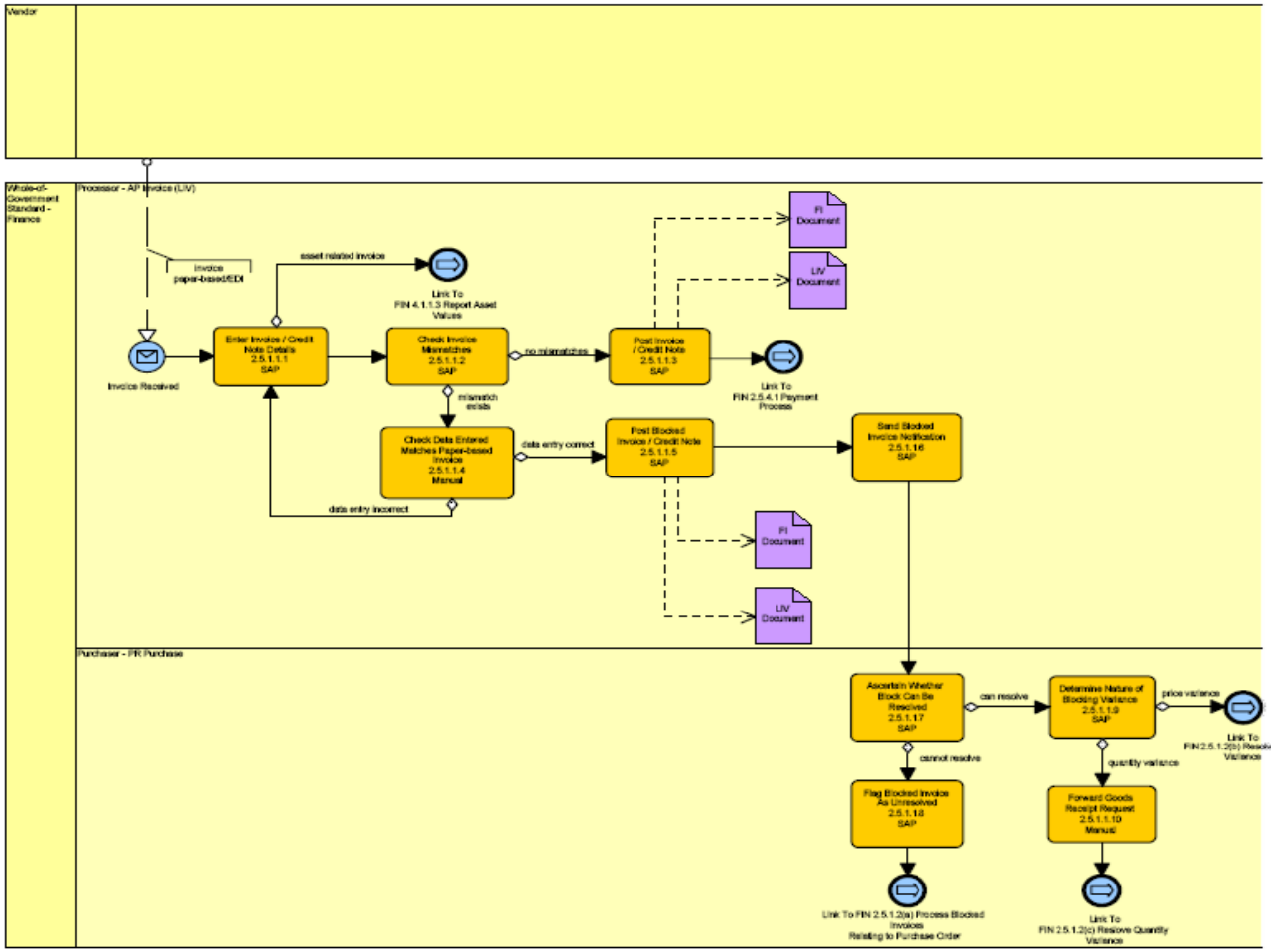


Hierarchy Example: QLD Shared Service Agency



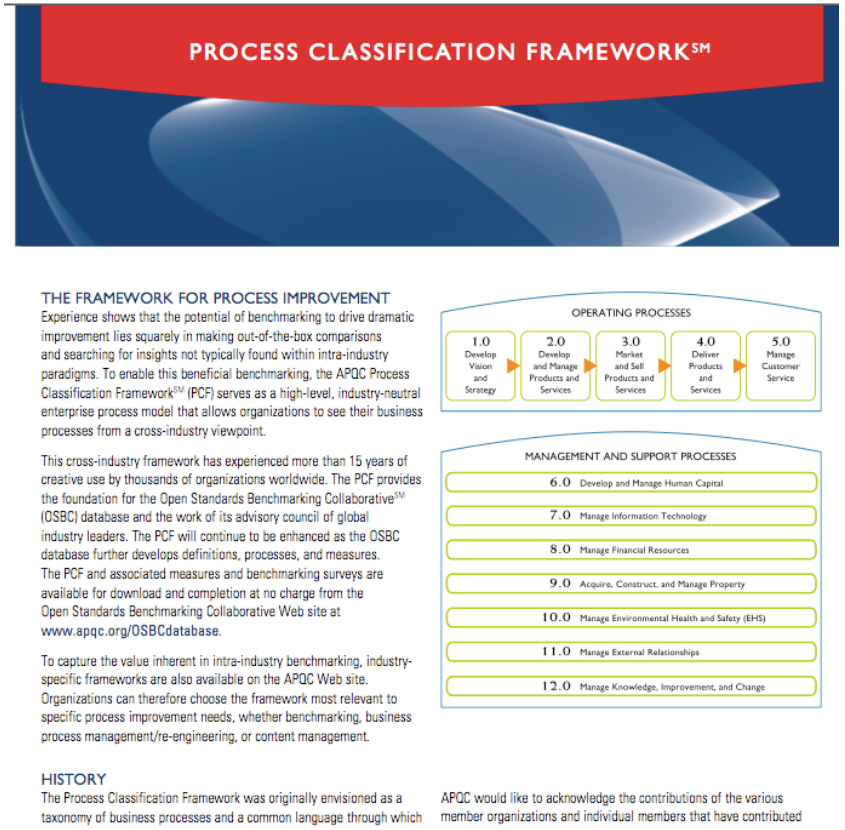
Hierarchy Example: QLD Shared Service Agency

Level D



Designation via Reference Models

- industry-neutral enterprise model
- Open standard for benchmarking
- Four levels
  - Categories
  - Process group
  - Process
  - Activity



PROCESS CLASSIFICATION FRAMEWORK℠

THE FRAMEWORK FOR PROCESS IMPROVEMENT

Experience shows that the potential of benchmarking to drive dramatic improvement lies squarely in making out-of-the-box comparisons and searching for insights not typically found within intra-industry paradigms. To enable this beneficial benchmarking, the APQC Process Classification Framework℠ (PCF) serves as a high-level, industry-neutral enterprise process model that allows organizations to see their business processes from a cross-industry viewpoint.

This cross-industry framework has experienced more than 15 years of creative use by thousands of organizations worldwide. The PCF provides the foundation for the Open Standards Benchmarking Collaborative℠ (OSBC) database and the work of its advisory council of global industry leaders. The PCF will continue to be enhanced as the OSBC database further develops definitions, processes, and measures. The PCF and associated measures and benchmarking surveys are available for download and completion at no charge from the Open Standards Benchmarking Collaborative Web site at www.apqc.org/OSBCdatabase.

To capture the value inherent in intra-industry benchmarking, industry-specific frameworks are also available on the APQC Web site. Organizations can therefore choose the framework most relevant to specific process improvement needs, whether benchmarking, business process management/re-engineering, or content management.

OPERATING PROCESSES

1.0 Develop Vision and Strategy
2.0 Develop and Manage Products and Services
3.0 Market and Sell Products and Services
4.0 Deliver Products and Services
5.0 Manage Customer Service

MANAGEMENT AND SUPPORT PROCESSES

6.0 Develop and Manage Human Capital
7.0 Manage Information Technology
8.0 Manage Financial Resources
9.0 Acquire, Construct, and Manage Property
10.0 Manage Environmental Health and Safety (EHS)
11.0 Manage External Relationships
12.0 Manage Knowledge, Improvement, and Change

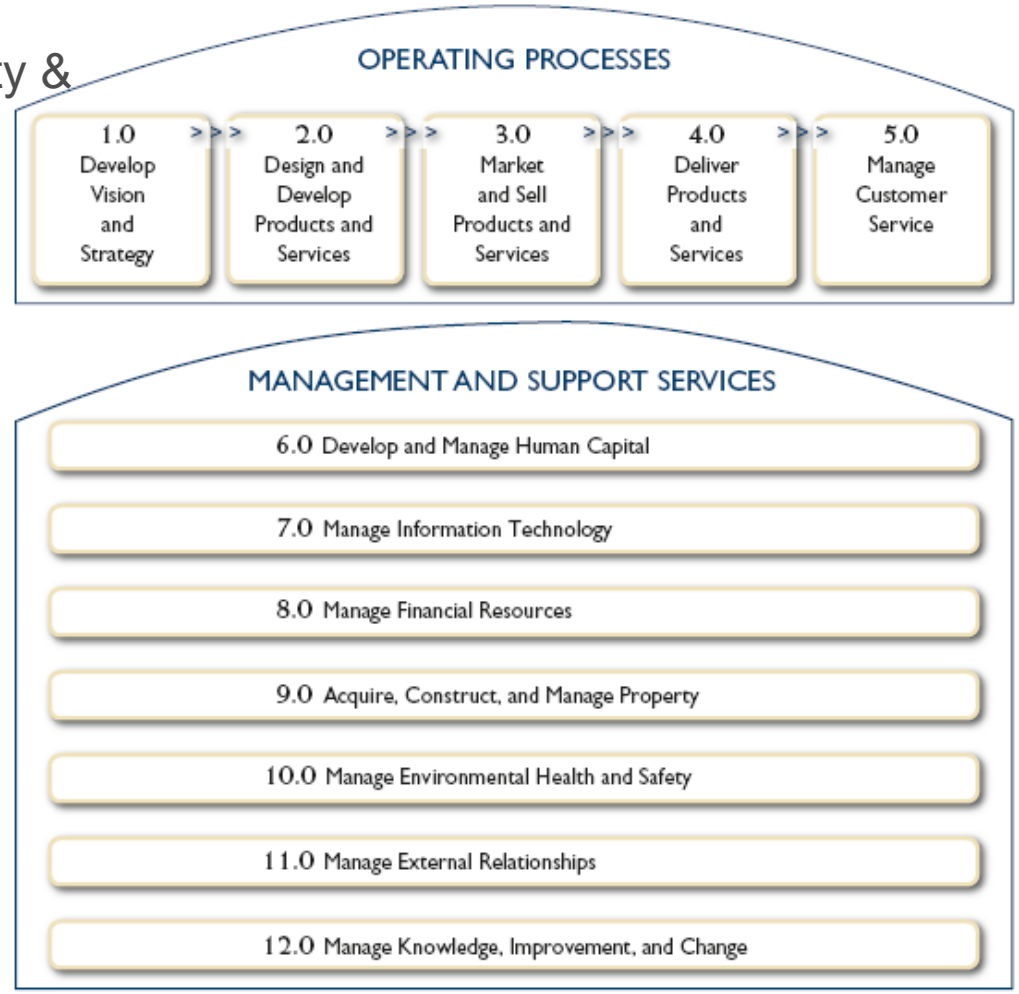
HISTORY

The Process Classification Framework was originally envisioned as a taxonomy of business processes and a common language through which

APQC would like to acknowledge the contributions of the various member organizations and individual members that have contributed

APQC PCF Overview

American Productivity & Quality Center



Process Classification Framework

APQC Classification Framework

- 4.1.8.4 Identify performance trends (10273)
- 4.1.8.5 Analyze performance benchmark gaps (10274)
- 4.1.8.6 Prepare appropriate reports (10275)
- 4.1.8.7 Develop performance improvement plan (10276)

4.1.9 Develop quality standards and procedures (10368)

- 4.1.9.1 Establish quality targets (10371)
- 4.1.9.2 Develop standard testing procedures (10372)
- 4.1.9.3 Communicate quality specifications (10373)

4.2 Procure materials and services (10216)

4.2.1 Develop sourcing strategies (10277)

- 4.2.1.1 Develop procurement plan (10281)
- 4.2.1.2 Clarify purchasing requirements (10282)
- 4.2.1.3 Develop inventory strategy (10283)
- 4.2.1.4 Match needs to supply capabilities (10284)
- 4.2.1.5 Analyze company's spend profile (10285)
- 4.2.1.6 Seek opportunities to improve efficiency and value (10286)
- 4.2.1.7 Collaborate with suppliers to identify sourcing opportunities (10287)

4.2.2 Select suppliers and develop/maintain contracts

- 4.3.1.4 Release production orders and create lots (10309)

4.3.2 Produce product (10304)

- 4.3.2.1 Manage raw material inventory (10310)
- 4.3.2.2 Execute detailed line schedule (10311)
- 4.3.2.3 Rerun defective items (10313)
- 4.3.2.4 Assess production performance (10314)

4.3.3 Schedule and perform maintenance (10305)

- 4.3.3.1 Determine process for preventive (planned) maintenance (Preventive Maintenance Orders) (10315)
- 4.3.3.2 Determine process for requested (unplanned) maintenance (Work Order Cycle) (10316)
- 4.3.3.3 Execute maintenance (10317)
- 4.3.3.4 Calibrate test equipment (10318)
- 4.3.3.5 Report maintenance issues (10319)

4.3.4 Perform quality testing (10369)

- 4.3.4.1 Perform testing using the standard testing procedure (10374)
- 4.3.4.2 Record test results (10375)

4.3.5 Maintain production records and manage lot traceability (10370)

- 4.3.5.1 Determine lot numbering system (10376)

APQC Classification Framework

Available industry sectors:

- Aerospace & Defense
- Automotive
- Banking
- Broadcasting
- Consumer Electronics Just released
- Consumer Products
- Education
- Electric Utilities
- Petroleum Downstream
- Petroleum Upstream
- Pharmaceutical
- Retail
- Telecommunications

The Evaluation Phase (aka Process Selection)

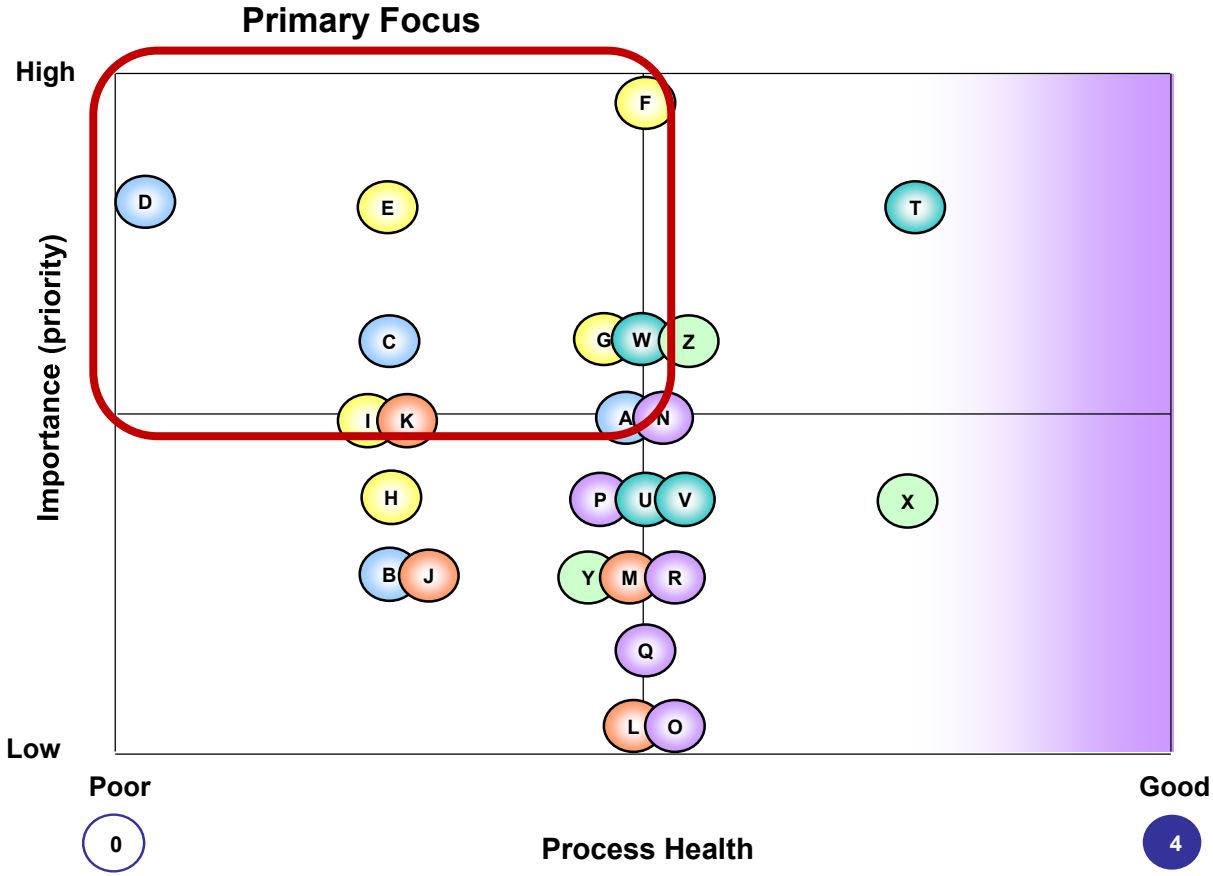
1. **Importance**
   - Which processes have the greatest impact on the organization‘s strategic goals?
2. **Dysfunction**
   - Which processes are in the deepest trouble?
3. **Feasibility**
   - Which process is the most susceptible to successful process management?

Process Portfolio Management

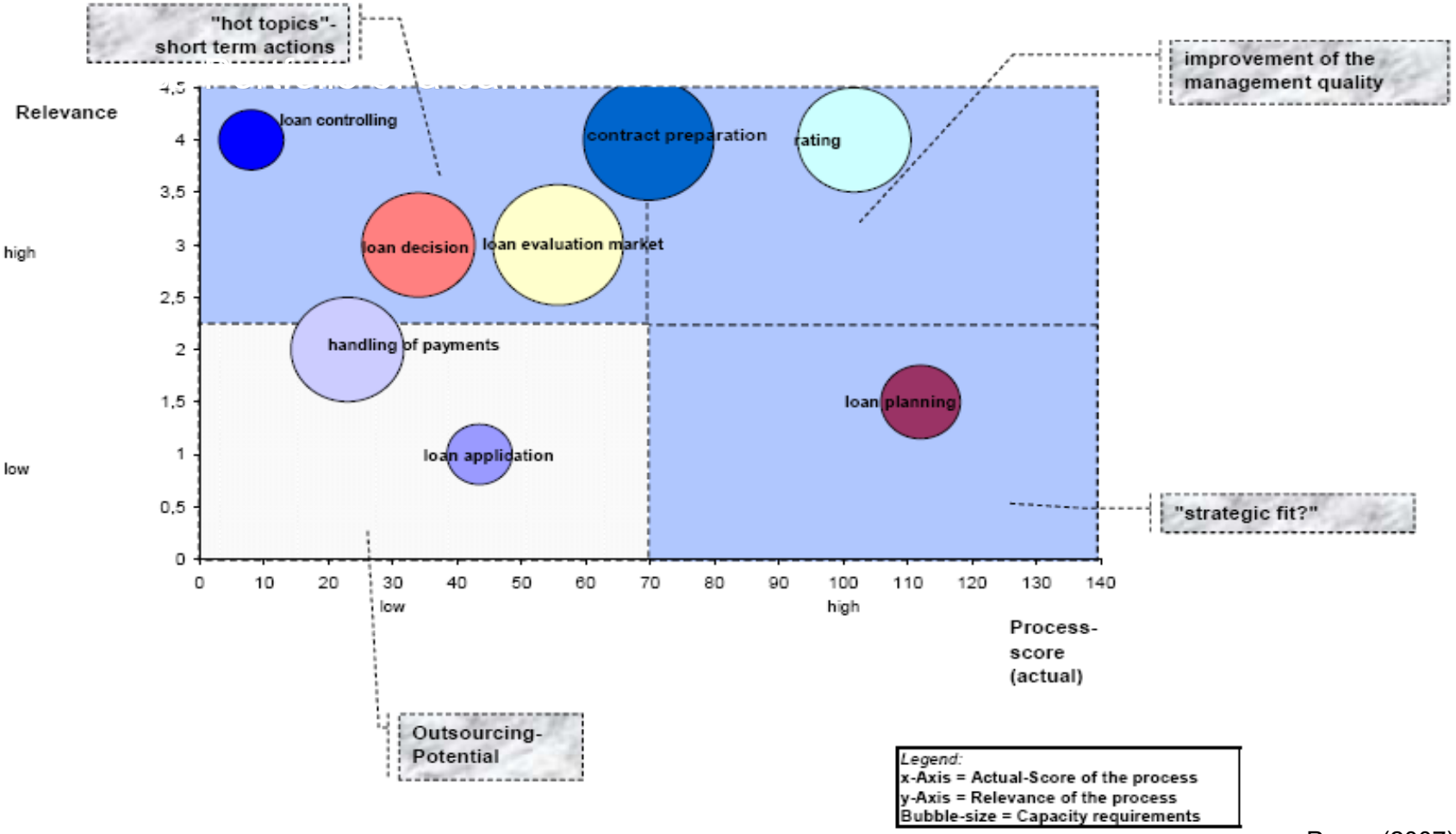
Hammer, Champy (1993)

Evaluation Example

Process Portfolio of an Australian Retailer



Evaluation Example



Praeg (2007)

The Evaluation Phase: nasty questions

1. Does an assessment of the importance, dysfunctioning and feasibility always point to the same processes to actively manage?

2. Should all processes that are dysfunctional, of strategic importance and feasible to manage be subjected to BPM initiatives?

Alternative: Selection Project by Project

- Processes are identified with every request from a line of business
- Ensures high relevance for involved business unit
- Reactive approach (-)
- Often restricted to discrete improvement (-)
- No conscious process selection approach (-)

Pitfalls of Process Identification (1/2)

- Purpose of project is not clear enough leading to inappropriate scoping of the process.
- The scope of the process is too narrow leading to the fact that later the identified root-causes are located outside the boundaries of the process under analysis
- The scope of the process is too wide leading to a process improvement project that has to be compromised in its lack of detail

Pitfalls of Process Identification (2/2)

- Process identified in isolation to other projects due to poor portfolio management leading to redundancies and inconsistencies between these projects
- Involved project members and stakeholders have not been sufficiently informed about the benefits of the project leading to limited participation
- The involved project members and stakeholders have not been carefully selected leading to a very limited source of knowledge
- The business process architect has poor facilitation skills and cannot resolve emerging conflicts between the project members and stakeholders.