Business Process Management

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Block 3: Process Identification

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
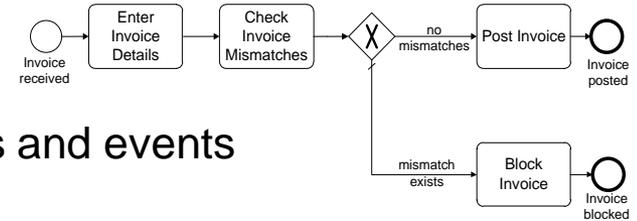
- Data Perspective
  - "what do we need to work on"
  - input/output data to activities
  - complements the control flow
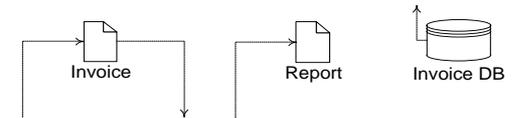
- Resource Perspective
  - "who's doing the work"
  - human participants and systems that perform control flow activities and generate events
  - complements the control flow
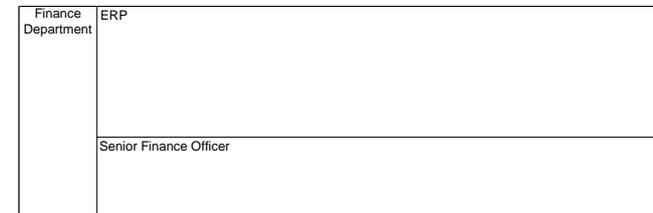
Combining perspectives
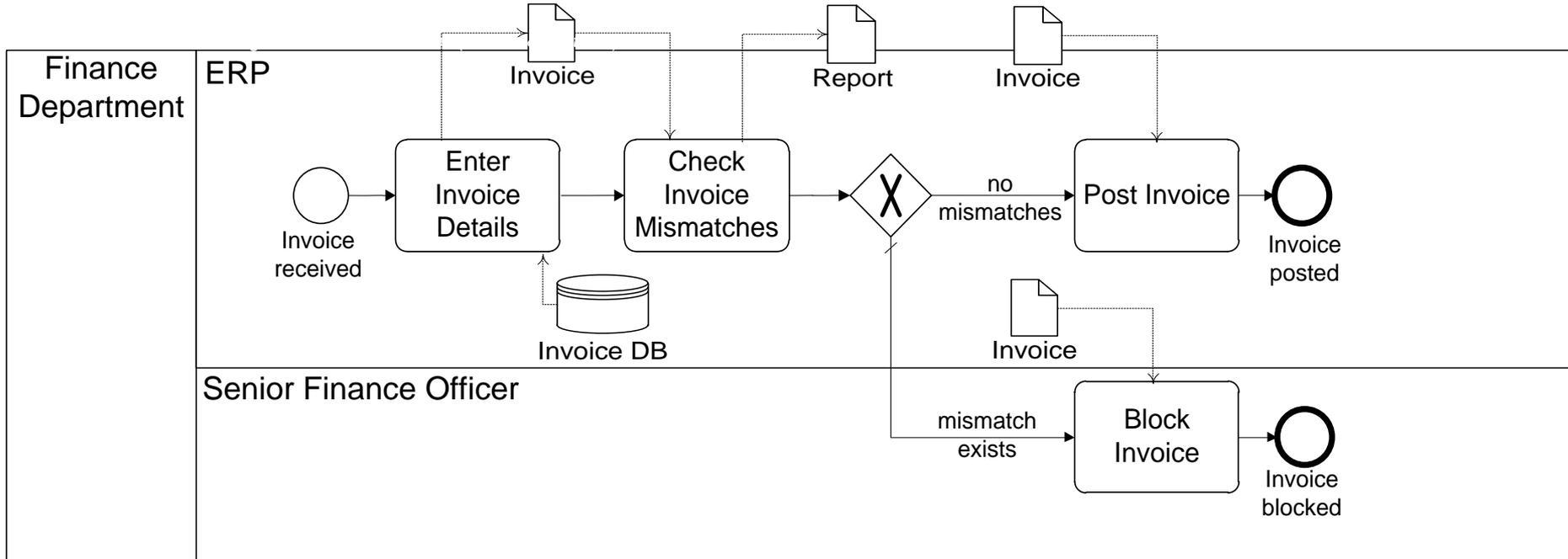
Further Potential Elements in a Process

- 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

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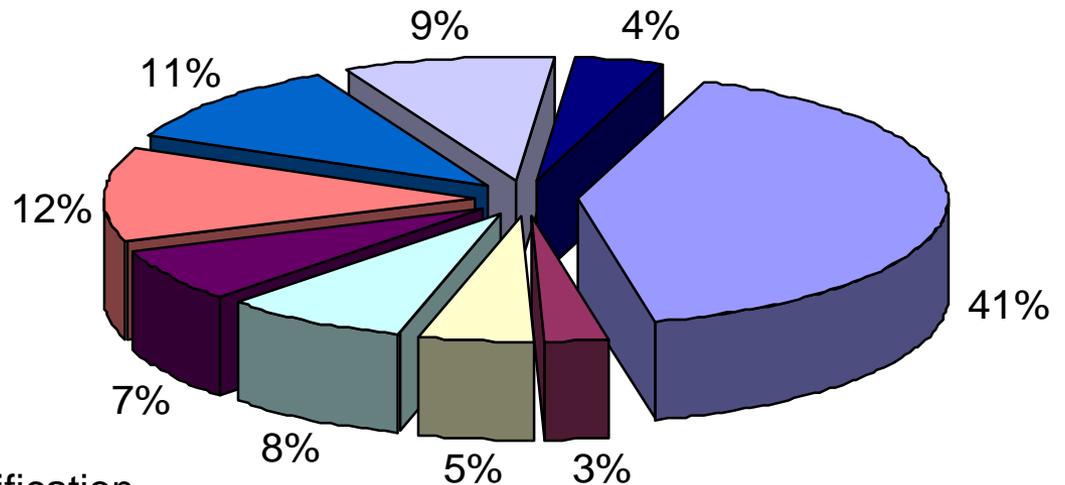
BPTrends, 2006

BPM Lifecycle

Process identification

Process architecture

Process discovery

As-is process model

Conformance and performance insights

Process monitoring and controlling

Process analysis

Executable process model

Insights on weaknesses and their impact

Process implementation

To-be process model

Process redesign

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" –
  - depends on organization's domain and size

- Trade-off:
  - ensuring process scope is manageable
    - 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
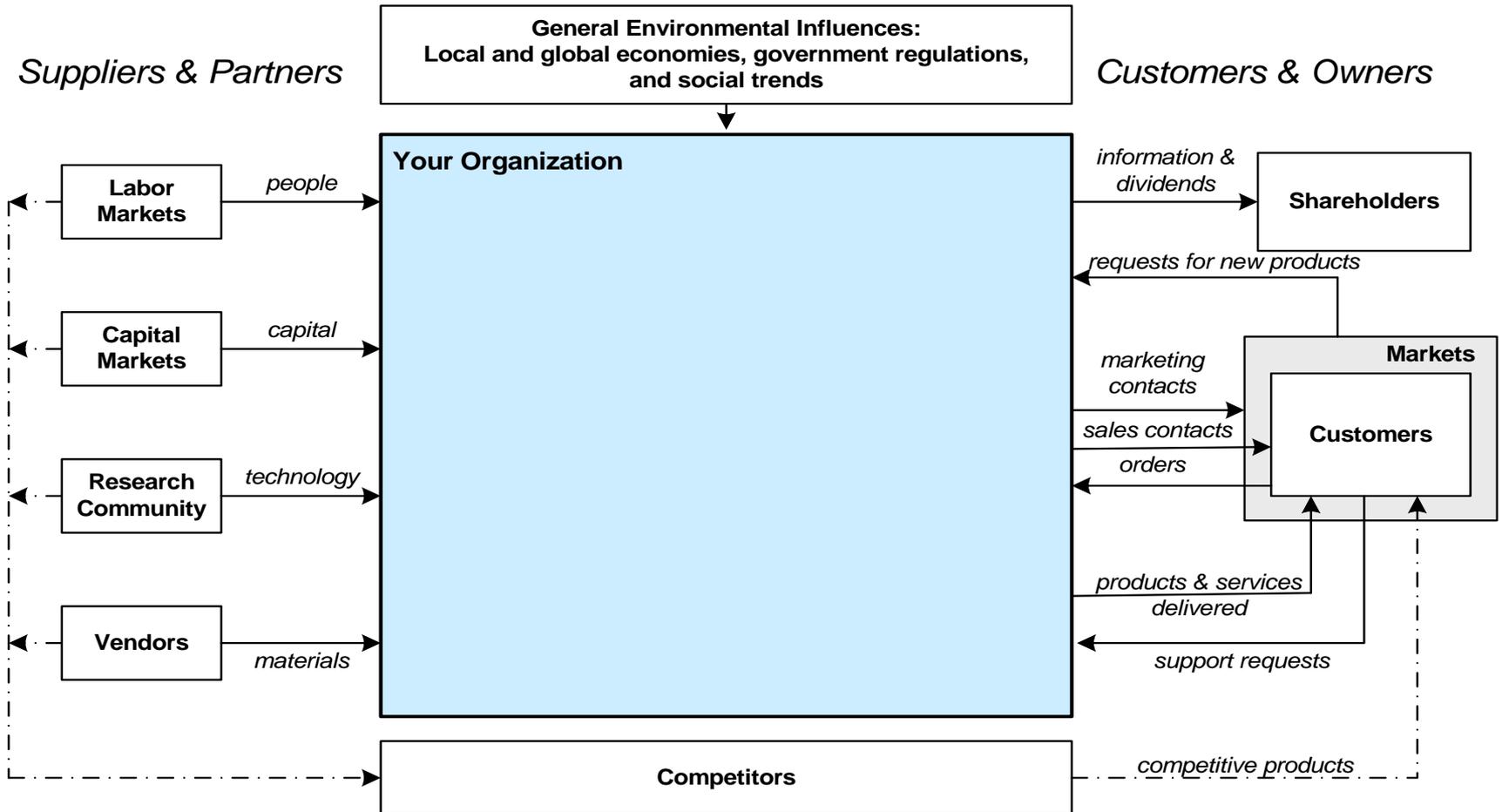
After Rummler and Brache (1990)

"Process" Architecture

Value chains

The US and world economies, government regulations, and social trends

Suppliers & Partners

Customers & Owners

BPT Delivery

people

capital

technology

materials

Labor Markets	
Capital Markets	
Research Community	
Vendors	

Deliver Packages via Air & Ground

Manage Outsourced Supply Chain Operations

Finance Supply Chain Operations

information & dividends

Shareholders

Southern US and Central America

Individuals & Businesses that want on site pickup & delivery

Southern US and Central America

Businesses that want to Outsource Delivery Operations

Businesses that need transport financing

UPS, FedEx. US & Mexican Postal Services

competitive products

Components of a Process Architecture

Management Processes

Core Processes

Support Processes

Suppliers / Partners

Customers / Owners

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

Plan Vendors Process
- Sign Contracts
- Establish Sourcing Procedure
- Evaluate Vendors

Fill Order Process
- Receive Order
- Approve Order
- Fill Order
- Deliver Order

Reorder Supplies Process
- Stock Supplies
- Order Supplies
- Receive Supplies

Process Architecture Example I

Process Architecture Example II

An insurance company

Management Processes

- Strategic Management
- Corporate Development
- Investor Relations

Core Processes

- Risk Assessment and Management
- Market Development
- Sales and Marketing
- Underwriting Management
- Policy Servicing
- Claims Management
- Collections and Disbursement
- Asset Management

Enabling Processes

- Finance/ Treasury
- Legal/ Audit
- Reinsurance
- IT
- HR
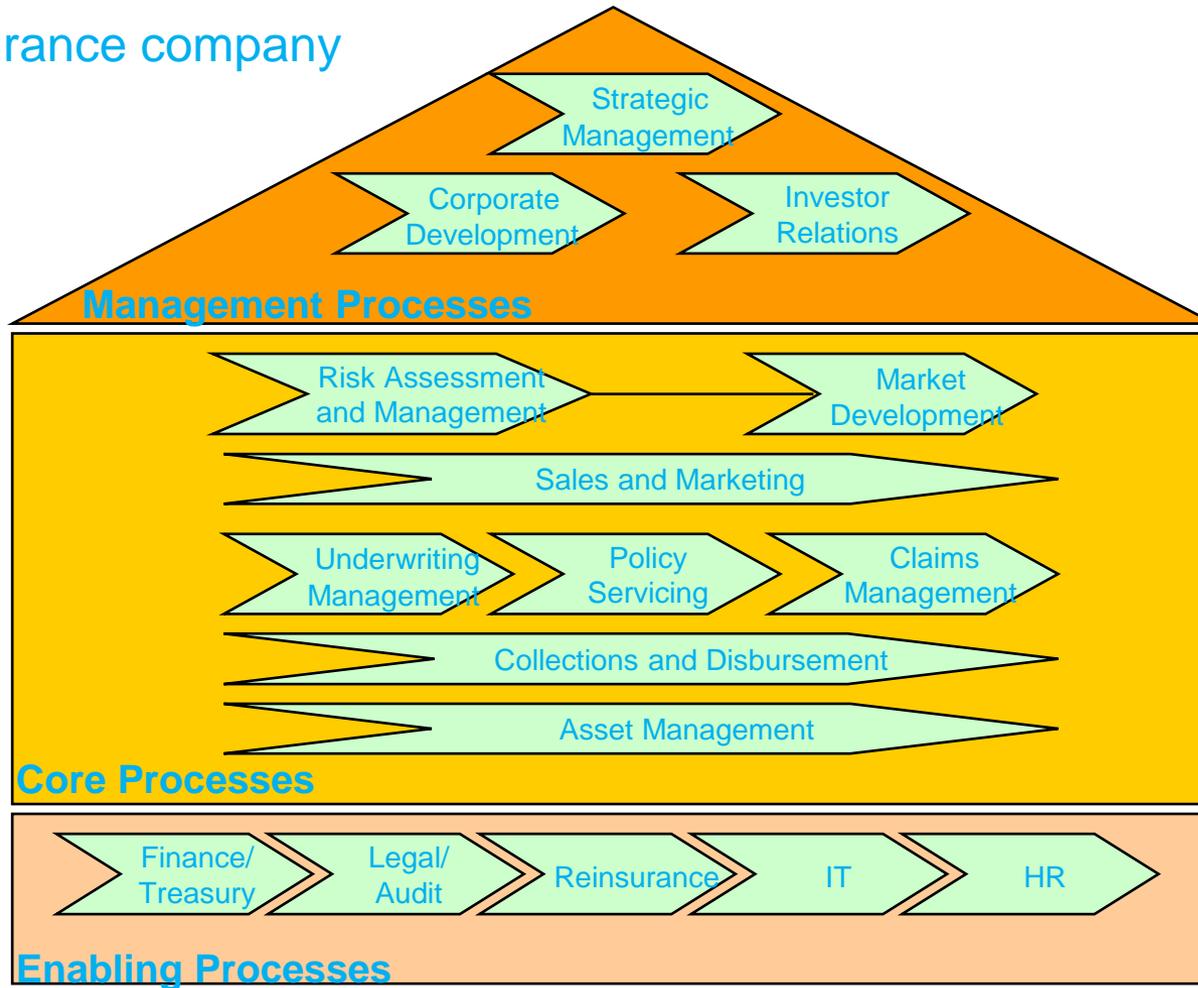
Selected questions for scoping a process

- If Process Architecture already in place: where does the process fit into the Process Architecture?

- On what level is the unit of analysis?
  - 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?

Definition of Business Strategy

Business strategy is an organizational perspective on setting and meeting business goals. (Mintzberg)

Balanced Scorecard (Kaplan & Norton)

Financial Perspective

- Improve Cost Structure
- Increase Asset Utilization
- Long-Term Shareholder Value
- Expand Revenue Opportunities
- Enhance Customer Value

Customer Perspective

Product/Service Attributes
- Price
- Quality
- Availability
- Selection
- Functionality

Relationship
- Service
- Partnership

Image
- Brand

Internal Perspective

Operations Management Processes
- Supply
- Production
- Distribution
- Risk Mgmt.

Customer Management Processes
- Selection
- Acquisition
- Retention
- Growth

Innovation Processes
- Opportunity
- Research
- Design
- Launch

Regulatory and Social Processes
- Environment
- Safety/Health

Learning and Growth Perspective

- Culture
- Leadership
- Alignment
- Teamwork

Enterprise Architecture according to TOGAF

- **Organizational perspective:**
  - actors, roles, and organizational structure.

- **Product perspective:**
  - products and services along with their relationships.

- **Business process perspective:**
  - process architecture.

- **Data perspective:**
  - informational entities and their relationships.

- **Application perspective:**
  - different pieces of software with their dependencies.

- **Technical infrastructure:**
  computer hardware and communication networks.

The Process Checklist

It may not be easy to decide on what to consider as a business process. A chunk of work that is frequently repeated might not be a business process on its own. To prevent poor scoping decisions, it is useful to consider the following process checklist:

- **Is it a process at all?**
  - It must be possible to identify main action, applied to a category of cases.
  - Name is of form verb + noun.
- **Can the process be controlled?**
  - Repetitive series of events and activities to execute individually observable cases.
  - Without a clear case notion, process management is not feasible.
  - Also, without any sense of repetition, a group of business activities may better qualify as a project than as a business process.

  If there are no handoffs between multiple actors or systems, there is little that can be improved using BPM methods.

- **Is the process important enough to manage?**
  - There is customer who is willing to pay for outcomes,
  - Organization that carries out the process would be willing to pay another party for taking over, or
  - Legal, mandatory framework compels an organization to execute it.
- **Is the scope of the process not too big?**
  - 1:1 relation between initial event and activities.
- **Is the scope of the process not too small?**
  - There should be at least three different actors – excluding the customer – involved.

Process Landscape Model: Example of Wienerlinien (Vienna Public Transport)

Management Processes

- Manage Enterprise
- Communicate in and out
- Manage Processes
- Manage Quality
- Manage Risks and Opportunities
- Manage Innovation

Core Processes

Manage Customer Relationship
- Contact Customer → Manage Sales → Foster Relationship

Operate Vehicles
- Plan and Buy Vehicles → Maintain Vehicles → Check Vehicles

Transport Customer
- Plan Customer Transport → Transport Customer → Evaluate Transport

Provide Infrastructure
- Plan Infrastructure → Build Infrastructure → Maintain Infrastructure → Evaluate Infrastructure

Support Processes

- Manage Personnel
- Manage Financials
- Manage Information
- Manage Materials
- Manage Disruptions
- Provide Winter Service

How to define Process Landscape Model

1. Clarify terminology:
    –   Define key terms.
    –   Use organizational glossary.
    –   Use reference models.
    –   Ensure that stakeholders have a consistent understanding of process landscape model.

2. Identify end-to-end processes:
    –   Those processes interface with customers and suppliers.
    –   Goods and services that organization provides are good starting point.
    –   Properties help to distinguish processes, including Product type, Service type, Channel, Customer type.

3. For each end-to-end process, identify its sequential processes:
    –   Identify the internal, intermediate outcomes of end-to-end process.
    –   Perspectives help set boundaries Product lifecycle, Customer relationship, Supply chain, Transaction stages, Change of business objects, Separation.

How to define Process Landscape Model

4. For each business process, identify its major management and support processes:
   – What is required to execute the previously identified processes.
   – Typical support processes are management of personnel, financials, information, and materials.
   – However, these can be core processes if they are integral part of business model.
   – Management processes are usually generic. Decompose and specialize business processes:
   – Processes of process landscape should be further subdivided into abstract process on Level 2.
   – Further subdivision until processes can be managed autonomously by single process owner.
   – Considerations when this subdivision should stop: Manageability and Impact.
5. Compile process profile:
   – Each of the identified processes should be described using process profile.
   – Process profile supports definition of boundaries, vision performance indicators, resources, etc.
6. Check completeness and consistency:
   – Reference models can be used to check whether all major processes are included.
   – Reference models can help to check consistency of terminology.
   – Check whether all processes can be associated with functional units of organization chart and vice versa.

Example 2.2: Construction Company BuildIT

The following passage describes the company BuildIT from a more general perspective. With this information, we will construct its process landscape model.

The overall end-to-end process of BuildIT starts with a customer demand and ends with the expiry of the warranty of construction works. The business development department is responsible for identifying customer demands and public tenders. Together with the presales engineering department, they select projects for which BuildIT prepares bids. Bids that are approved lead to contract negotiations. Once contracts are signed, the contract is transferred to execution. Contract execution starts with the project initiation, which includes engineering, design, and planning. What follows then are the actual construction works. The procure-to-pay process that we already know from Example 1.1 also belongs to these initiation procedures. Once the construction works are finished, the construction sight is commissioned to the customer. What can still follow are corrective works to meet warranty obligations.

Value chains, management, support
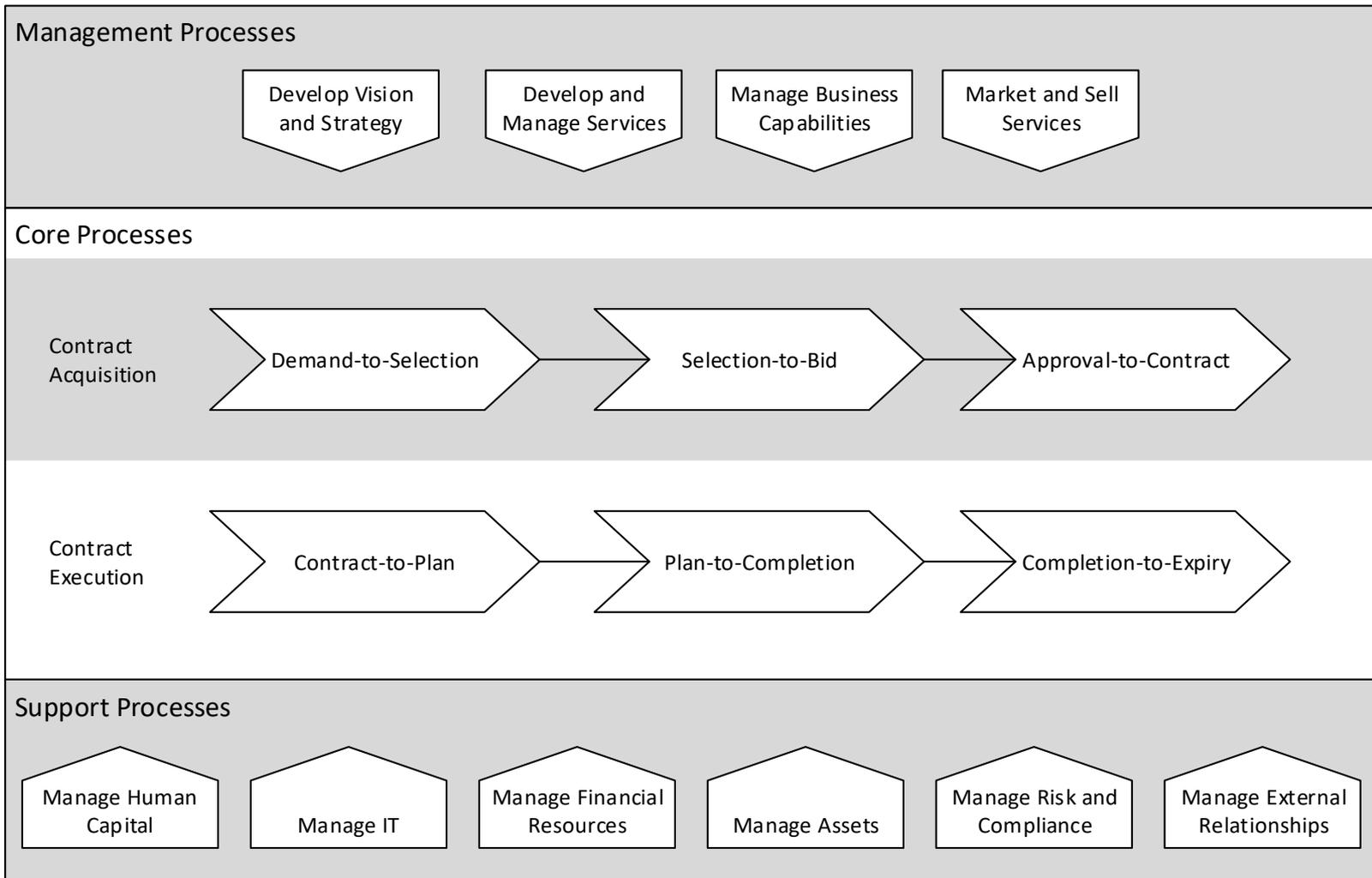
Various techniques to scope a process

- 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

Process profile of procure-to-pay process

Name of Process: Procure-to-Pay
Vision: The objective of the procurement process is to secure that the entire range of external products and services becomes available on time and is at the required level of quality.
Process Owner: Chief Financial Officer (CFO)

Customer of process:	Expectation of customer:
• Requesting unit	• Timely, economic and complete provision

Outcome: Delivered products or provided services for the requested unit
Trigger: Need is identified
First activity: Submit Request ….. **Last activity:** Create Purchase Order
Interfaces inbound: Plan-to-Procure **Interfaces outbound:** Construct-to-Complete

Required resources:
• Human resources:
  Site Engineer, Clerk, Works Engineer
• Information, documents, know-how:
  procurement guidelines, supplier rating, framework contract
• Work environment, materials, infrastructure:
  Procurement information system

Process Performance Measures: • Cycle Time • Operational Costs • Error Rate

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 another dimension
5. Follow scope in reference model (see later)
6. Based on functions/cases covered

A stepwise method to build process architectures

		case type			
business function		Netherlands		Belgium	
		Composite	Simplex	Composite	Simplex
risk management	product risk assessment	X PD NL X		PD BE	
	client risk assessment	X	X	X	
mortgage brokering	selecting	Composite Mortgage Application NL	Simplex Mortgage Application NL	Mortgage Application BE	
	offering	X	X	X	
	contracting	X	X	X	
finance	payment	X Mortgage Payment X			
	collection	X Mortgage Collection X			
product development		PD NL		PD BE	

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

Meta Level — Model structure, methodology and modelling standards

Business Levels

Level A

Business Activities — Defines business activities. Distinguishes operational customer oriented processes from management and strategic process

Level B

Process Groupings — Shows groups of related business functions and standard end-to-end processes (e.g. Service Streams)

Logical Levels

Process Levels

Level C

Core Processes — Core processes that combine together to deliver Service Streams and other end-to-end processes

Level D

Business Process Flows — Decomposition of core processes into detailed 'success model' business process flows

Physical Levels

Operations Levels

Level E

Operational Process Flows — Detailed operational process flows with error conditions and product and geographical variants (where required).

Level F

Detailed Process Flows — Further decomposition of detailed operational where required

© British Telecommunications (2006)

Strategic View

Level	Label
Level A	Business Activities
Level B	Process Groupings
Level C	Core Processes
Level D	Business Process Flows
Level E	Operational Process Flows
Level F	Detailed Process Flows

Business Objectives

Business KPIs

Business Balanced Scorecard

Business Unit Objectives

Unit KPIs

Business Unit Scorecard

Business Value Streams

Operational Unit Objectives

Business Process Value Streams

Business Layer

Process Layer

Implementation

Davis (2005)

Process View

Level A
Business Activities

Level B
Process Groupings

Level C
Core Processes

Level D
Business Process Flows

Level E
Operational Process Flows

Level F
Detailed Process Flows

Business Activities

Value Domains
Business Functions

End-to-End Processes

Service Streams
Process Service Lines

Enabling Streams

Core processes

Tasks
Processes

Steps
Sub-processes

Resources

Operations
Detailed Processes

Detailed Resources

Business Layer

Process Layer

Implementation

Davis (2005)

Organisation View

Level A		Business Layer
Business Activities	**Business**	
Level B		
Process Groupings	**Business Units**	
Level C		Process Layer
Core Processes	**Operational Units**	
Level D		
Business Process Flows	**Operational Teams**	
Level E		Implementation
Operational Process Flows	**Operational Roles**	
Level F		
Detailed Process Flows		

Davis (2005)

Data View

Level A

Business Activities

Level B

Process Groupings

Corporate Data Model

Level C

Core Processes

Business
Information

Function
Data

Level D

Business Process Flows

Process
Information

Function
Entities

System
Entities

Level E

Operational Process Flows

Procedural
Information

Function
Attributes

Level F

Detailed Process Flows

System
Attributes

Business Layer

Process Layer

Implementation

Davis (2005)

Systems View

Level A

Business Activities

Level B

Process Groupings

System Domains

Level C

Core Processes

System Types

Level D

Business Process Flows

System Types and Modules Types

Systems and Modules

Level E

Operational Process Flows

System IT Functions

Screens

Level F

Detailed Process Flows

(System Specific)

Business Layer

Process Layer

Implementation

Davis (2005)

Hierarchy Example: QLD Shared Service Agency

Level A

Hierarchy Example: QLD Shared Service Agency

Level B

| 2.1 Manage Supply | 2.2 Manage Master Data | 2.3 Manage Inventory | 2.4 Manage Purchasing | 2.5 Manage Payment |

Level C

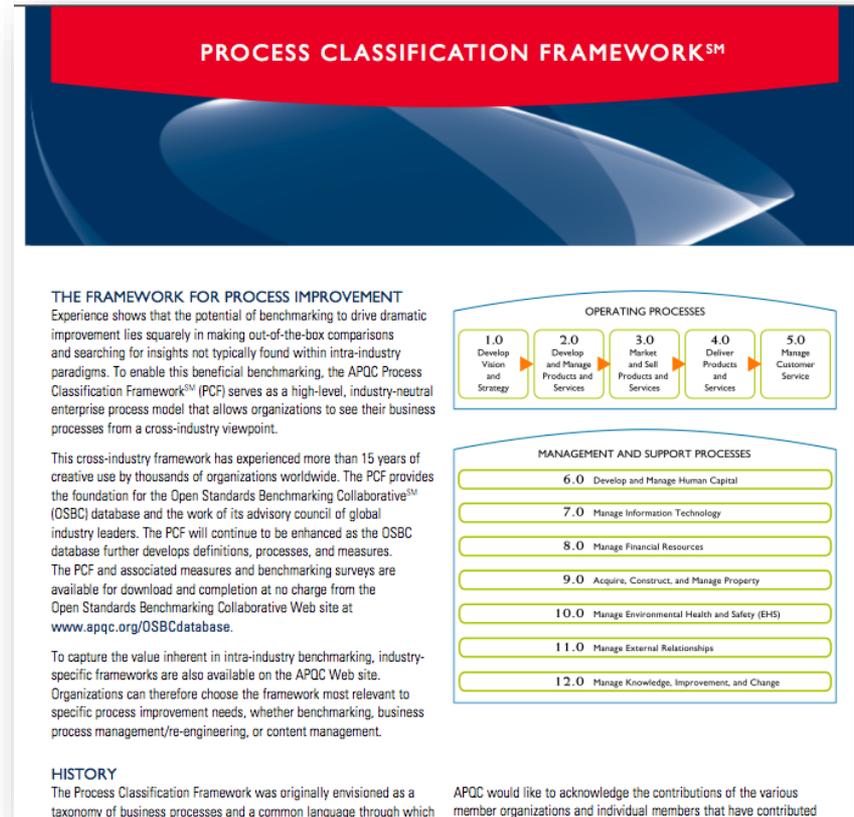| 2.1.1 Procurement Profiling & Planning | 2.2.1 Create/Maintain Catalogue | 2.3.1 Perform Stocktake | 2.4.1 Manage Sourcing | 2.5.1 Process Invoice |
2.1.2 Manage Contracts	2.2.2 Maintain Material Masters	2.3.2 Replenish Inventory	2.4.2 Administer Contracts	2.5.2 Pay & Reconcile Corporate Card
	2.2.3 Maintain Vendor Masters	2.3.3 Process Goods Movements	2.4.3 Manage Barcode Service	2.5.3 Reconcile & Reimburse Petty Cash
		2.3.4 Analyse Inventory	2.4.4 Procure via Shopping Cart/ Purchase Order	2.5.4 Make Payment
			2.4.5 Procure by Corporate Card	
			2.4.6 Procure by Petty Cash	

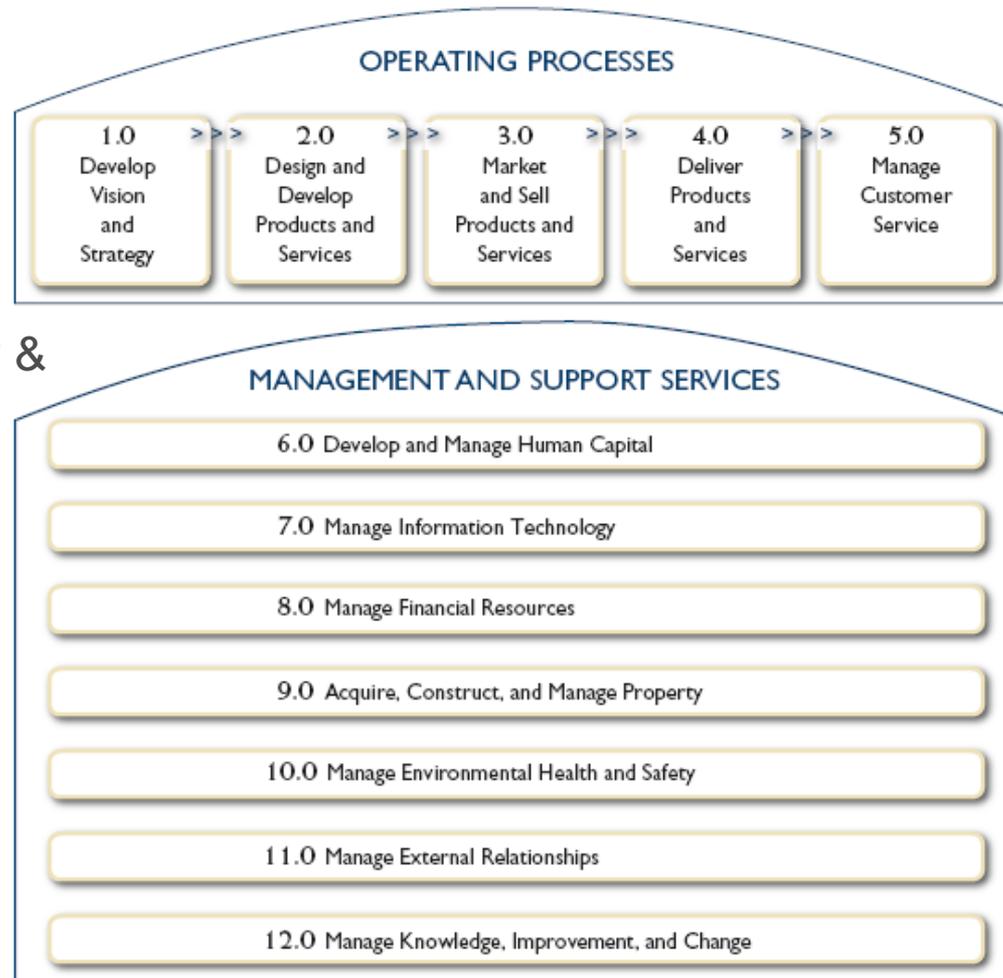# Hierarchy Example: QLD Shared Service Agency

Level D

Designation via Reference Models

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

APQC PCF Overview

OPERATING PROCESSES

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

American Productivity & Quality Center

MANAGEMENT AND SUPPORT SERVICES

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

11.0 Manage External Relationships

12.0 Manage Knowledge, Improvement, and Change

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**
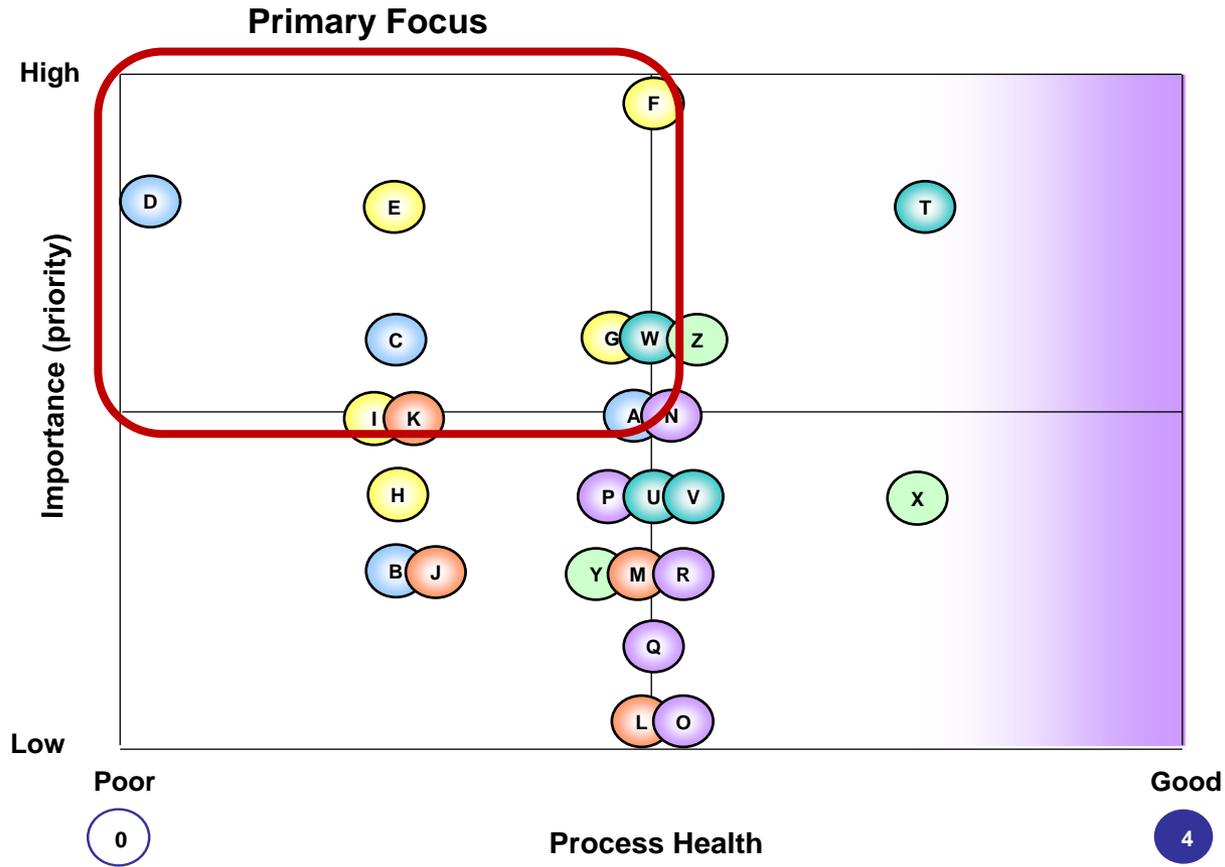   - Which process is the most susceptible to successful process management?
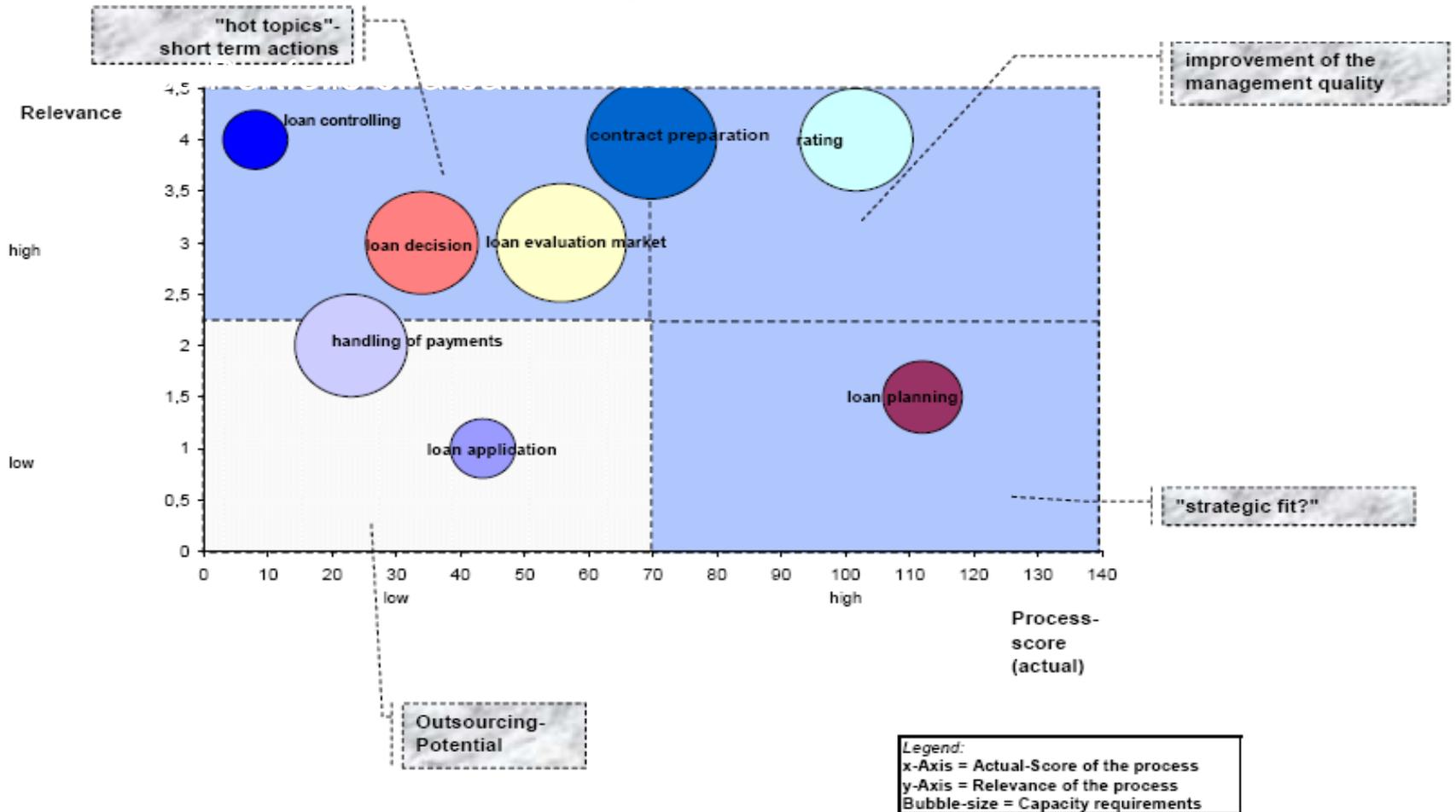
Process Portfolio Management

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.