

Chapter 2 - Process Identification

Process Identification

- Management activities that systematically define the set of business processes of an organization and establish clear criteria for selecting specific processes for improvement.
- The idea is that these processes create value of strategic relevance or have substantial problems or both.
- Process identification is an **ongoing task** because processes **inside the organization** are subject to time and change.
 - Ex: An insurance company suffering from customer dissatisfaction will naturally tend to focus on customer oriented processes. Once this improves, we will focus on risk assessment processes for long-term viability and competitiveness of the company.
 - There are also dynamics **outside the organization**, processes of **strategic importance** may grow less important as time goes on. Market demands change. Mannesmann is an example of this.
 - Ex: Other insurance companies offering discount insurance policies through the Web may push a company to redesign its insurance sales to make them faster and more accessible through the Web.
- The output of process identification is **process architecture**.

The Context of Process Identification

Why is process identification important?

- BPM is expensive therefore we need to identify the most relevant subset of process.
- **Business Strategy:** organizational perspective on setting and meeting business goals.
 - Strategy can be operationalized in two different ways:
 - **Balanced scorecard**
 - Long-Term Stakeholder Value is a generic and overarching corporate goal and it's broken down into the four subgoals, these financial goals are influenced by the factors in the **customer perspective**. The customer perspective is influenced by the **internal perspective**. The internal perspective is influenced by human capital, information, capital and organizational capital in **learning and growth perspective**.
 - Implementing this strategy requires transparency of business processes and their contribution to strategic goals.

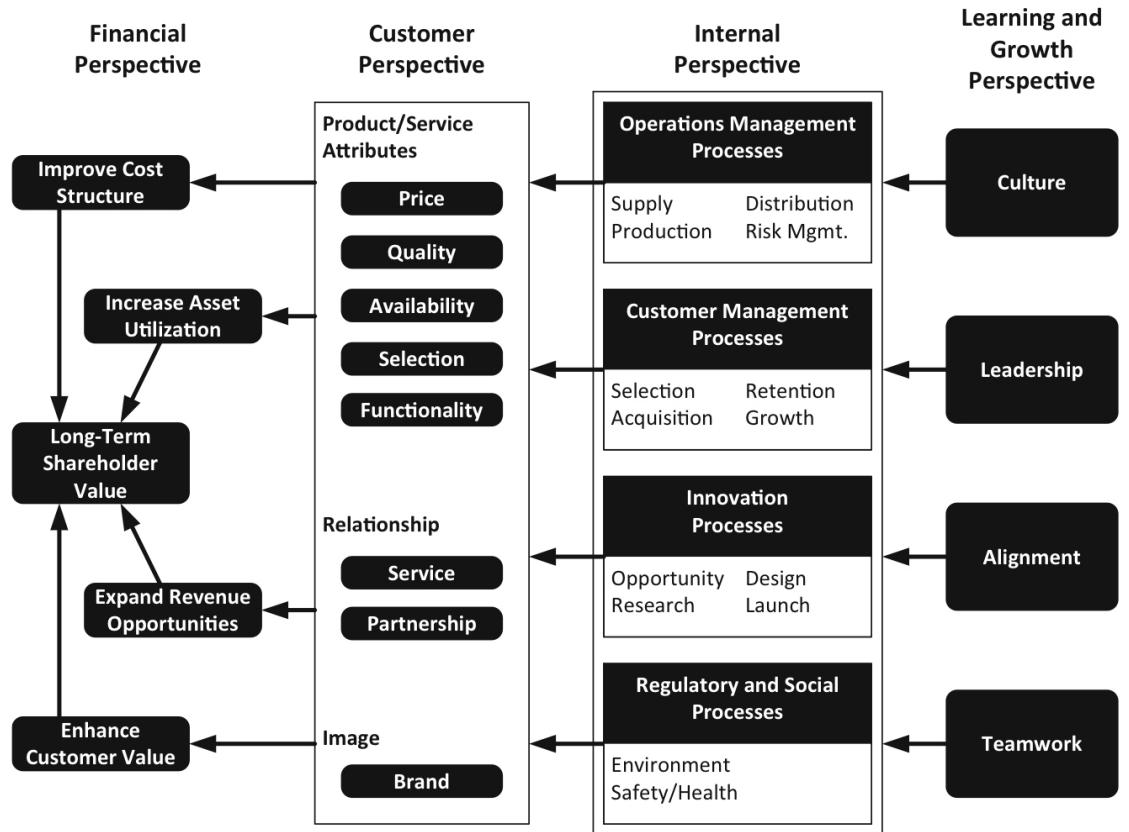


Fig. 2.1 The balanced scorecard by Kaplan & Norton

■ Enterprise Architecture

- Describes structural dependencies between the different perspectives of the organization.
- TOGAF (The Open Group Architecture Framework):
 - 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.

It is imperative that we focus on a subset of key processes. But what do we need to do?

- The process analysts , management team and process owners need to answer two questions.
 - **What processes are executed in the organization?**
 - **Which ones should the organization focus on?**

We must know what a process is first, here's the criteria

- Important: a process isn't just a chunk of work that is repeated. There's more.
- **Is it a process at all?**
 - Must be able to identify the main action that is applied to a category of cases.
 - Names are usually in the form on **verb + noun**
 - Ex: Process approve --- leave requests
 - The outcome of the process must be **noun + past participle**
 - Ex: Completed cases are leave requests that have been approved
- **Can the process be controlled?**
 - See the process as a repetitive series of events and activities to execute individually observed cases. Each application is distinguishable from the other
- **Is the process important enough to manage? At least one of these must apply.**
 - There must be a customer willing to pay for the process outcome.
 - The organization that carries out the process would (in principle) be willing to pay another party for taking over.
 - There is a legal, mandatory framework that compels an organization to execute it.
- **Is the scope of the process too big?**
 - There must be a 1:1 relation between the event that initiates the process and each of the activities that are thought to be in scope.
 - Ex: If we consider a make-to-order process like manufacture bikes, cleaning the work floor does not relate 1:1 to a manufacturing order, this activity is not part of this process.
- **Is the scope of the process too small?**
 - We may be looking at a micro-process which are not worth managing at all.
 - **A rule of thumb:** there should be at least three different actors (excluding the customer) involved.

Concerns of process identification

- Define process architecture.
 - **Objective:** Gain understanding of the processes an organization is involved in and their interrelationships.
- Select processes.

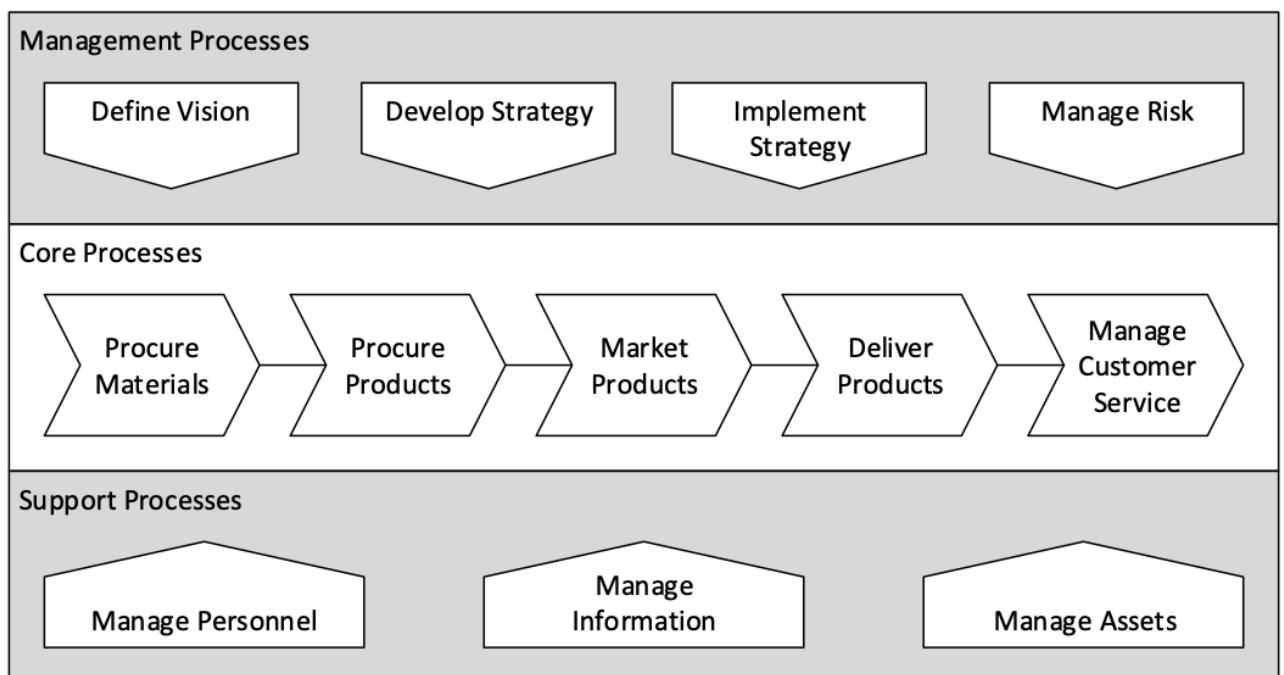
- **Objective:** develop priorities of processes for BPM activities (discovery, analysis, redesign, implementation, monitoring).
- Process identification does not look at a single process, it takes overall set of processes into account - called **process portfolio**. Neither of these steps are concerned with developing process models.

Definition Of The Process Architecture

Process Categories

Porter's Value Chain Model

- **Core Processes:** production of goods and services for which customers pay (value creation of a company). Examples: development, marketing and sales, delivery, after-sales, direct procurement (sourcing required for making the products or the delivery), manufacturing.
- **Support Processes:** allow the execution of core processes. Examples: indirect procurement (sourcing hardware, furniture, stationery), human resource management, IT management, accounting, financial management and legal services.
- **Management Processes:** provide directions, rules and practices for the core and support processes. Examples: strategic planning, budgeting, compliance, risk management, investors, suppliers and partners management.



- This image is a **process landscape model**. Do note the notation used to represent each type of process category.

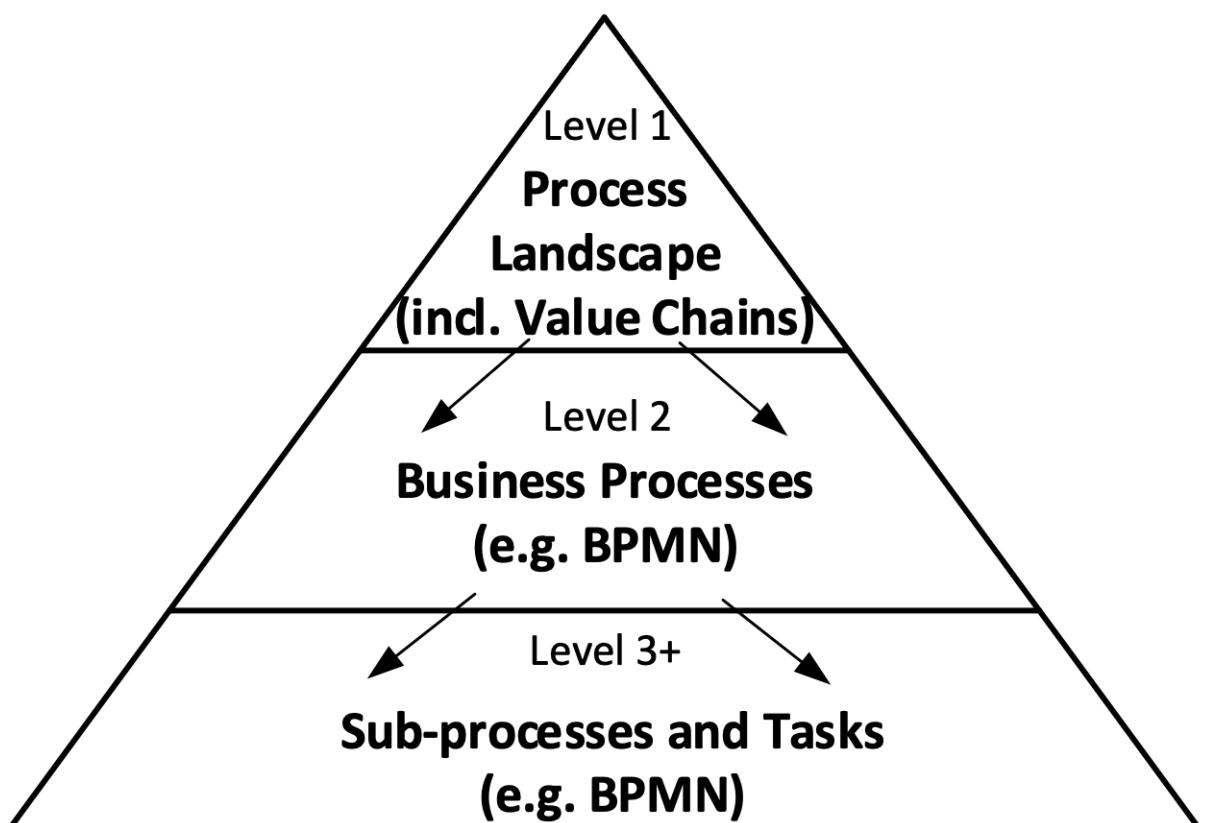
Relationships Between Processes

For process architecture there are 3 types of relationships between processes.

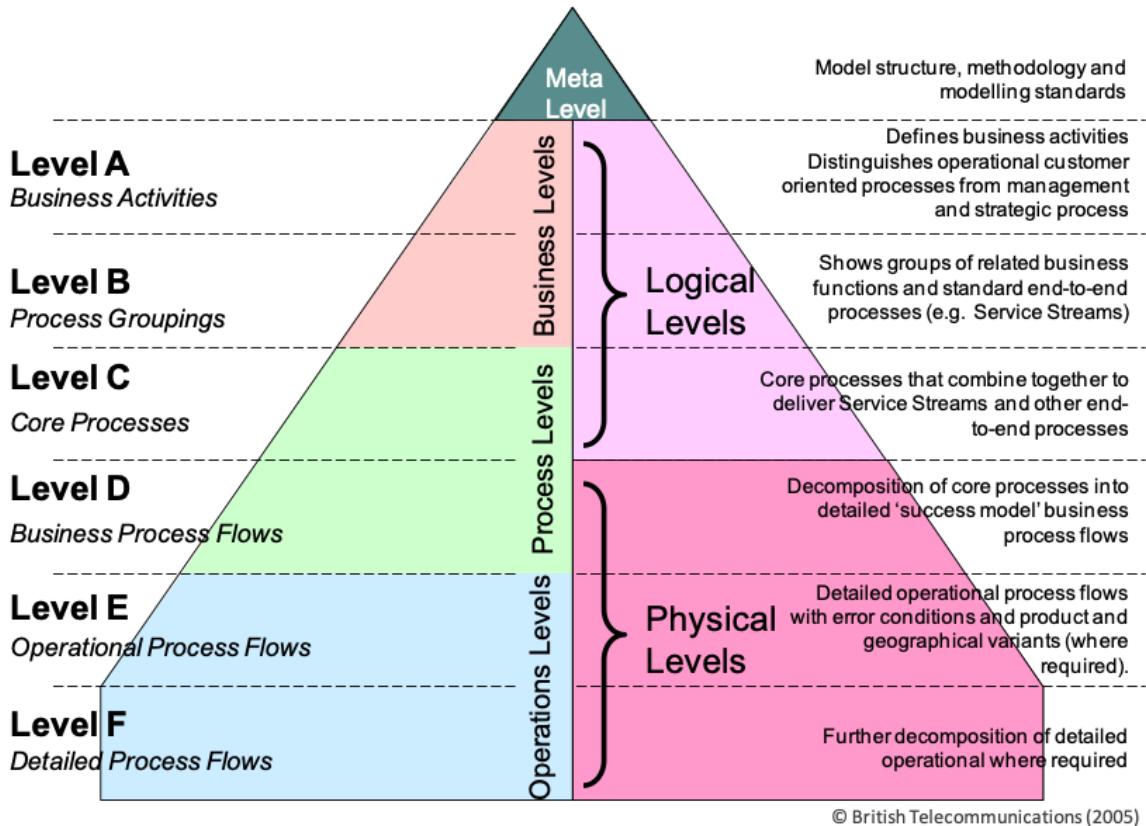
- **Sequence/Horizontal Relationship:** means there is a logical sequence between two processes.

- Ex: A consumer-producer relationship, one process provides an output that the other takes as input. Also the output of quote-to-order is taken as input in order-to-cash processes.
- **Decomposition/Vertical/Hierarchical Relationship:** there is a decomposition in which one specific process is described in more detail in one or more sub-processes.
 - Ex: Procure Products (in the image above) can be described in more detail including the activities that have to be executed for it to have a successful completion.
- **Specialisation:** specifies that there exist several variants of a generic process.
 - Ex: There might be a generic process for handling job applications on a multi-national company but since every country has different legal constraints, there will be variants defined for different legal contexts or for different categories or services or different types of customers or suppliers.

Generic Process Architecture



British Telecom



Definition of process architecture proceeds in a top-down fashion. Starts at level one (value chains) and goes down (decompositions).

Reuse Of Reference Models

Reference models standardize what can be seen as different processes with unique characteristics, delivering distinguishable products and how their performance can be measured.

- **Advantages of reusing reference models**
 - Serve as starting point to develop classification for major process areas.
 - Be able to compete with competitors.
 - Useful to check completeness of the processes identified. Ex: we can use APQC's PCF to inventory processes we use, flag those we do not use and add our own unique processes.
 - Provide standardized vocab useful for labelling processes (avoids terminology issues due to use of synonyms).

Table 2.1 Level 1 and Level 2 of the APQC Process Classification Framework

1.0 Develop Vision and Strategy 1.1 Define the business concept and long-term vision 1.2 Develop business strategy 1.3 Execute and measure strategic initiatives	8.2 Develop and manage IT customer relationships 8.3 Develop and implement security, privacy, and data protection controls 8.4 Manage enterprise information 8.5 Develop and maintain information technology solutions 8.6 Deploy information technology solutions 8.7 Deliver and support information technology services
2.0 Develop and Manage Products and Services 2.1 Govern and manage product and service development program 2.2 Generate and define new product and service ideas 2.3 Develop products and services	
3.0 Market and Sell Products and Services 3.1 Understand markets, customers, and capabilities 3.2 Develop marketing strategy 3.3 Develop and manage marketing plans 3.4 Develop sales strategy 3.5 Develop and manage sales plans	
4.0 Deliver Physical Products 4.1 Plan for and align supply chain resources 4.2 Procure materials and services 4.3 Produce, manufacture, and deliver product 4.4 Manage logistics and warehousing	9.1 Perform planning and management accounting 9.2 Perform revenue accounting 9.3 Perform general accounting and reporting 9.4 Manage fixed-asset project accounting 9.5 Process payroll 9.6 Process accounts payable and expense reimbursements 9.7 Manage treasury operations 9.8 Manage internal controls 9.9 Manage taxes 9.10 Manage international funds/consolidation 9.11 Perform global trade services
5.0 Deliver Services 5.1 Establish service delivery governance and strategies 5.2 Manage service delivery resources 5.3 Deliver service to customer	10.0 Acquire, Construct, and Manage Assets 10.1 Plan and acquire assets 10.2 Design and construct productive assets 10.3 Maintain productive assets 10.4 Dispose of assets
6.0 Manage Customer Service 6.1 Develop customer care and customer service strategy 6.2 Plan and manage customer service contacts 6.3 Service products after sales 6.4 Manage product recalls and regulatory audits 6.5 Evaluate customer service operations and customer satisfaction	11.0 Manage Enterprise Risk, Compliance, Remediation and Resiliency 11.1 Manage enterprise risk 11.2 Manage compliance 11.3 Manage remediation efforts 11.4 Manage business resiliency
7.0 Develop and Manage Human Capital 7.1 Develop and manage human resources planning, policies, and strategies 7.2 Recruit, source, and select employees 7.3 Develop and counsel employees 7.4 Manage employee relations 7.5 Reward and retain employees 7.6 Redeploy and retire employees 7.7 Manage employee information and analytics 7.8 Manage employee communication 7.9 Deliver employee communications	12.0 Manage External Relationships 12.1 Build investor relationships 12.2 Manage government and industry relationships 12.3 Manage relations with board of directors 12.4 Manage legal and ethical issues 12.5 Manage public relations program
8.0 Manage Information Technology (IT) 8.1 Manage the business of information technology	13.0 Develop and Manage Business Capabilities 13.1 Manage business processes 13.2 Manage portfolio, program, and project 13.3 Manage quality 13.4 Manage change 13.5 Develop and manage enterprise-wide knowledge management (KM) capability 13.6 Measure and benchmark 13.7 Manage environmental health and safety (EHS)

Process Landscape Model

The model of the process architecture that covers the processes on Level 1 is called **process landscape model** showing the core processes at a very abstract level, each of the elements of this model points to a more detailed business process in Level 2.

The process architecture on Level 1 must be:

- Understandable by all major stakeholders;
- Compact, showing no more than 20 business processes;
- Complete, so that workers can relate their daily work to it and accept it as a consensual description of the company.

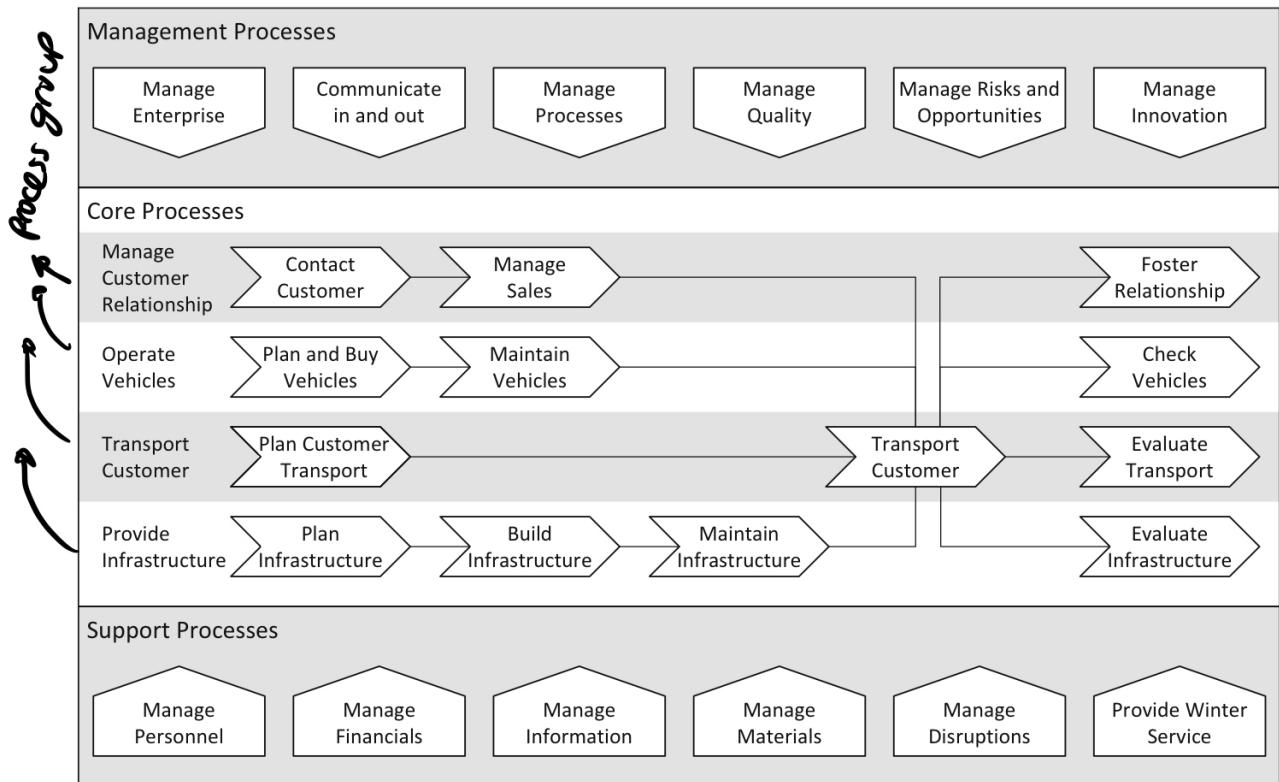


Fig. 2.6 Process landscape model of Vienna's public transport operator Wiener Linien [168]

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.
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.
- Properties that help distinguish processes (step 2):

- **Product Type:** type of products that are produced in a similar way. Ex: an automotive company might distinguish cars from trucks.
- **Service Type:** type of services that are produced in a similar way. Ex: a software vendor might distinguish purchased software from software as service.
- **Channel:** channels through which the organization interacts with its customers. Ex: an insurance company might distinguish its Internet offerings from offerings via banks.
- **Customer Type:** types of customers the organization deals with. Ex: a bank might distinguish wealth customers and retail customers.

- **Properties that help setting boundaries (step 3):**

- **Product lifecycle:** The lifecycle of a product or service includes different states, which can be used to subdivide an end-to-end process. For instance, a plant construction company typically first submits a quote, then sets up the contract, designs the plant in collaboration with the customer, produces its building blocks, delivers and constructs the plant on premise, writes the invoice, and provides maintenance services.
- **Customer relationship:** There are also typical stages that a customer relationship goes through. First, leads are generated, then a contract is sealed and services provided. For these, invoices are written. The contract might be changed and eventually terminated.
- **Supply chain:** Along the supply chain, materials are procured, which are used to produce products. These are checked for quality assurance and delivered to customers.
- **Transaction stages:** There are different stages that transactions typically go through from initiation to negotiation, execution, and acceptance. Consider, for instance, buying clothes at a fashion retailer. First, interest in the products is generated (initiation). Advisory services in the shop have to be provided to the customers, such that they can make a good decision (negotiation). Taking the clothes to the point of sale marks execution. The payment completes the transaction (acceptance).
- **Change of business objects:** If there are different business objects, the process should be split up into respective business processes. For instance, the transition from a quote to a contract or from an order to a payment mark the boundaries of different processes. A change of multiplicity is a specific condition for splitting up; for example, when several job applications lead to one hiring.
- **Separation:** Different stages of a process can also be defined by a temporal, spatial, logical, or other type of separation. Often, these separations define handoffs, and major handoffs are suitable points to distinguish sequential

processes.

5. 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.
6. 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.
7. 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.

- **Considerations for when the subdivision should stop (step 5)**

- **Manageability:** The smaller the number of the identified processes, the bigger their individual scope is. In other words, if only a small number of processes is identified, then each of these will cover numerous operations. This makes their management more difficult. Among others, the involvement of a large number of staff in a single process will make communication more difficult and improvement projects more complex.
- **Impact:** A subdivision into only a few large processes will increase the impact of their management. The more operations are considered to be part of a process, the easier it will become, for example, to spot opportunities for efficiency gains by rooting out redundant work. Also risks arising from compliance violations might be considered as having an impact.

Example of a construction of a landscape model

Example 2.2 We already know BuildIT from the descriptions of its procure-to-pay process in Example 1.1 on page 3. The following passage describes the company 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 pre-sales 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 site is commissioned to the customer. What can still follow are corrective works to meet warranty obligations.

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: <ul style="list-style-type: none">• Requesting unit	Expectation of customer: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• Cycle Time• Operational Costs• Error Rate	

Fig. 2.7 Process profile of BuildIT's procure-to-pay process, adapted from [190]

We proceed with our seven-step design method as follows:

1. Clarify terminology: The decision was made to design the process landscape model based on APCQ. Accordingly, APQC's terms are adopted for management and support processes. The APCQ Categories 1–3 plus 13 were also found relevant for management processes and 7–12 for support processes. Instead of “products and services”, BuildIT only refers to “services”. The core processes in the end-to-end value chain are replaced by the more specific descriptions of the construction business from above.

2.2 Definition of the Process Architecture

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2. Identify end-to-end processes: The end-to-end process starts with the identification of the customer demand and ends when the warranty expires. We might want to differentiate different types of construction works, but the text does not provide us information in this direction.
3. For each end-to-end process, identify its sequential processes: The end-to-end process includes the following business processes. They reflect the product lifecycle of the construction work, organized in the two groups “Contract Acquisition” and “Contract Execution”:
 - Demand-to-Selection,
 - Selection-to-Bid,
 - Approval-to-Contract,
 - Contract-to-Plan,
 - Plan-to-Completion,
 - Completion-to-Expiry.
4. For each business process, identify its major management and support processes: Here, we rely on the APQC categories 1–3 and 7–13. The names are slightly shortened.
5. Decompose and specialize business processes: Here, we only decompose the planning process as an example. It can be subdivided into several business processes including: plan-to-procure and procure-to-pay, plan-to-deliver and deliver-to-pay for ordering construction materials, and plan-to-schedule for assigning workers to construction sites

assigning workers to construction sites.

6. Compile process profile: BuildIT defines process profiles for each process on Level 2. The procure-to-pay process belongs to the set of these processes. We have shown the process profile of this process in Figure 2.7.
7. Check completeness and consistency: Finally, we have to check if all major departments of BuildIT are represented. The result is shown in Figure 2.8.

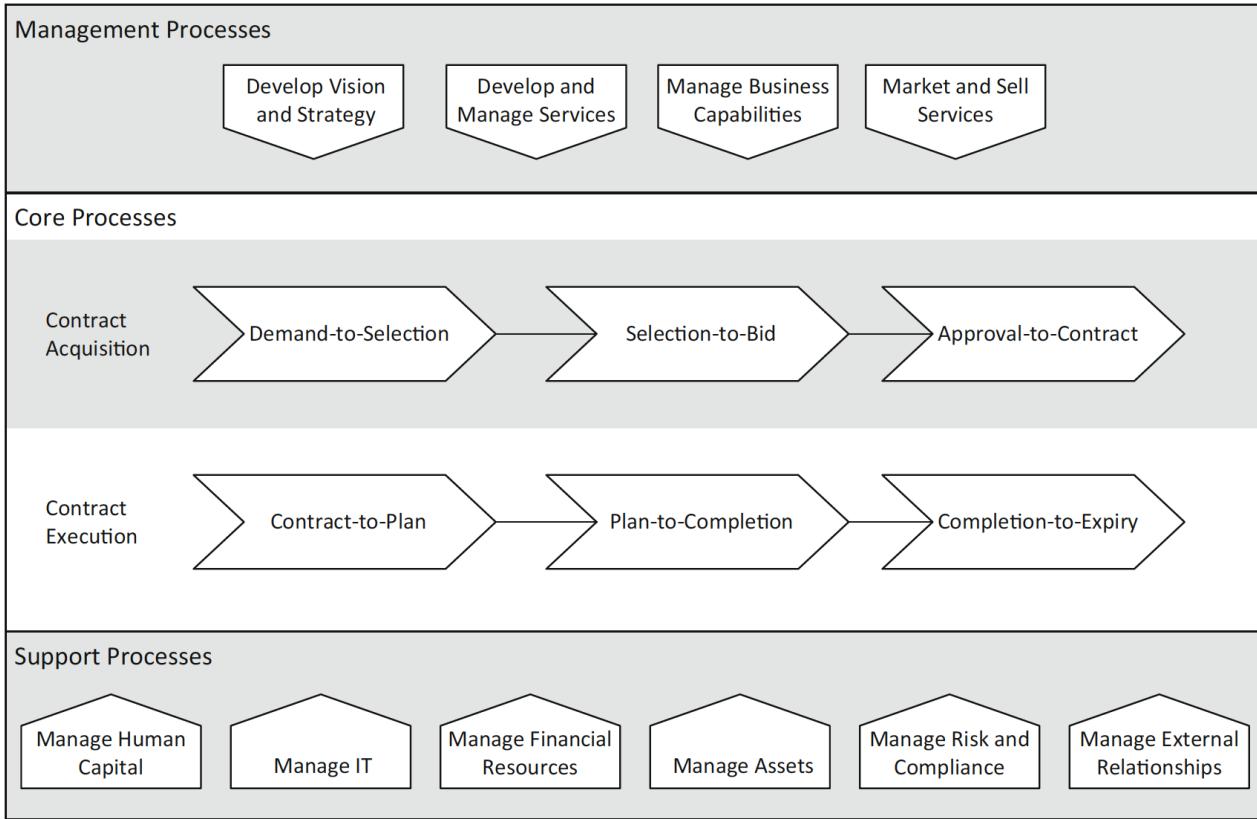


Fig. 2.8 Process landscape model of BuildIT

To balance such a large process scope, it is useful to define broad and narrow processes.

- **Broad Processes:** completely overhaul the existing operations at some point (ex: because of fierce competitive forces)
- **Narrow Processes:** need to be actively monitored and subjected to continuous fine-tuning and updating (ex: how the same company deals with improvement suggestions of employees).

Example of SAP's Process Architecture

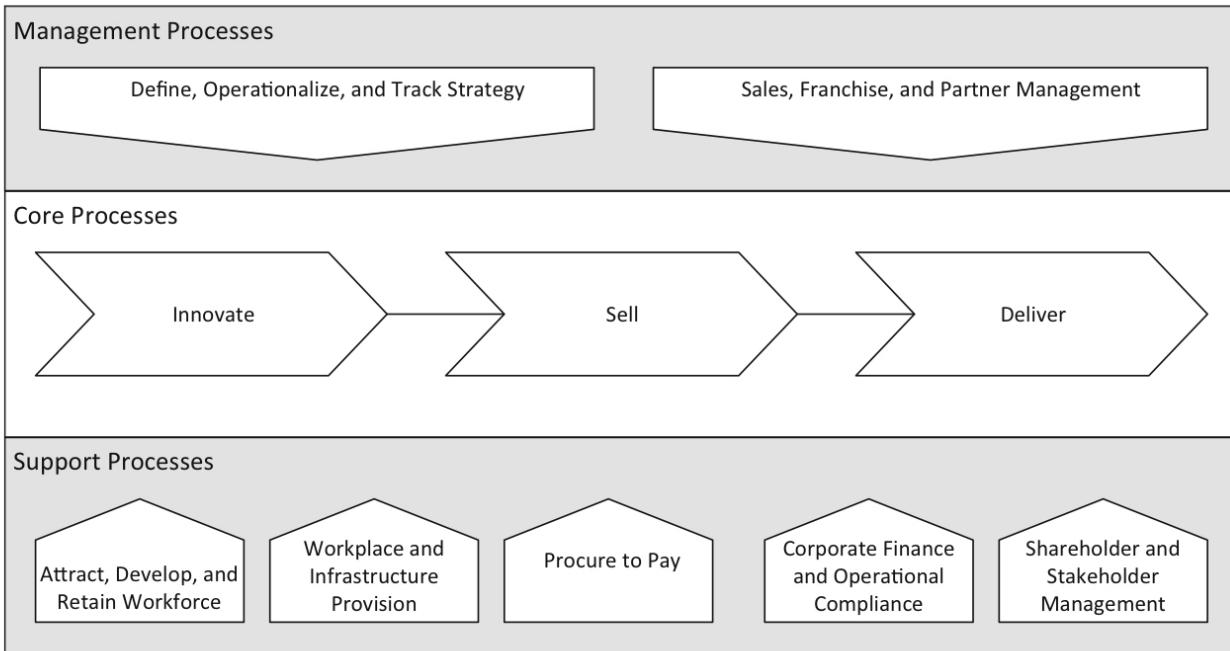


Fig. 2.9 The SAP process map describing the process landscape of the company [139]

Process Selection

- Not all processes are equally important, we must choose our priorities.

Selection Criteria

- Strategic Importance:**
 - Find out which processes have the greatest impact on the strategic goals.
 - Consider profitability, uniqueness, or contribution to competitive advantages.
 - Select those processes for process management that relate to strategy.
- Health:**
 - Determine which processes are in deepest trouble.
 - These processes may profit the most from BPM initiatives.
- Feasibility:**
 - Determine how susceptible process is to BPM initiatives, incidentally or continuously.
 - Culture and politics may be obstacles.
 - BPM should focus on those processes where it is reasonable to achieve benefits.

Process Performance Measures

The four dimensions

- Time:** a common performance measure is cycle time, the time that it takes to handle one case from start to end. We want to reduce cycle time a lot of times, we can focus on reduction of the average cycle time or maximal cycle time, processing/service time (the time that resources like process participants or software apps spend on handling the case) and waiting time (the time that a case spends in idle mode, includes queueing time, waiting time due to the fact that no resources are available).

available to handle the case and other waiting times for example because synchronization needs to take place).

- **Cost:** we focus on reducing cost.
 - **Fixed cost:** overhead costs not affected by the intensity of processing, use of infrastructure and maintenance of software cause these costs.
 - **Variable cost:** level of sales, number of purchased goods, number of new hires etc...
 - **Operational cost:** labor cost, cost related to human resources (automation may be a solution but careful with costs of that automation).
- **Quality:** measures used to capture external quality (client satisfaction - churn and net promoter) and internal quality .
 - **Churn rate:** when interfacing a customer on the net it is important to know how many customers do not complete their actions successfully.
 - **Net promoter score:** goes from 1 to 10 and captures how far customers would be willing to recommend a product or service, specifically for services it is directly connected with the business process behind it.
 - **Typical internal quality concerns:** the level that a participant feels in control of the work performed, the level of variation experienced and whether working within the context of the business process is felt as challenging.

External process quality usually comes measured in terms of time. Ex: the average cycle time or the percentage of cases where deadlines are missed.

- **Flexibility:** the ability to react to changes.
 - The ability of resources to execute different tasks within a business process setting;
 - The ability of a business process as a whole to handle various cases and changing workloads;
 - The ability of the management to change the structure and allocation rules;
 - The organization's ability to change the structure and responsiveness of the business process to wishes of the market and business partners.
 - **Runtime flexibility:** concerns the opportunities to handle changes and variations while executing a specific business process.
 - **Build-time flexibility:** concerns the possibility to change the business process structure.

Performance Objectives - Example

Example 2.3 Let us consider the following scenario.

A restaurant has recently lost many customers due to poor customer service. The management team has decided to address this issue first of all by focusing on the delivery of meals. The team gathered data by asking customers about how quickly they liked to receive their meals and what they considered as an acceptable wait. The data suggested that half of the customers would prefer their meals to be served in 15 min or less. All customers agreed that a waiting time of 30 min or more is unacceptable.

In this scenario, it appears that the most relevant performance dimension is time, specifically serving time. One objective that we can distill from the scenario is to completely avoid waiting times above 30 min. In other words, the percentage of customers served in less than 30 min should be as close as possible to 100%. Thus, the percentage of customers served in less than 30 min is a relevant performance measure. Another threshold mentioned in the scenario is 15 min. There is a choice between aiming to have an average meal serving time below 15 min or again, minimizing the number of meals served above 15 min. In other words, there is a choice between two performance measures: average meal delivery time or percentage of customers served in 15 min. □

This example illustrates that the definition of process performance measures is tightly connected with the definition of *performance objectives*. In this respect, one possible method for deriving performance measures for a given process is the following:

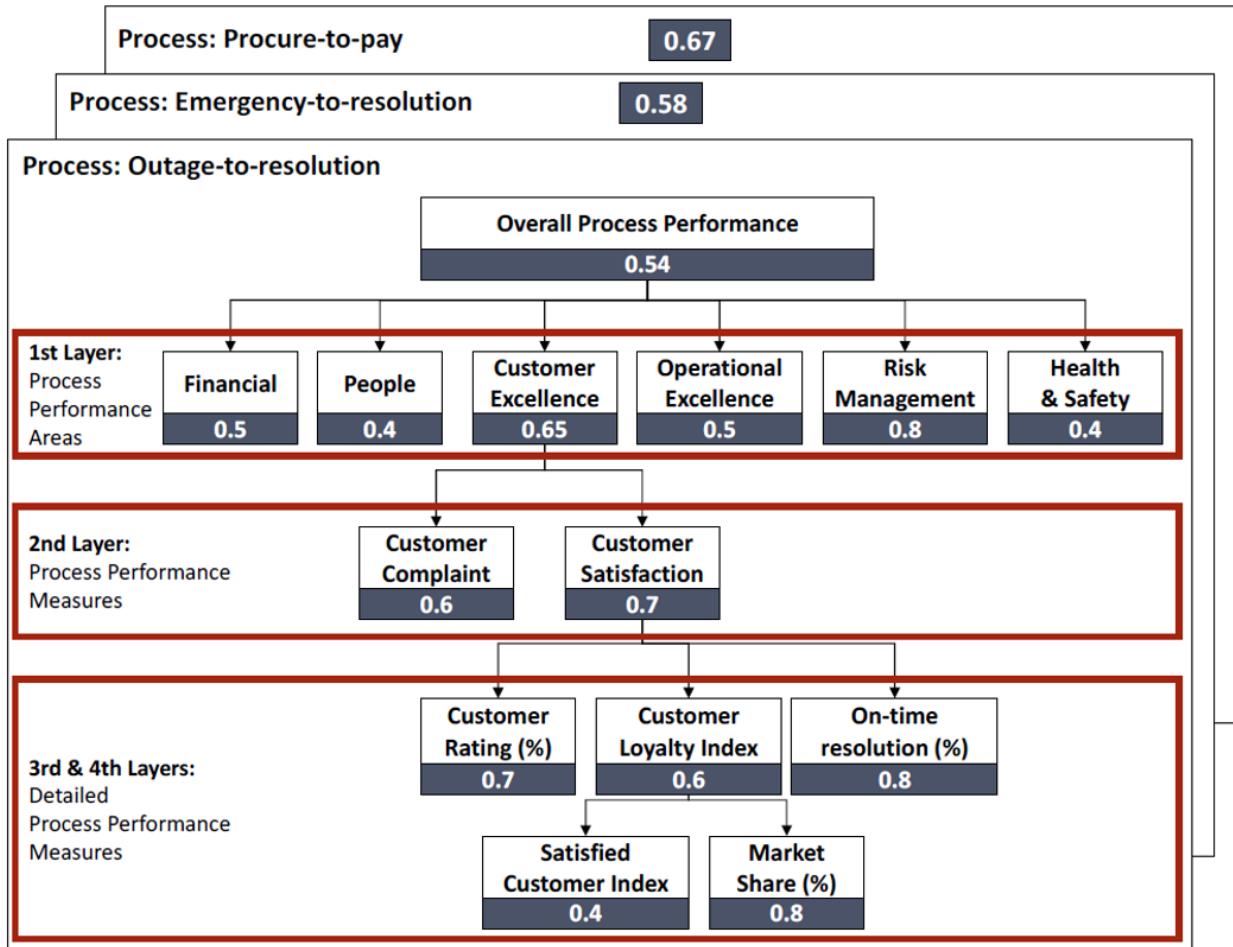
1. Formulate performance objectives of the process at a high level, in the form of a desirable state that the process should ideally reach, e.g., customers should be served in less than 30 min.
2. For each performance objective, identify the relevant performance dimension(s) and aggregation function(s), and from there, define one or more performance measures for the objective in question, e.g., the percentage of customers served in less than 30 min. Let us call this measure ST_{30} .
3. Define a more refined objective based on this performance measure, such as $ST_{30} \geq 99\%$.

During the redesign and implementation phases, a possible additional step is to attach a timeframe to the refined performance objective. For example, one can state that the above performance objective should be achieved in 12 months time. A performance objective with a timeframe associated to it is usually called a *performance target*. At the end of the chosen timeframe, one can assess to what extent the redesigned process has attained its targets.

Overall the redesign process has attained its targets.

Balanced scorecards with cascading process performance measures

- We obtain at level 3 and 4 a single health measure for each business process by aggregating measures.



Process Portfolio

- Refers to the visualization of the set of all processes by the help of different criteria.
- Builds on three criteria for each process:
 - Importance: assessed by senior managers in reference to the organization's strategy.
 - Health: quantified by calculating the difference between the objectives and actual values for the major process performance measures of each process.
 - Feasibility: assessment by the process owner.

- We get numerical values for each of the three criteria and can plot an process portfolio.

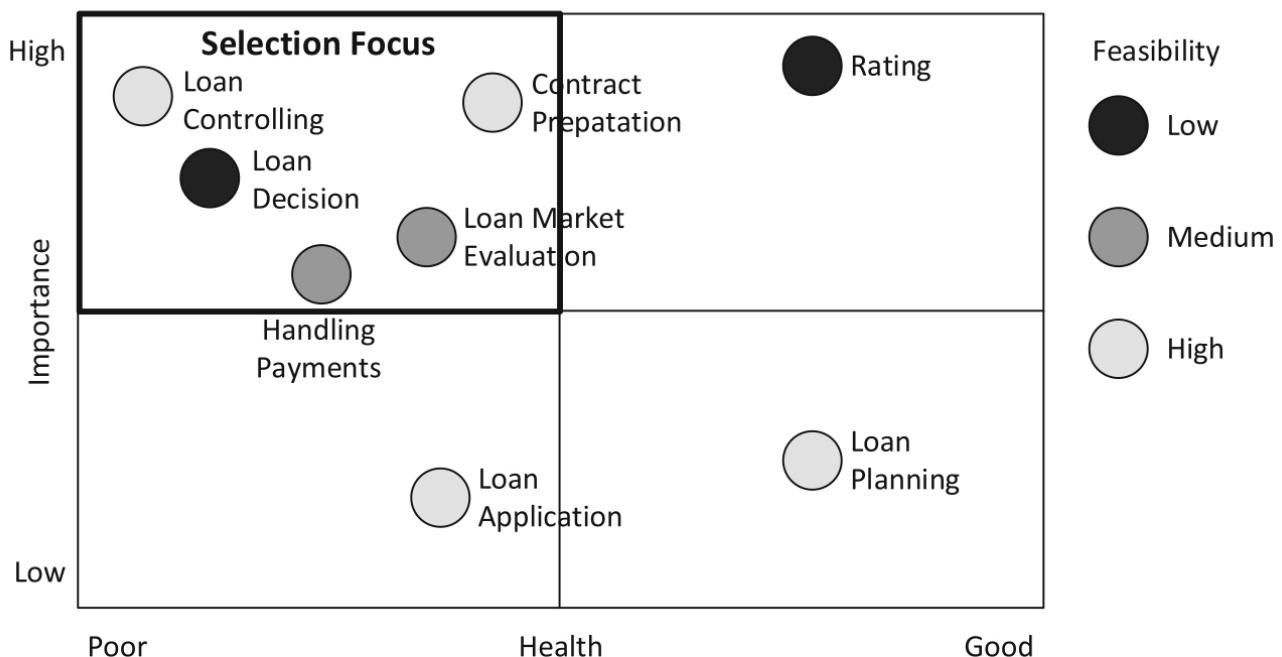


Fig. 2.11 Process portfolio of a financial institution

- Process selection should prioritize processes in the **left upper quadrant** but also take **feasibility** into account, don't choose too many processes because of time and cost constraints, only the most important ones. Start with a small number of processes and learn from them, **don't** tackle the first process that is the **most strategically important and the least healthy** for there are **high chances of failure**.