



Ingeniería de Procesos de Negocio

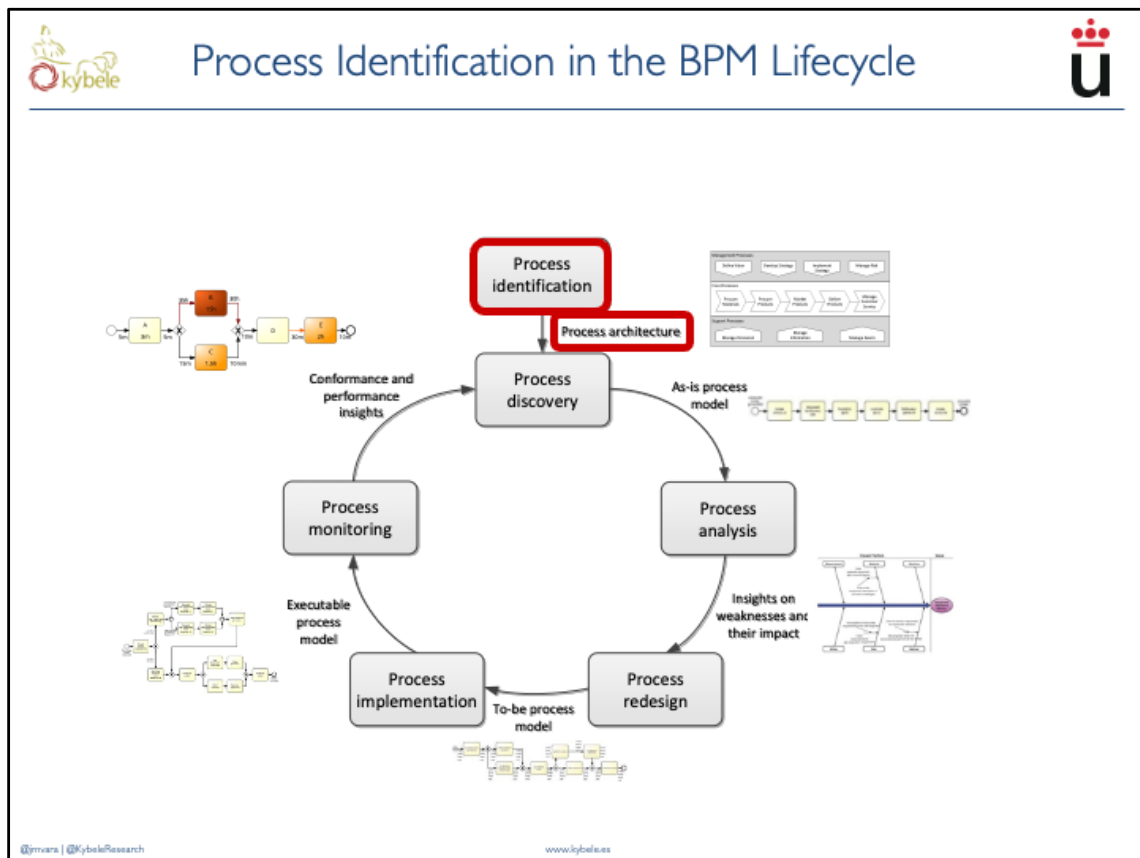
## Lecture 2-Process Identification

**Juan Manuel Vara**



Kybele Research Group | Universidad Rey Juan Carlos


@jmvara | @KybeleResearch | @ISE\_URJC

Source: M. Dumas, M. La Rosa, J. Mendling and H. Reijers, *Fundamentals of Business Process Management*, 2nd edition, Springer, 2018




- According to the BPM lifecycle we saw in the previous Lesson, we will now focus on Process identification
- **Process Identification** is a set of activities aiming to systematically define the set of business processes of a company and establish clear criteria for prioritizing them.
- The output of process identification is a *process architecture*, which represents the business processes and their interrelations.
- A process architecture serves as a framework for defining the priorities and the scope of process modeling and redesign projects.
- In this module, we start by discussing the context of process identification. Then, we present a method for process identification that is based on two phases: process architecture definition and process selection.
- The definition phase is concerned with the definition of an initial list of processes.
- The selection step considers suitable criteria for defining priorities of these processes. Using a portfolio.
- After that, we discuss and illustrate a method for turning the output of this method into a process architecture.

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## Definition of Business Strategy



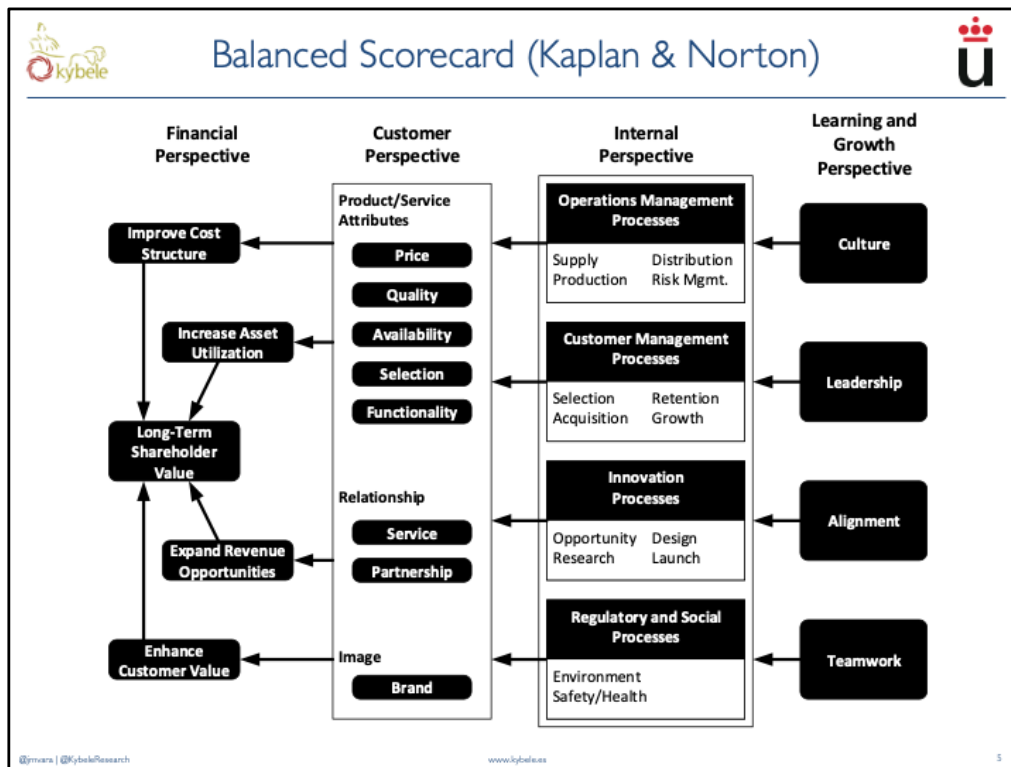
- **Business strategy is an organizational perspective on setting and meeting business goals. (Mintzberg)**

Things which matter most must never be  
at the mercy of things which matter least.


Johann Wolfgang von Goethe (1749–1832)

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- In order to understand the importance of process identification, we have to look at the strategic context of an organization
- Few organizations have the resources required to model all their processes in detail, to rigorously analyze and redesign each of them, to deploy automation technology for each of these processes, and finally to continuously monitor the performance of these processes in detail.
- And even if such resources were available, it would not be cost-effective to spend them in this way. BPM is not for free. Like any other investment, investments in BPM have to pay off. Thus, it is imperative for organizations engaged in BPM to focus their attention on a relevant subset of processes.
- Some processes need to receive priority because they are of strategic importance to an organization's survival. In this context, Mintzberg defined **Business Strategy** as an organizational perspective on setting and meeting business goals. Typically, it can be assumed that a business strategy exists and can be taken into account for process identification.



- Strategy can be operationalized in different ways. One prominent option is to define business goals using the structure of a *Balanced Scoreboard*, like the one in the picture, which uses the *strategy map* of Kaplan & Norton.
- The explicit representation of the strategy in such a way is also often referred to as the **business model** of a company. Let's have a look at it:
- Long-term shareholder value is assumed as a generic and overarching corporate goal in this setting.
- In the financial perspective, this goal is broken down into the four subgoals of improving the cost structure, increasing asset utilization, expanding revenue opportunities, and enhancing customer value.
- These financial goals are presumably influenced by factors of the customer perspective. The concept of a customer value proposition posits that the product and service-related attributes of *price*, *quality*, *availability*, *selection* and *functionality*, *service* and *partner relationships*, as well as *brand* image are valued by customers.
- For instance, a company used to selling books in shops and now making them available on Amazon could improve its customer value proposition, because it becomes easier to order (availability)
- The customer perspective is influenced by the internal perspective as defined by processes of operations management, customer management, innovation, and regulatory compliance. This means that, for example, offering cheap books as a product-related proposition should be consistent with cheap production processes on the operations management level.
- The capability of setting up efficient and effective processes in the internal perspective is ultimately influenced by human capital, information capital, and organizational capital in the learning and growth perspective.
- The balanced scorecard underlines the importance of business processes for implementing the business strategy. Business processes build on human, information, and organization capital and provide the basis for the customer value proposition, which will eventually result in financial success. This means, implementing the strategy requires transparency of business processes and their contribution to strategic goals.




## 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.

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- The strategic importance is just one consideration for looking at processes. For example, two processes can be of equal strategic importance, but only one of them might show stinking problems, which should be resolved for the sake of all involved stakeholders.
- In order to trace problems of processes, we need to understand how processes are related to other perspectives of an organization. The balanced scorecard emphasizes the causal relationship between different goals of an organization.
- In contrast, the Enterprise architecture describes the structural dependencies between different perspectives of the organization. Different frameworks are used for describing enterprise architectures, among others **The Open Group Architecture Framework (TOGAF)**<sup>1</sup> which defines the following perspectives:
  - *Organizational perspective*: describing actors, roles, and organizational structure by use of *organization charts*
  - *Product perspective*: defining the products and services an organization offers, along with their relationships by use of *product and service catalogs*.
  - *Business process perspective*: described using a *process architecture*.
  - *Data perspective*: including the Informational entities and their relationships as described by a *data model*.
  - *Application perspective*: describing the different pieces of software with their dependencies by use of an *application model*.
  - *Technical infrastructure*: often with an emphasis on computer hardware and communication networks, as described by an *infrastructure model*.
- The point of an enterprise architecture is that business process play a central role for integrating these different perspectives of the enterprise. An enterprise architecture does not only describe these perspectives separately, but it also defines their connections. If systematically documented, a manager might use an enterprise architecture documentation to answer the following questions,



## Exercise



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- **Exercise 2.1** See "Example 1.1 - BuildIT Procure to Pay Process"
  - Consider the construction company BuildIT and its procure-to-pay process
    - To which category in the internal perspective of the balanced scorecard does this process belong?
    - How does it influence different aspects of the customer perspective?
    - How is it shaped by aspects of the learning and growth perspective?
  
- **Exercise 2.2**
  - Which aspects in the organizational, product, data, application, and technical infrastructure perspectives have to be described to understand this process?

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## Changes of Strategic Relevance: Mannesmann




19th century




20th century





1990

- Sources: stahlseite.de, Copyright Uwe Niggemeier, deutsches-telefon-museum.eu, ebay-kleinanzeigen.de, wanne-eickel-historie.de


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- It is worth noting that there also dynamics outside of the organization. Market demands may change and new regulations or the introduction of new products may limit what was once a profitable business activity.
- For example, the arrival of new competitors offering discount insurance policies through the web-based channels may push and established company to redesign its insurance sales processes to make them leaner, faster and accessible from the web.
- Changes of the strategic relevance of certain process are often slow, but they can be drastic.
- For instance, Mannesmann was a German industrial conglomerate. It was originally established as a manufacturer of steel pipes in 1890 under the name "Deutsch-Österreichische Mannesmannröhren-Werke AG". (Loosely translated: "German-Austrian Mannesmann pipe mills AG"). In the twentieth century, Mannesmann's product range grew and the company expanded into numerous sectors – starting from various steel products and trading to mechanical and electrical engineering, automotive and telecommunications.
- From 1955, the conglomerate's management holding with headquarters in Düsseldorf was named Mannesmann AG.
- The particular success of the corporate activities in the area of telecommunications that started in 1990 was the predominant reason for the takeover of Mannesmann by the British telecommunications company Vodafone in 2000 – still one of the largest-ever company takeovers worldwide.
- Back then, the Mannesmann Group had 130,860 employees worldwide and revenues of €23.27 billion.
- The story of Mannesmann illustrates that the strategic importance of different processes may drastically change over a long period of time.





## The Process Checklist



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- 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, which is 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.
  - **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?**
    - Rule of thumb: there should be at least three different actors – excluding the customer – involved.
    - If there are no handoffs between multiple actors or systems, there is little that can be improved using BPM methods.



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- To be able to focus on a subset of key processes the stakeholders engaged in a BPM initiative need to have answers to:
  - What processes are executed in the organization?
  - Which ones should the organization focus on?
- The Process Checklist helps to identify what is a process when answering these two questions:
- **Is it a process at all?** Not everything is a process, a department for instance, is not a process. Neither is a manage or an e-mail. For any *proper* process, it must be possible to identify *main action*, which is applied to a *category of cases*.
- For example, we can identify the BP *approve – leave requests*. Note how this takes the form Verb + noun
- **Can the process be controlled?** A proper way of looking at processes is to see them as a 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. The Mars Orbiter Mission, for instance, is a unique endeavor, not a BP, considering the currently scares space trips to Mars.
- **Is the process important enough to manage?** Clear indications for at least a minimum importance of a process are that:
  - 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.
- If none of these apply, the BP may be safely disregarded.
- **Is the scope of the process not too big?** Care should be taken that the activities that are considered to be within the scope of the process really contribute to its purpose. A good check for this is to confirm whether there is a 1:1 relation between initial event and activities. For instance, cleaning the work floor for a bike factory may take place periodically, so it is probably outside of the make-to-order process of the bikes factory.
- **Is the scope of the process not too small?** One can sometimes come to micro-BPs, which are not worth managing as process at all.
  - A rule of thumb: there should be at least three different actors – excluding the customer – involved.
- If there are no handoffs between multiple actors or systems, there is little that can be improved using BPM

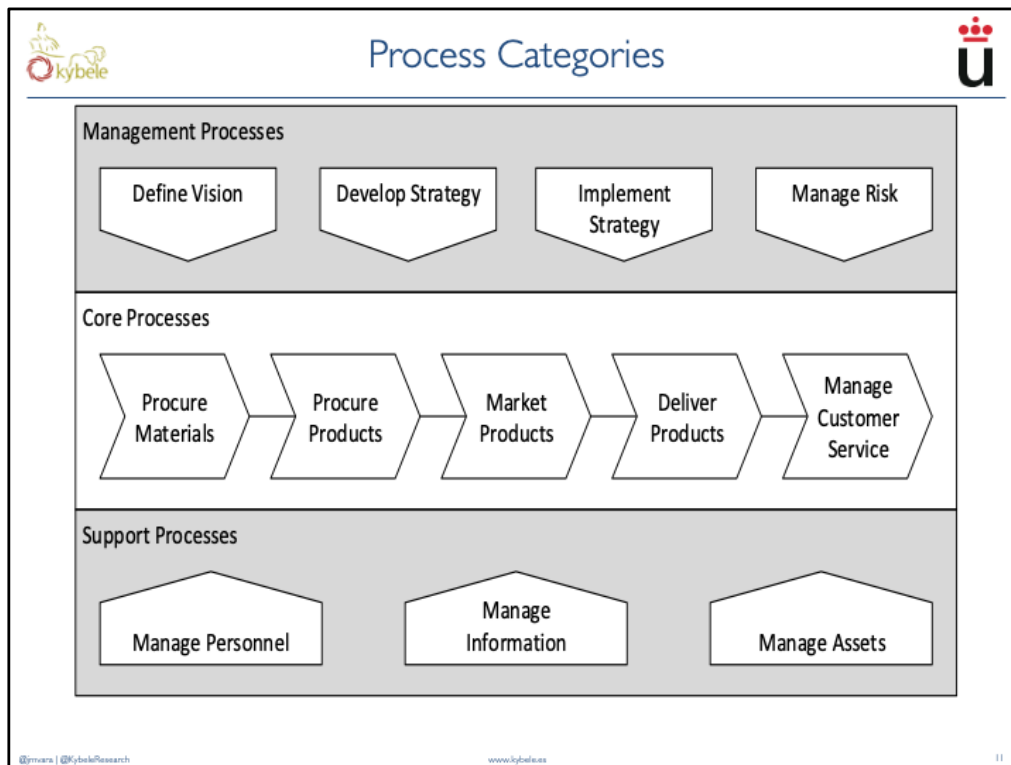


methods.



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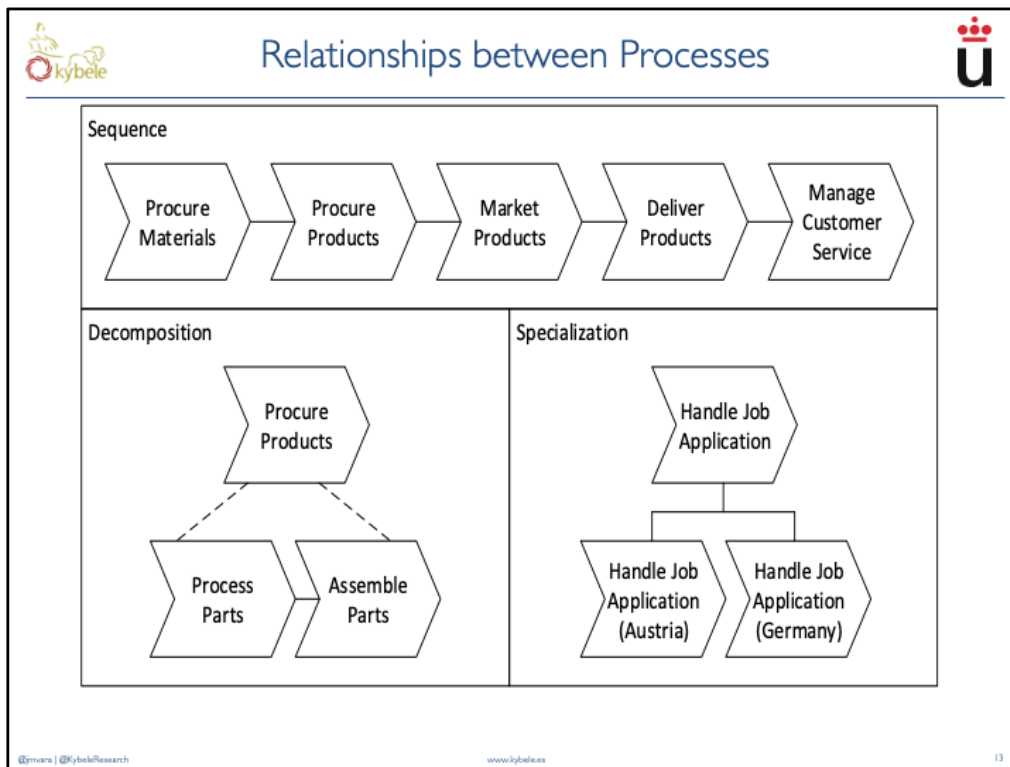
- The aim of process architecture is to provide a representation of the processes that exist in an organization. In order to define it, one has to face with the complexity of the whole organization.
- In order to approach this complexity in a systematic way, we first differentiate categories of processes.



- There are various ways on how to categorize BPs. Some of these support the idea that there are actually very few processes within any organization.
- For example, some researchers have argued for the existence of only two processes: managing the product line and managing the order cycle.
- Others identify at least three major processes: developing new products: delivering products to customers; and managing customer relationships.
- One of the most influential categorization schemas is Porter's Value Chain model. It originally distinguished two categories of processes: core processes (Called primary activities) and support processes (support activities). Management processes were added as a third category.
- **Core processes** cover the essential value creation of a company, that is, the production of goods and services or which customers pay. These include design and development, manufacturing, marketing, and sales, delivery, after-sales, and direct procurement (i.e., sourcing required for the making of products or the delivery of services)
- **Support processes** enable the execution of these core processes. These include indirect procurement (i.e., sourcing of furniture, hardware, stationery, etc.) human resource management, information technology management, accounting, financial management, and legal services.
- **Management processes** provide directions, rules, and practices for the core and support processes. These include strategic planning, budgeting, compliance and risk management, as well as investors, suppliers, and partners management
- The distinction of core, support, and management processes is of strategic importance to a company.
- The slide shows the example of a production company and a high-level representation of its processes (*process landscape model*), which describes the most abstract view of the process architecture. The symbol used for core processes is called *chevron* and modelling processes as a sequence of sub-processes shown as chevrons is often called *value-chain modeling*. For a better visual distinction, support processes are shown with upwards pointing blocks and management process with downward pointing blocks.

- **What are core, support, and management processes of a university?**

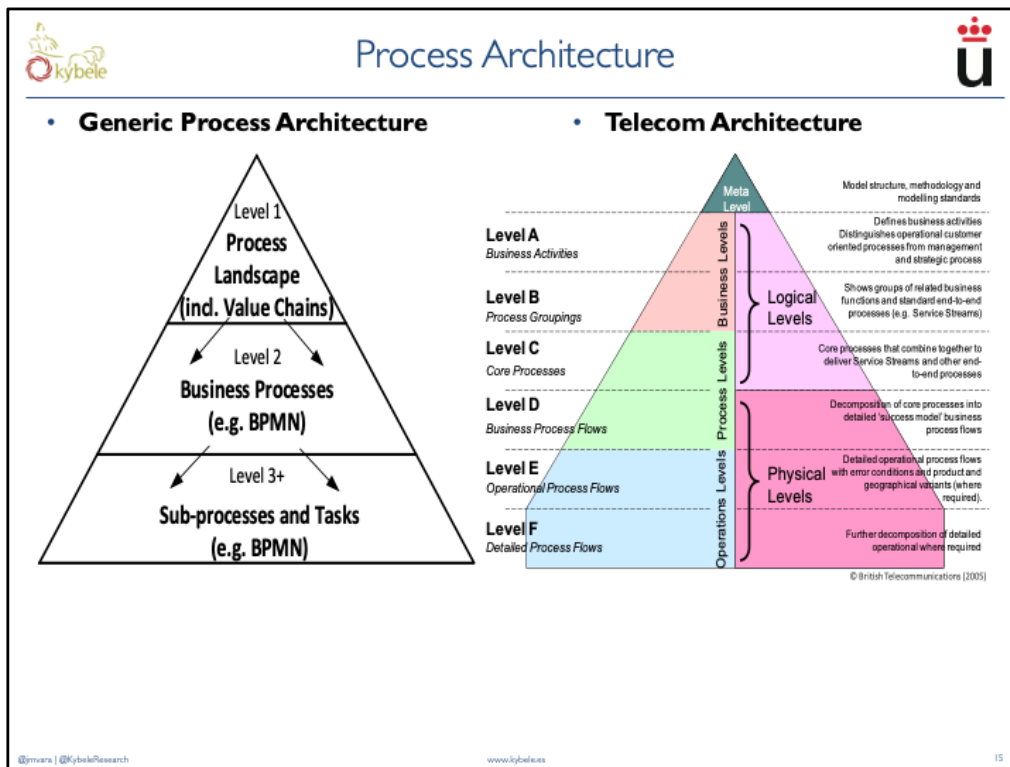




- For a process architecture, we can distinguish three types of relationships between processes:
- **Sequence:** this relationship describes that there is a logical sequence between two processes. Sequence is also referred to as horizontal relationship. For instance, processes can be in a consumer–producer relationship. This means that one process provides an output that the other process takes as an input.
- Remember that in the first module, we distinguished the quote-to-order and the order-to-cash processes. The output of the first one (the order) is the input to the second one.
- Also the example in the slide shows that the core processes are in a sequential relationship from Procure Materials to Produce Products, Market Products, Deliver Products, and eventually Manage Customer Service. The object that is passed between the sequential processes characterizes the relationship.
- **Decomposition:** This relationship describes that there is a decomposition in which one specific process is described in more detail in one or more subprocesses. Decomposition is also referred to as a vertical or hierarchical relationship. For instance, the Produce Products process the slide can be described in more detail including the different activities that have to be executed to bring it to a successful completion. Decomposition is often used as the primary relationship that defines the structure of the process architecture.
- Next idea illustrates this idea: at the most abstract level of the process architecture, we define a process landscape like the one above. Each element of this process landscape model is decomposed into a more detailed process on the next level.
- **Specialization:** This relationship describes that there exist several variants of a generic process. For instance, there might be a generic process for handling job applications in a multi-national company. Since there are different legal constraints on this process in different countries, there will be, for example, one variant of this process for Austria and one for Germany (see the slide).
- Variants are not only defined for different legal contexts, but also for different categories of products or services and for different types of customers or suppliers. Our production company offers different products, and naturally the production process for these products varies. All of these different production variants refer to the single “Procure Products” element in the slide.
- Value chains can be systematically described by the help of these relationships To this end, we can first identify generic processes and then ask ourselves of which sequences they are composed. For example, consider an organization that has a generic process called order management. Its value chain includes order booking, billing, shipment, and delivery. Among each other, these processes are related in a sequential way. With respect to the generic order management process, they are decompositions. Furthermore, we call billing an upstream process of shipment: for the same order, the bill is sent out usually before the ordered goods are shipped. In the same way, shipment can be considered a downstream process of billing.

- **At this point, we discussed sequence, decomposition, and specialization relations between business processes.**
  - Can you think of other types of relations that are useful to distinguish between processes?
  - Hint. Think about the purpose of identifying the relations between business processes





- The definition of a process architecture often proceeds in a top-down fashion, as illustrated by the pyramid in the left of the slide.
- The starting point is the process landscape on Level 1 that shows the value chains of the company.
- Level 2 provides a decomposition for each business process of the value chains.
- Level 3 provides a further decomposition down to sub-processes and tasks.
- The arrows in the figure indicate these decompositions.
- **Question:** Should a process architecture have three levels like in the figure? or more? Or maybe less?
- First, it has to be noted that a level should be defined with respect to a specific purpose. This has often the implication that modeling concepts are tailored utilized to specifically address this purpose.
- For example, the Figure emphasizes that processes on Level 1 are often modeled as so-called value chains while processes on Levels 2 and 3 are modeled with BPMN.
- Second, the different requirements for a process architecture depend on the overall approach to business process management.
- The figure on the right shows the example of the process architecture as defined by British Telecom in 2005. Here, six levels were defined down to a detailed operational level. Note that organizations will often define their own terms for these levels. For example, the term “Core Process” as used by British Telecom for processes on Level C is related, but not identical to the definition by Porter.



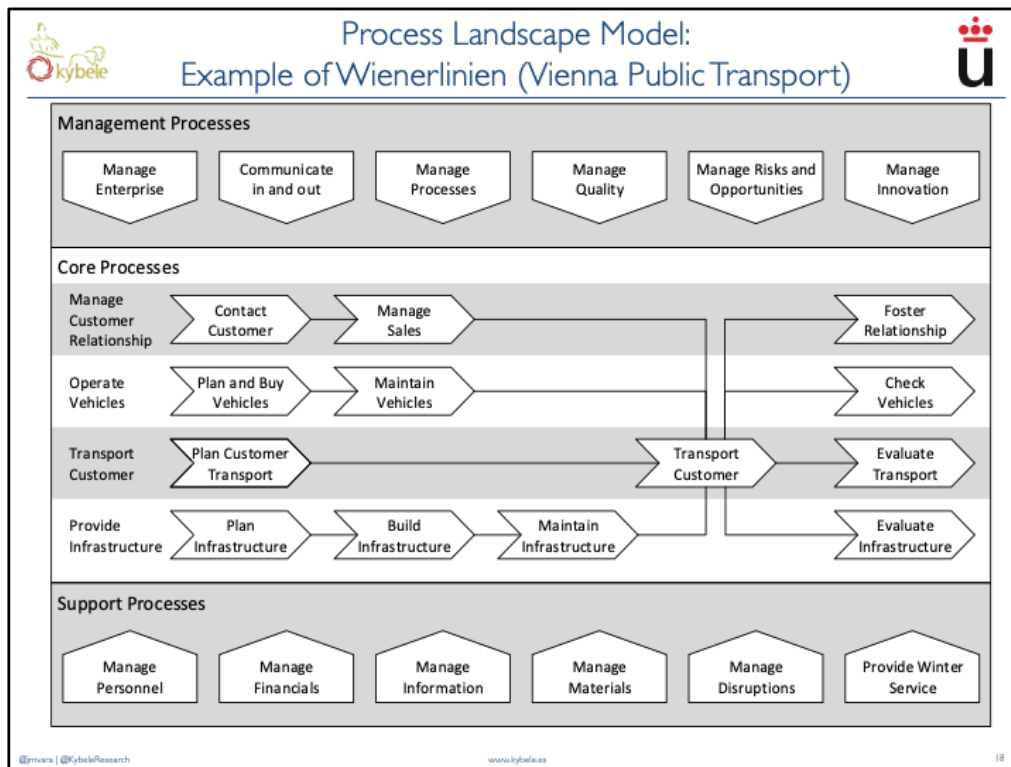
Reuse of Reference Models		u
<p><b>1.0 Develop Vision and Strategy</b></p> <p>1.1 Define the business concept and long-term vision 1.2 Develop business strategy 1.3 Execute and measure strategic initiatives</p> <p><b>2.0 Develop and Manage Products and Services</b></p> <p>2.1 Govern and manage product and service development program 2.2 Generate and define new product and service ideas 2.3 Develop products and services</p> <p><b>3.0 Market and Sell Products and Services</b></p> <p>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</p> <p><b>4.0 Deliver Physical Products</b></p> <p>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</p> <p><b>5.0 Deliver Services</b></p> <p>5.1 Establish service delivery governance and strategies 5.2 Manage service delivery resources 5.3 Deliver service to customer</p> <p><b>6.0 Manage Customer Service</b></p> <p>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</p> <p><b>7.0 Develop and Manage Human Capital</b></p> <p>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</p> <p><b>8.0 Manage Information Technology (IT)</b></p> <p>8.1 Manage the business of information technology</p>	<p>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</p> <p><b>9.0 Manage Financial Resources</b></p> <p>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</p> <p><b>10.0 Acquire, Construct, and Manage Assets</b></p> <p>10.1 Plan and acquire assets 10.2 Design and construct productive assets 10.3 Maintain productive assets 10.4 Dispose of assets</p> <p><b>11.0 Manage Enterprise Risk, Compliance, Remediation and Resiliency</b></p> <p>11.1 Manage enterprise risk 11.2 Manage compliance 11.3 Manage remediation efforts 11.4 Manage business resiliency</p> <p><b>12.0 Manage External Relationships</b></p> <p>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</p> <p><b>13.0 Develop and Manage Business Capabilities</b></p> <p>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)</p>	<p>APQC Process Classification Framework</p>
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- Often, process analysts find it difficult to identify processes of an organization and the levels of a process architecture. It might be helpful to use reference models as an aid. These reference models are developed by a range of industry consortia, non-profit associations, government research programs, and academia.
- The best known examples are the Information Technology Infrastructure Library (ITIL) by AXELOS4, the Supply Chain Operations Reference Model (SCOR) by APICOS Process Classification Framework (PCF) by the American Productivity and Center (APQC), and the Performance Framework by Rummler & Brache
- The excerpt in the Table shows Level 1 and Level 2 of APQC's PCF four levels: the categories (in bold) and the corresponding process groups.
- Reference models standardize what can be seen as different processes, with unique characteristics delivering distinguishable products, and how their performance can be measured.
- For example, when a company like BuildIT wants to create a process architecture for the first time, they can use the PCF as a reference. First, they would check each category and decide if it is relevant for them. Then, they would continue to do the same check for each process group inside of the relevant categories, and so forth. Second, BuildIT would double-check if some of their processes are still missing and add them. Third, they might partially adjust terminology and replace generic terms of PCF with terms that are more common within BuildIT.
- The reuse of reference models provides several benefits.
  - First, reference models can serve as a starting point to develop a classification of major process areas. In this way, they directly support the identification of regulatory or highly industry-specific processes. This makes it also easier to benchmark with peers and competitors.
  - Second, reference models may be useful to check the completeness of the processes identified by an organization. For example, an organization can use the APQC's PCF to inventory the processes they use, flag those they do not use, and add its own unique processes.
  - Third, reference models provide a standardized vocabulary that is useful for labeling processes. In fact, terms may not always be precisely defined when process identification is conducted for the first time in an organization. Different stakeholders may use heterogeneous terminology. Homonyms and synonyms pose a challenge in this context. For example, what is called "acquisition" in one part of the organization may be called "market survey" in another (synonym). At the same time, the term "implementation" may represent different activities: one may represent the implementation of software, while the other represents the implementation of new regulations in the organization (homonym). Apart from being aware of the various terms that are being used, an intricate understanding of the operations of an organization is important to sort these issues out.
- Reference models like APQC's PCF can help us to avoid terminological issues right from start. Note that there are several




more specialized versions of the PCF, for example for automotive, for banking, and for retail.


- Which APQC categories on Level I are relevant for a construction company like BuildIT?



- The model of the process architecture that covers the processes on Level 1 is known as the **process landscape model** or simply the process architecture for Level 1. It shows the core processes on a very abstract level. Each of the elements of the process landscape model points to one or more detailed business processes on Level 2.
- The definition of a process landscape model is the most important challenge for the definition of the process architecture. The process architecture on Level 1 has to be understandable by all major stakeholders in the first place.
  - As a rule of thumb, it should be compact, showing no more than 20 business processes of an organization.
  - Further, it has to be sufficiently complete such that all employees of the organization can relate their daily work to it, and accept it as a consensual description of the company.
- Therefore, it is important to define the process architecture in a systematic way, with a specific focus on the derivation of the process landscape model.
- Figure shows the example of a process map of Vienna's public transport operator Wiener Linien.
- We see that the categories of core processes, support processes, and management processes were used. It is interesting to note that the core processes are subdivided into different end-to-end processes: manage customer relationship, operate vehicles, transport customer, and provide infrastructure. Visually, these are shown as process groups. Organizations often have more than one end-to-end process, such that different sequences are shown in the process landscape's category of core processes.
- The definition of a process landscape model requires the involvement of major stakeholders of the organization, either using interviews or, preferably, using a workshop setting. The contributions of the stakeholders are required in order to establish the legitimacy of the resulting model. For this reason, it is important that all senior executives are involved.




## How to define Process Landscape Model




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

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- Once the commitment of the stakeholders is secured, there are several steps that help us to define the process landscape model in a systematic way. We present these steps as a sequence, but note that in practice there will be jumps back and forth with iterations.
- **1. Clarify terminology:** The key terms to be used in the process landscape model should be defined. Often, there exists already an organizational glossary, which can be used as a reference. Reference models are also useful to support this step. The definition helps to make sure that all stakeholders have a consistent understanding of the process landscape model to be defined.
- **2. Identify end-to-end processes:** End-to-end processes are those processes that interface with customers and suppliers of the organization. The goods and services that an organization provides to customers or procures from suppliers are a good starting point for this identification, since they are explicitly defined in most organizations. Several properties help us to distinguish end-to-end processes, including:
  - Product type: This property identifies types of products that are produced in a similar way. For instance, at this abstract level, an automotive company might distinguish cars from trucks.
  - Service type: This property identifies types of services that are produced in a similar way. For instance, a software vendor might distinguish purchased software from software-as-a-service.
  - Channel: this property represents the channels through which the organization interacts with its customers. For example, an insurance company might separate its Internet offerings from its offerings via intermediary banks.
  - Customer type: This property represents the types of customer that the organization deals with. A bank might, for instance, distinguish wealth customers, private banking customers, and retail customers.
- The identification of end-to-end processes combines an **external view of what the provisions** of the organization are from the view of the customer, and **an internal view** of how these are created. The selection of the listed properties should be driven by the idea to only define separate end-to-end processes when their internal behavior is substantially different. Those end-to-end processes that are shown on the process landscape model represent the value chains of the organization.



## How to define Process Landscape Model



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- **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.

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- **3. For each end-to-end process, identify its sequential processes:** For this step, it is important to identify the internal, intermediate outcomes of an end-to-end process. There are different perspectives that help setting the boundaries of processes:
  - **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 signs 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 one hiring condition for splitting up; for example, when several job applications lead to Separation: Different stages of a process can also be defined by a temporal, spatial, logical, or other type of separation. Often, these separations define processes. handoffs, and major handoffs are suitable points to distinguish sequential processes.
- The identification of business processes is closely connected with the internal view of an end-to-end process. It is also referred to as the identification of internal functions, because there typically exist functional units in



the organization in divisions or departments that are responsible for particular business process



## How to define Process Landscape Model




---

- **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.


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- **4. For each business process, identify its major management and support processes:** The question for this step is what is required in order to execute the previously identified processes. Typical support processes, as also shown in the previous figure, are management of personnel, financials, information, and man Note, however, that these support processes can be core processes if they a integral part of the business model. For a staff-borrowing company, per generic. management is a core process. However, management processes are usually generic.







## How to define Process Landscape Model





- **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.
- **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.
- **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

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- **5. Decompose and specialize business processes:** Each of the business processes of the process landscape should be further subdivided into an abstract process on Level 2 of the process architecture. Also further subdivision to Level 3 might be appropriate until processes are identified that can be managed autonomously by a single process owner. There are different considerations when this subdivision should stop:
  - 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.
- **6. Compile process profile:** Each of the identified processes should not only be modeled, but also described using a process profile. This process profile supports the definition of the boundaries of the process, its vision and process performance indicators, its resources, and its process owner. Figure in the next slide shows an example of a process profile of BuildIT's procure-to-pay process.
- **7. Check completeness and consistency:** These checks should build on the following inputs. First, reference models can be used to check whether all major processes that are relevant for the organization are included. Reference models can also help us to check the consistency of the terminology. Second, it should be checked whether all processes can be associated with functional units of the organization chart and the other way around.

 <span style="font-size: 1.2em;">Process profile of BuildIT's procure-to-pay process</span> 	
<b>Name of Process:</b> Procure-to-Pay	
<b>Vision:</b> 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.	
<b>Process Owner:</b> Chief Financial Officer (CFO)	
<b>Customer of process:</b>	<b>Expectation of customer:</b>
<ul style="list-style-type: none"> <li>• Requesting unit</li> </ul>	<ul style="list-style-type: none"> <li>• Timely, economic and complete provision</li> </ul>
<b>Outcome:</b> Delivered products or provided services for the requested unit	
<b>Trigger:</b> Need is identified	
<b>First activity:</b> Submit Request	
.....	
<b>Last activity:</b> Create Purchase Order	
<b>Interfaces inbound:</b> Plan-to-Procure	
<b>Interfaces outbound:</b> Construct-to-Complete	
<b>Required resources:</b>	
<ul style="list-style-type: none"> <li>• Human resources: Site Engineer, Clerk, Works Engineer</li> <li>• Information, documents, know-how: procurement guidelines, supplier rating, framework contract</li> <li>• Work environment, materials, infrastructure: Procurement information system</li> </ul>	
<b>Process Performance Measures:</b>	
<ul style="list-style-type: none"> <li>• Cycle Time</li> <li>• Operational Costs</li> <li>• Error Rate</li> </ul>	

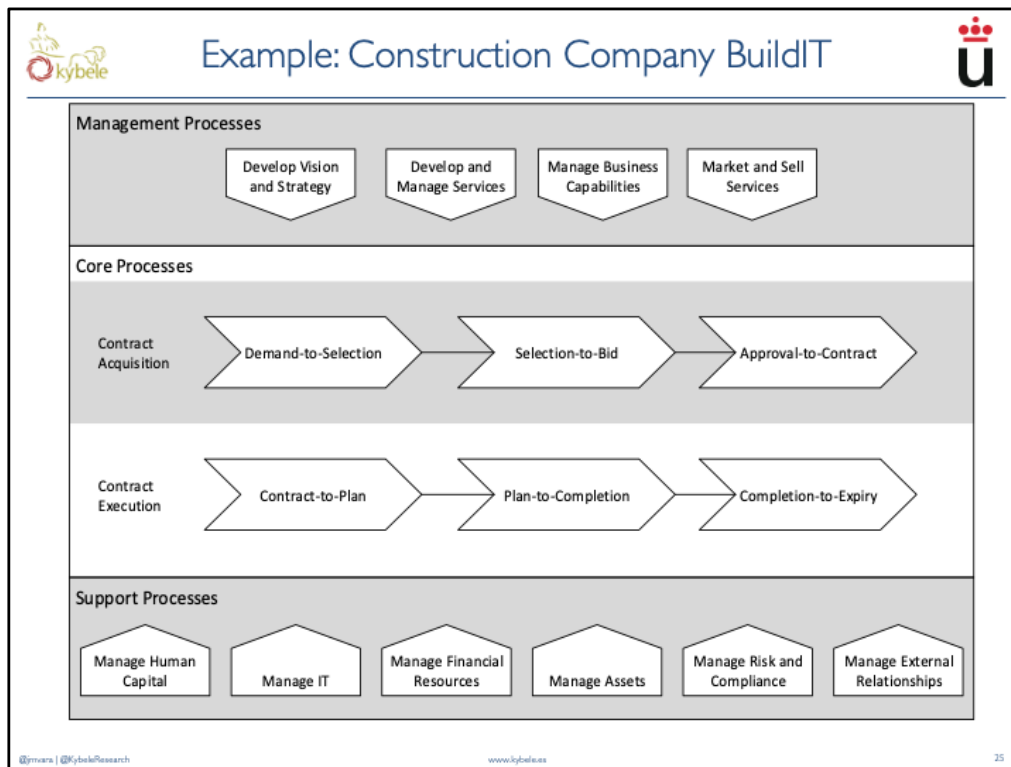


### Example: Construction Company BuildIT

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

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- 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.




- 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, APCQ'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 "products and services", BuildIT only refers to "services". The core processes, the end-to-end value chain are replaced by the more specific descriptions of the construction business from above.
  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 APCQ 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.
  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 page 23.
  7. Check completeness and consistency:
    - Finally, we have to check if all major departments of BuildIT are represented. The result is shown in the Figure above.

- Create a process landscape model for a university by applying the seven steps described in this section. Use the APQC Process Classification Framework as an aid





## Broad and Narrow processes



- It may be useful to identify both **broad** and **narrow** processes.
  - Broad processes
    - Where an organization feels it is important to overhaul the existing operations at some point.
  - Narrow processes
    - Not targeted for major overhauls
    - Need to be actively monitored
    - Subject to continuous fine-tuning and updating

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- To balance the advantages and disadvantages of a large process scope, Davenport states that it may be useful to identify both **broad** and **narrow** processes.
- Broad processes are identified in those areas where an organization feels it is important to overhaul the existing operations at some point, for example because of fierce competitive forces. For example, an organization may have found out that its procurement costs are overly high compared to its competitors. Accordingly, it selects procurement as a broad process, which covers all of the services and products the company acquires from other parties.
- By contrast, narrow processes are not targeted for major overhauls; they need to be actively monitored and are subjected to continuous fine-tuning and updating. A narrow process may be, for example, how the same company deals with improvement suggestions of employees.




## Exercise 2.7: Manageability and Impact



- Explain how the trade-off between impact and manageability works out for broad and narrow processes, respectively.



## Thoughts on Process Architecture

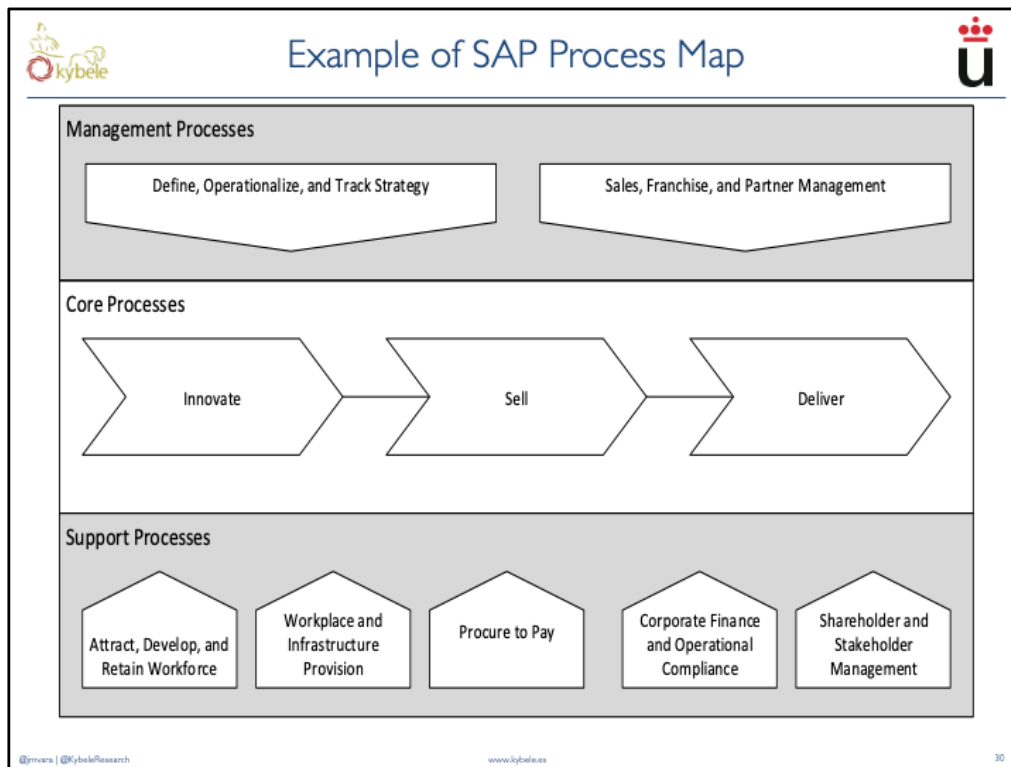


- **Aim at a reasonably number of processes to deal with**
- **Maintain consistency as time goes by**
- **Not a one-time job**
  - Cyclical and incremental process

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- Any enumeration of business processes should **strive for a reasonably detailed outcome**, which needs to be aligned with the organization's specific goals of process management. For most organizations, as a rule of thumb, this will boil down to a couple of dozen business processes. Very large and diversified organizations might be better off with identifying a couple of hundred processes.
- As an example, consider the multinational software vendor SAP that has identified one thousand different business processes. Each of these business processes is assigned to a process owner, who oversees the performance of the process and monitors the achievement of its objectives in terms of profitability, compliance, and accountability. Detailed process models are kept up-to-date, both as a means for documenting planned changes to any process and for satisfying the requirements of reporting.
- By contrast, for a small medical clinic in The Netherlands, which employs medical specialists, nurses, and administrative staff, 10 different treatment processes have been identified. A few of these have been mapped in the form of process models and are now in the process of being automated with a business process management system. For all other processes, it is sufficient to be aware of the distinctive treatment options they can provide to different patient categories.
- Finally, it is worth emphasizing again with respect to the design of the process architecture that **processes change over time**, deliberately or not. Change naturally implies that process identification is a continuous pursuit. There are organizations that have defined governance procedures to continuously update their process architecture. In case such procedures are not in place, a process architecture may well be usable for a period of time (e.g., 2–3 years) and should then be revised.
- Clearly, given the extent and depth of of a process architecture, coming up with a comprehensive architecture is **hardly achieved in one go**. Practically, this can done by applying incremental extensions and updates as part of each new BPM project, especially as far as the hierarchical perspective of the process architecture is concerned.
- For example, a project to manage the claims handling process of an insurance company will use the process architecture to determine which support and management processes should also be considered. Then, as the project is executed and sub-processes and individual activities within the claims handling process are discovered, this information is used to update the process architecture.






### The example of SAP's Process Architecture


- SAP is one of the largest software vendors worldwide. Its ambition is to help its customers to streamline their processes, such that they are able to predict customer trends based on live data. SAP also has an internal unit that is responsible for business process management, organizing the processes in which more than 87,000 employees of SAP work.
- Figure shows the model of Level 1 of SAP's process architecture. It distinguishes ten major processes: two in the category management processes, three core processes, and five support processes. The core processes Innovate, Sell, and Deliver are part of an overarching end-to-end process. To a certain extent it is inspired by the product lifecycle view of innovating, selling, and delivering software solutions. An important aspect of SAP's process architecture is that it defines three levels.
- Those processes on Level 1 shown in the Figure are subdivided into more detailed processes on Level 2 and Level 3 using the same value-chain notation with chevron symbols as used for the sequence of core processes.
- For example. there is a sub-process on Level 2 called Order-to-Cash that belongs to the Sell process. This is further refined on Level 3. As a result, there are roughly 1,000 processes on Level 3. A process is only specified on this level if it generates more than € 1 million cost or returns, if it is relevant to compliance, or if it directly supports a core process. All text labels of the process architecture are in line with company terminology.

	Contents	
	<ul style="list-style-type: none"><li>• <b>The Context of Process Identification</b></li><li>• <b>Definition of the Process Architecture</b><ul style="list-style-type: none"><li>– Process Categories</li><li>– Relationships Between Processes</li><li>– Reuse of Reference Models</li><li>– Process Landscape Model</li><li>– The Example of SAP's Process Architecture</li></ul></li><li>• <b>Process Selection</b><ul style="list-style-type: none"><li>– Selection Criteria</li><li>– Process Performance Measures</li><li>– Process Portfolio</li></ul></li><li>• <b>Recap</b></li></ul>	
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- The aim of process architecture is to define criteria for assessing the performance of the identified business processes. This task builds on the observation that business processes differ in terms of their importance and maturity.
- In order to define a solid basis for process selection, process performance measures should be considered in combination with general criteria. The advantage of process performance measures is that they can be used to plot the set of processes as a process portfolio.



## 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.

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- As stated before, not all processes are equally important and not all processes can receive the same amount of attention. Process management involves commitment, ownership, investment in performance enhancement, and optimization. Therefore, processes that create loss or risk demand for consolidation, decommissioning, or outright elimination. Various criteria have been proposed to steer this evaluation. The most commonly used ones are the following.
  - **Importance:** This criterion is concerned with assessing the strategic relevance of each process. The goal is to find out which processes have the greatest impact on the company’s strategic goals, for example considering profitability, continuity, or contribution to a public cause. It makes sense to select those processes for active process management that most directly relate to the strategic goals of an organization.
  - **Health:** This criterion aims to render a high-level judgment of the “health” of each process. The question here is to determine which processes are in the deepest trouble. These processes are the ones that may profit most from process centered initiatives.
  - **Feasibility:** For each process, it should be determined how susceptible they are to process management initiatives, either incidental or on a continuous basis. Most notably, culture and politics involved in a particular process may be obstacles to achieve results from such initiatives. In general, process management should focus on those processes where it is reasonable to expect benefits.



## 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.


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- All of these criteria assume that there is certain information available. For example, to assess the **strategic importance** of a process it is of utmost importance that an organization has an idea of its strategic course. Sometimes, it is sufficient if such strategic considerations are defined at an abstract level, but often this is additionally justified by a business case.
- For example, an increasing number of organizations are exploiting the strategic benefit of being able to change the products they provide according to the demands of customers. Zara, the Spanish clothing retailer, is a prime example of an organization that follows a measure-and-react strategy. It sends out agents to shopping malls to see what people already wear for determining the styles, fabrics, and colors of the products it wants to deliver. Such an organization may look with specific interest at the production and logistic business processes that are best able to support this strategy.
- Similarly, to determine the **health** of a business process, an organization needs information. Here, we do encounter a chicken-and-egg problem. Many organizations that are not working in a process-centered way do not have a good, quantitative insight into the performance of their individual processes. One of the BPM initiatives that such an organization may be after would exactly be to put the systems and procedures in place to collect the data that is needed for a performance assessment of its processes. In such cases, an organization will need to use more qualitative approaches to determine which of its processes do not perform well, for example depending on the impressions that management or process participants have about the efficiency or effectiveness of the various processes. Another approach would be to rely on customer evaluations, either gathered by surveys or spontaneously delivered in the form of complaints.
- The criterion of **feasibility** needs attention, too. It has become common practice for organizations to undergo a continuous stream of programs to improve their performance in one dimension or the other. Consider Philips, the multi-national electronics company. It has gone through an intermittent range of improvement programs since the 1980s to boost its performance. The same phenomenon can now be observed within many telecommunication and utility organizations. Since the profitability of products may change sharply from 1 year to the other, this requires continuous changes to product and service portfolios as well as market priorities. In such a volatile setting, it may happen that managers and process participants become tired or outright hostile towards new initiatives. This kind of situation is not a good starting point for BPM initiatives. After all, like other organizational measures, such initiatives also depend on the cooperation and good intentions of those directly involved. While we will not deal with the subject of change management in much detail in this course, it is important to realize that political sensitivities within an organization may have an effect on the success rate of process management effort too.

- **Consider the admission process of a university as described in Exercise 1.1**
- **Discuss their strategic importance, their health, and the feasibility of a potential improvement to these processes.**
- **Further Questions:**
  - Given all the discussed criteria, does an assessment of the importance, health, and feasibility always point us to the same processes to actively manage?
  - Should all processes that are unhealthy, of strategic importance, and feasible to manage be subjected to BPM?




## Process Performance Measures




- **Generic dimensions of performance measures**
  - Time, Cost, Quality, Flexibility
  - Each one can be refined into a number of process performance measures also called **key performance indicators** or KPIs

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- For many BPM-related management activities, we need a precise measurement of the health of a business process. In this context, we distinguish generic performance dimensions and specific performance measures. Often, four generic dimensions of performance measures are distinguished: time, cost, quality, and flexibility.
- Any company would ideally like to make its processes faster, cheaper, and better. This simple observation leads us already to identifying three **process performance dimensions: time, cost, and quality**. A fourth dimension gets involved in the equation once we consider the issue of change. A process might perform extremely well under normal circumstances, but then perform poorly in other perhaps equally or more important circumstances.
- For example, Van der Aalst et al. report the story of a business process for handling claims at an Australian insurance company. Under normal, everyday conditions, the process performed to the entire satisfaction of all managers concerned (including the process owner). However, Australia is prone to storms and some of these storms cause damages to different types of properties (e.g., houses and cars), leading to numerous claims being lodged in a short period of time. The call center agents and backoffice workers involved in the process were literally over-flooded with claims and the performance of the process degraded-precisely at the time when the customers were most sensitive to this performance. What was needed was not to make the process faster, cheaper, or better during normal periods. Rather, there was a need to make the process more flexible to sudden changes in the amount of claims. This observation leads us to the identification of a fourth dimension of process performance, namely **flexibility**.
- Each of the four performance dimensions mentioned above (time, cost, quality, and flexibility) can be refined into a number of process performance measures (also called **key performance indicators or KPIs**). A process performance measure is a quantity that can be unambiguously determined for a given business process assuming that the data to calculate this performance measure is available.
- For example, there are several types of cost such as cost of production, cost of delivery, or cost of human resources. Each of these types of cost can be further refined into specific performance measures. To do so, one needs to select an aggregation function, such as count, average, variance, percentile, minimum, maximum, or ratios of these aggregation functions. A specific example of a cost performance measure is the average delivery cost per item.
- Below, we briefly discuss each of the four dimensions and how they are typically refined into specific performance measures.




## Process Performance Measures




- **Time**
  - **Cycle time:** the time that it takes to handle one case from start to end.
  - **Processing (or service) time:** time that resources, such as process participants or software applications invoked by the process, spend on actually handling the case
  - **Waiting time:** time that a case spends in idle mode.

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- Often the first performance dimension that comes to mind when analyzing processes is **time**. Specifically, a very common performance measure for processes is **cycle time** (also called throughput time).
- **Cycle time** is the time that it takes to handle one case from start to end. Process selection is often driven by the ambition to reduce cycle time, and there are many different ways of further Specifying this aim. For example, one can aim at a reduction of the average cycle time or the maximal cycle time. It is also possible to focus on the ability to meet cycle times that are agreed upon with a client.
- Yet another way of looking at cycle time is to focus on its variation, which is notably behind approaches like Six Sigma. Other aspects of the time dimension come into when we consider the components of cycle time, namely:
  - **Processing time** (also called service time): the time that resources, such as process participants or software applications invoked by the process, spend on actually handling the case.
  - **Waiting time:** the time that a case spends in idle mode. Waiting time includes **queueing time**—waiting time due to the fact that no resources are available to handle the case - and other waiting time, for example because synchronization must take place with another process, with other activities because an input is expected from a customer or from another external party.



## Process Performance Measures




- **Cost (turnover, yield or revenue)**
  - Process redesign is often associated with reducing cost
    - Fixed costs
    - Variable costs
    - Operational costs
      - Labor cost


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- A business process has a financial nature. While we refer to **cost** here, it would also have been possible to put the emphasis on turnover, yield, or revenue. Obviously, a yield increase may have the same effect on an organization's profit as a decrease of cost. However, process redesign is more often associated with reducing cost.
- There are different perspectives on cost. In the first place, it is possible to distinguish between **fixed** and **variable** cost.
  - Fixed costs are overhead costs which are (nearly) not affected by the intensity of processing. Typical fixed costs follow from the use of infrastructure and the maintenance of software systems.
  - Variable costs are positively correlated with some variable quantity, such as the level of sales, the number of purchased goods, the number of new hires, etc.
- A cost notion which is closely related to productivity is **operational** cost. Operational costs can be directly related to the outputs of a business process. A substantial part of operational cost is usually labor cost, the cost related to human resources in producing a good or delivering a service. Within process redesign efforts, it is very common to focus on reducing operation cost, particularly labor cost. The automation of tasks is often seen as an alternative for labor. Obviously, although automation may reduce labor cost, it may cause incidental cost involved with developing the respective application and fixed maintenance cost for the lifetime of the application.






## Process Performance Measures




- **Quality**
  - External quality – customer satisfaction
    - SLAs
    - Churn rate (customer journeys) | Net promoter score
  - Internal quality
    - Participants' viewpoint

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- The **quality** of a business process can be viewed from at least two different angles: from the client's side and from the process participant's perspective. This is also known as the distinction between external quality and internal quality:
  - The **external quality** can be measured as the client's satisfaction with either o product or the process. Satisfaction with the product can be expressed as the extent to which a client feels that the specifications or expectations are met by the delivered product.
    - **Service level agreements (SLAs)** precisely specify what is to be expected. On the other hand, a client's satisfaction concerns the how the process is executed. A typical issue is the amount, relevance, quality and timeliness of the information that a client receives during execution on the progress being made. Various specific measures are used to capture customer satisfaction:
    - **Churn rate:** In particular for processes that interface with the customer over the Internet, it is important to know how many customers do not complete their interaction successfully. Such processes with customer interactions are also called **customer journeys**. The churn rate is calculated by dividing this amount by the number of all interactions.
    - **Net promoter score:** This measure is often defined in a range 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.
  - On the other hand, the **internal quality** of a business process relates to the process participants' viewpoint. Typical internal quality concerns are: the level that a process 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.
- It is interesting to note that there are various direct relations between quality and other dimensions. For example, the external process quality is often measured in terms of time, e.g., the average cycle time or the percentage of cases where deadlines are missed. In this book, we make the choice that whenever a performance measure refers to time, it is classified under the time dimension even if the measure is also related to quality.




## Process Performance Measures




- **Flexibility**
  - The ability to react to changes (diff concerns)
  - Runtime vs Build-time flexibility

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- The criterion that is least noted to measure the effect of process redesign is the **flexibility** of a business process. Flexibility can be defined in general terms as the ability to react to changes. These changes may concern various parts of the business process, for example:
  - 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.
- Another way of approaching the performance dimension of flexibility is to distinguish between runtime and build-time flexibility.
  - **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. It is increasingly important to distinguish the flexibility of a business process from the other dimensions




Exercise 2.9



- **Travel Agency**

See "Exercise 2.9 – Travel Agency"  
in Aula virtual

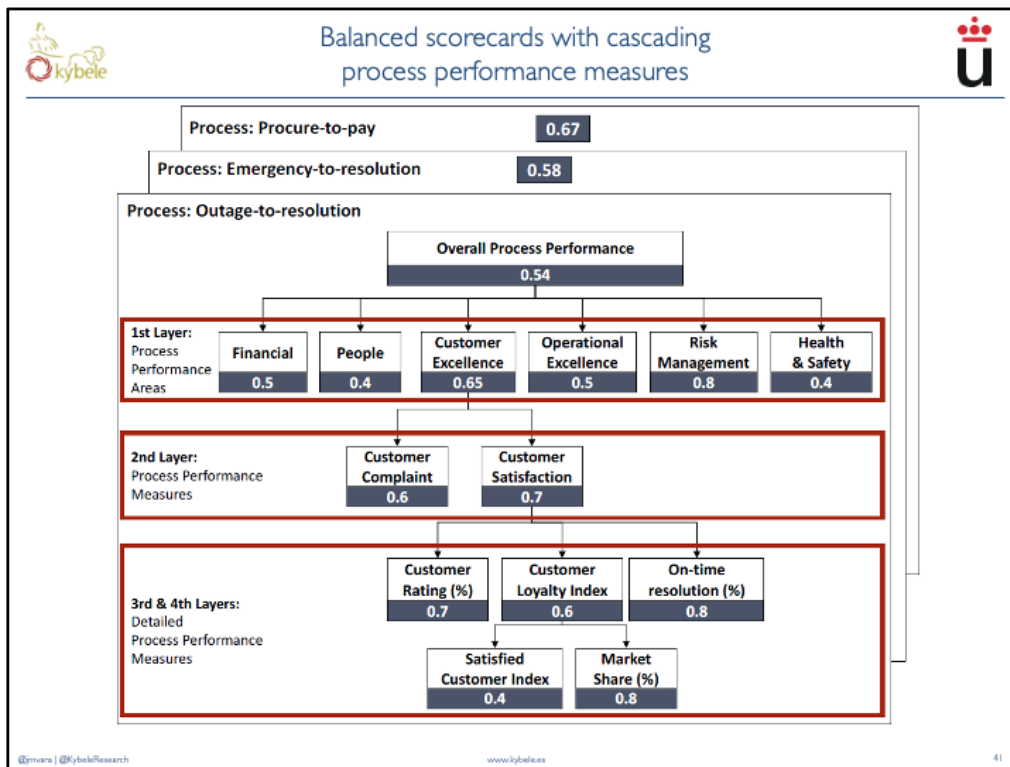
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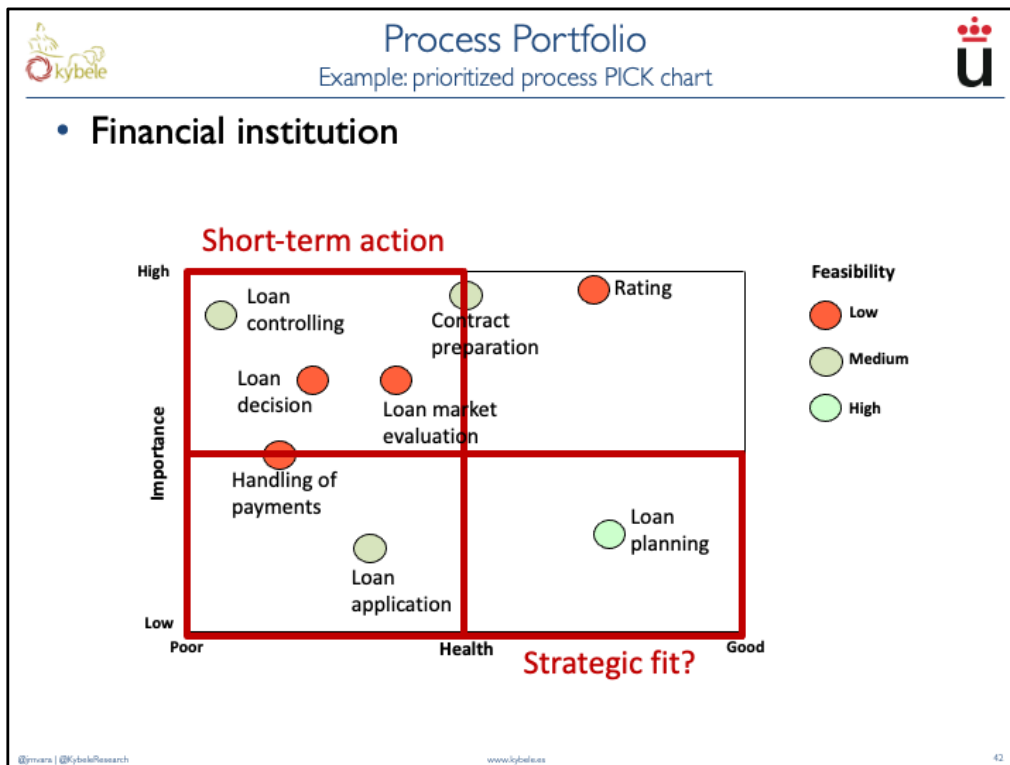
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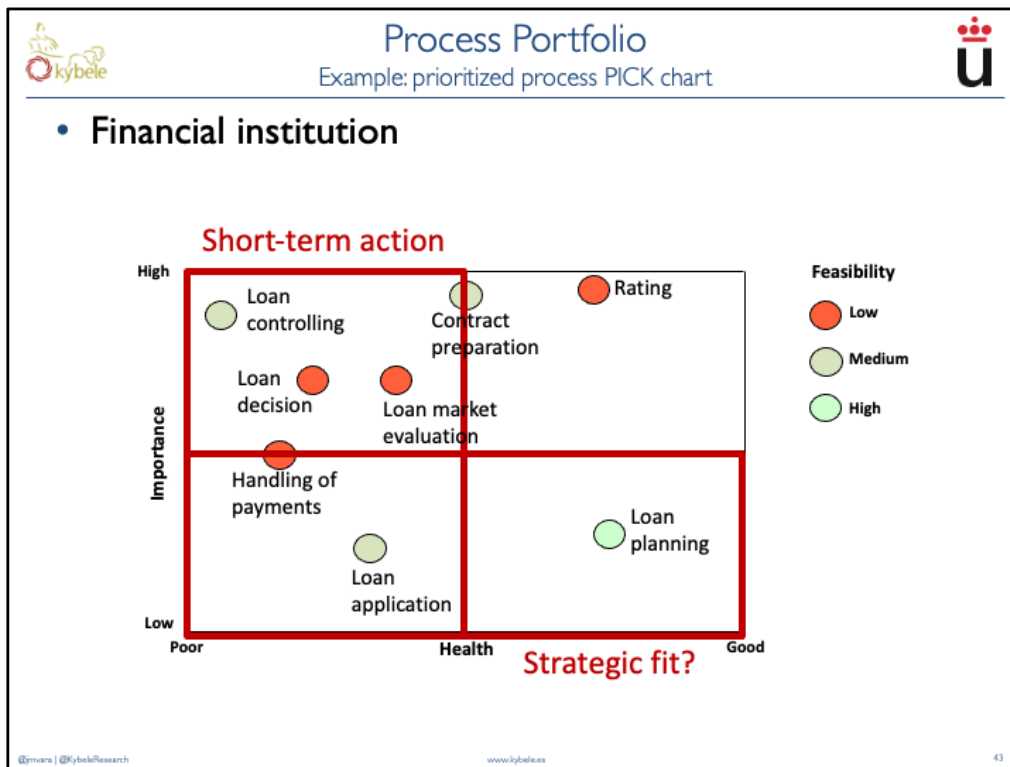
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- All the specific process performance measures related to the dimensions of time, cost quality, and flexibility can be further aggregated in order to obtain a single measure of process health. Such an aggregated measure must be defined for each business process separately, because processes differ in terms of their vision and performance objectives. The health then captures to what extent these objectives have been achieved.
- Balanced scorecards can be used for this purpose. Figure shows an example of balanced Scorecard for three processes of a utility company. For each process, the balanced scorecard provides a hierarchy of process performance measures over four layers of granularity: from detailed process performance measures (Layers 3 and 4) up to key process performance areas (Layer 1).
- By populating the measures at the lowest level with concrete measurements and aggregating the results, one can obtain a single health measure for each business process.



- The term process portfolio refers to the set of all processes in general, and more specifically to their visualization by the help of different criteria. Process selection builds on the three criteria of importance, health, and feasibility. The importance of each process can be assessed by senior managers in refer the organization's strategy..
  - Health can be quantified by calculating the diff between the objectives and actual values for the major process performance measures of each process.
  - Feasibility requires an assessment by the process. In this way, we get numeric values for each of the three criteria for each such that the process portfolio can be plotted as shown in Figure.
- Process selection should prioritize processes in the left upper quadrant, but take feasibility into account. A detailed business case might further substantiate feasibility assessment.
- Not too many processes should be selected for improvement for two reasons.
  - First, as discussed, the temporal and financial resources of improvement teams are typically limited.
  - Second, having too many improvement projects running leads to complexity of coordination, since processes are often interrelated.
- Davenport also suggests not to tackle for first the process that is the most strategically important and the least healthy, because you will have high chances of failure. Rather, we should start with a small number of projects and learn from these. Accordingly, with reference to the Figure, if this was our first BPM project, the natural candidate for selection would be the process for handling payments.



- We have already emphasized that it is not feasible to have too many BPM projects at the same time, and that a BPM initiative should try to create success stories in the beginning.
- What is *really* happening in some organizations is that widespread efforts are made to at least *model* all important business processes at an abstract level, delaying the decision to make the step to more advanced BPM efforts (e.g., process redesign or automation).
- The idea is that process models are a cornerstone of any further BPM effort in any case and that their existence will help us to better understand where improvements can be gained.
- Creating a model of a process leads to the valuable insight of how that process works at all, and can provide a good basis for small improvements that can easily be implemented.
- On the downside, such an approach bears the risk that major improvements are missed and stakeholders create a feeling of a lack of return for the efforts.
- It should be stressed here, too, that the actual modeling of business processes is not an element of the process identification stage.
- Also, making a specific process subject to discovery, but not further through to analysis and redesign, will not provide improvements of the process and, therefore, it will fail to deliver the benefits that BPM promises




## Exercise 2.10: University – Process Portfolio




See "Exercise 2.10 – University Process Portfolio" in Aula virtual





## Recap



- Process architecture definition aims at enumerating major processes of organization.
- Process architecture defines relationship between processes.
- Seven-step method for definition of process architecture including process landscape model.
- Process selection is concerned with prioritizing processes.
- Priorities upon importance of processes, health, and feasibility of improvements.
- Assessed by process owners or grounded on process performance measures and objectives.
- Most common performance dimensions are time, cost, quality, and flexibility.
- Process portfolios help in selection of processes for improvement.
- Selected processes become subject of remaining phases of BPM lifecycle.

@mora | @kybeleResearchwww.kybele.es45

- In this lesson, we discussed the process identification phase of the BPM lifecycle. First, we distinguished the two steps of process architecture definition and process selection. The step of process architecture definition aims at enumerating the major processes within an organization, as well as determining the boundaries between those processes. An insight into the major processes that are carried out in an organization is important before setting up any BPM activity.
- A process architecture defines the relationship between the different processes. Often, different levels of detail are distinguished. We discussed a seven-step method for the definition of a process architecture including the process landscape model.
- The step of process selection is concerned with prioritizing processes before conducting discovery, analysis, and redesign. It is a good practice to base priorities upon the importance of processes, their health, and the feasibility of improvements. These three criteria can be assessed by process owners or they can be grounded on process performance measures and objectives. The most common performance dimensions are time, cost, quality and flexibility.
- Process portfolios help in the selection of processes for improvement by visualizing the most important criteria for improvement. Those processes that have been selected become the subject of the remaining phase of the BPM lifecycle.