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ECONOMICS
AND BUSINESS



Fundamentals of Business Process Management

Session 1

Jan Mendling

Why Business Process Management?



Consultant

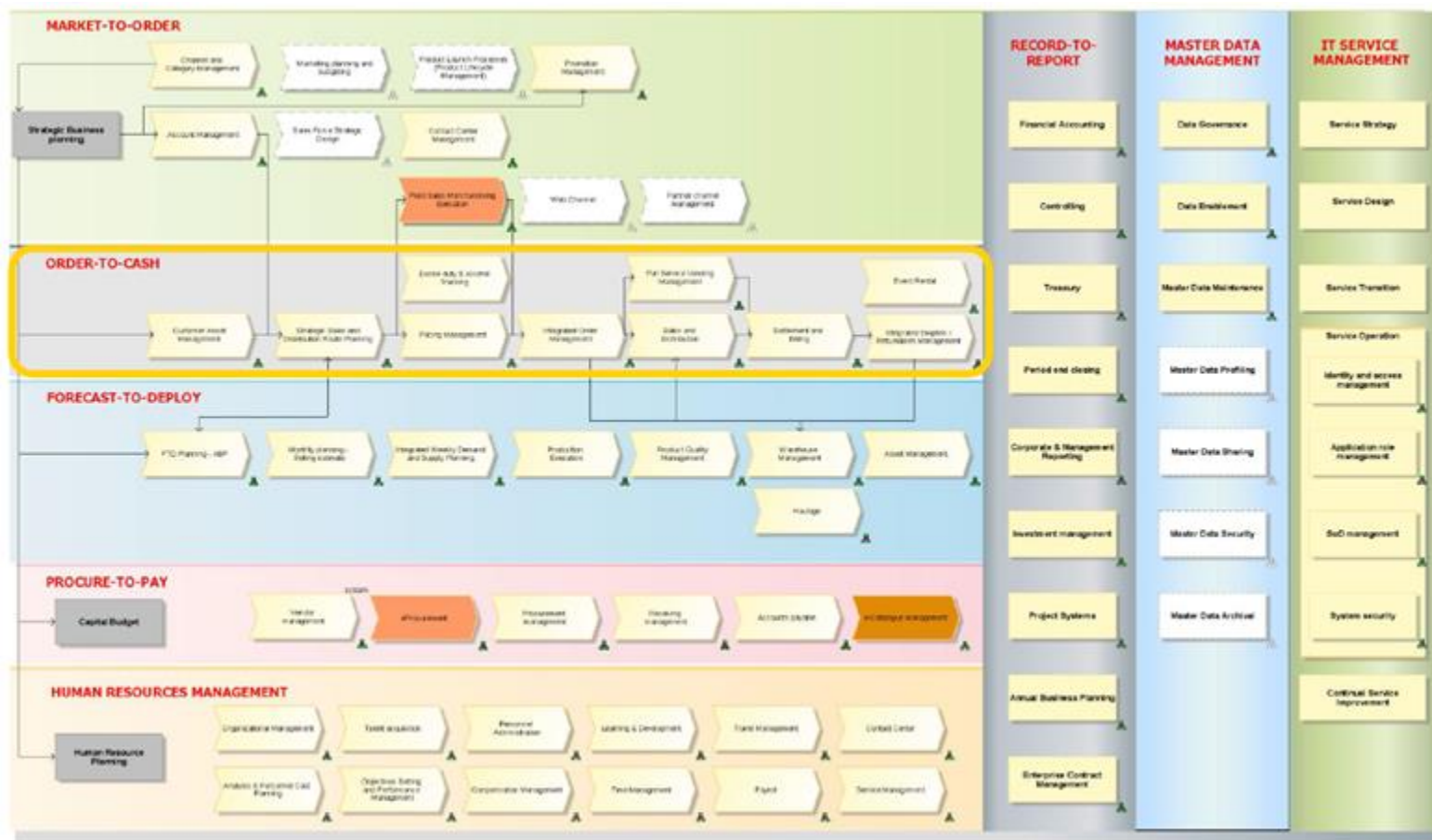


Manager

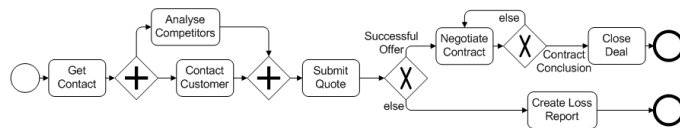


Software Architect

Documentation



Process Improvement



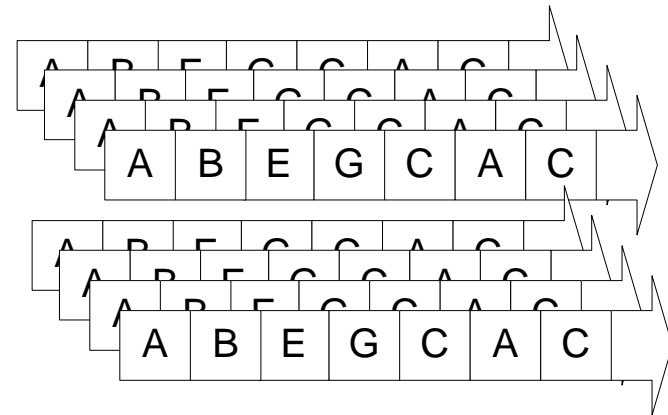
Compute



	A	B	C	D	E	F	G
A	+	→	→	→	→	→	→
B	←	+		→	→	→	→
C	←		+	→	→	→	→
D	←	←	←	+	→	→	→
E	←	←	←	←		→	+
F	←	←	←	←	←	+	+
G	←	←	←	←	+	+	+



Compare



Software Implementation



THE AUSTRALIAN
THE HEART OF THE NATION

THE AUSTRALIAN NATIONAL AFFAIRS BUSINESS
Breaking News The Nation The World Features

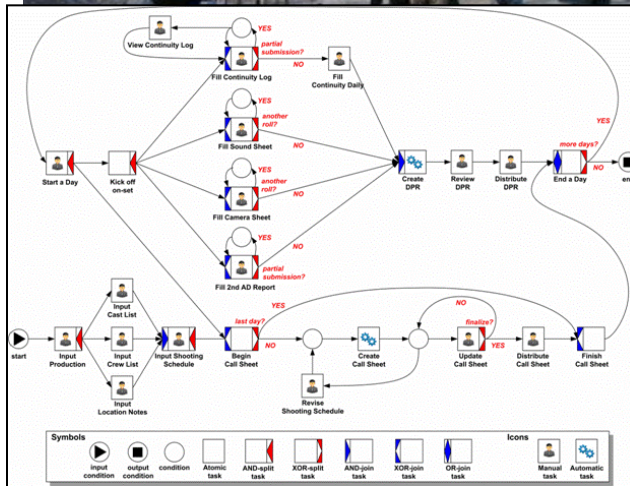
Film crews on top of workflow

Jennifer Foresheaw | The Australian | August 19, 2008 12:00AM

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AN organisational tool designed to simplify the process of movie production, from Hollywood blockbusters to art-house shorts, could dramatically reduce the time it takes to organise filming.

The YAWL4Film workflow management system had its first run earlier this year in the production of Australian feature film Prime Mover, starring William McInnes, Ben Mendelsohn and Emily Barclay and due for release next year.

The system was designed by researchers at

The power of expressiveness

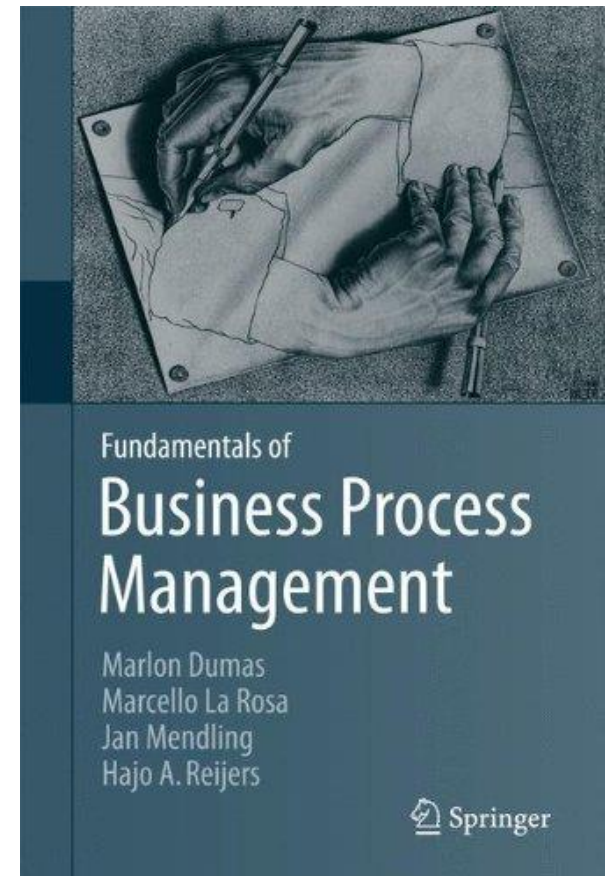


YAWL4Film project leader Kenneth Wang at work at Queensland University of Technology Picture: David Sproule Source: News Limited picture

This Tutorial is about:

- Introduction to BPM
- Essentials of BPMN
- Process Analysis and Redesign
- Process Automation

<http://fundamentals-of-bpm.org/>



What this Tutorial is *not* about

- It is broad, but not complete
- It does not cover the whole book
- It is not a BPMN tutorial
- It does not cover all topics in equal detail
- It does not take four, but only three sessions

Outline

MON	15 July	EI 8	Introduction to BPM
	9:00 – 10:30		Process Identification
MON	15 July	EI 8	Essentials of BPMN
	11:00 – 12:30		Process Discovery and Quality Assurance
MON	15 July	EI 8	Process Redesign
	14:00 – 15:30		Automation

Institute for Information Business



Introduction to BPM

What are Processes?

"a collection of activities that take one or more kinds of input and create an output that is of value to the customer"

[Hammer & Champy 1993]



"a set of logically related tasks performed to achieve a defined business outcome for a particular customer or market"

[Davenport 1992]

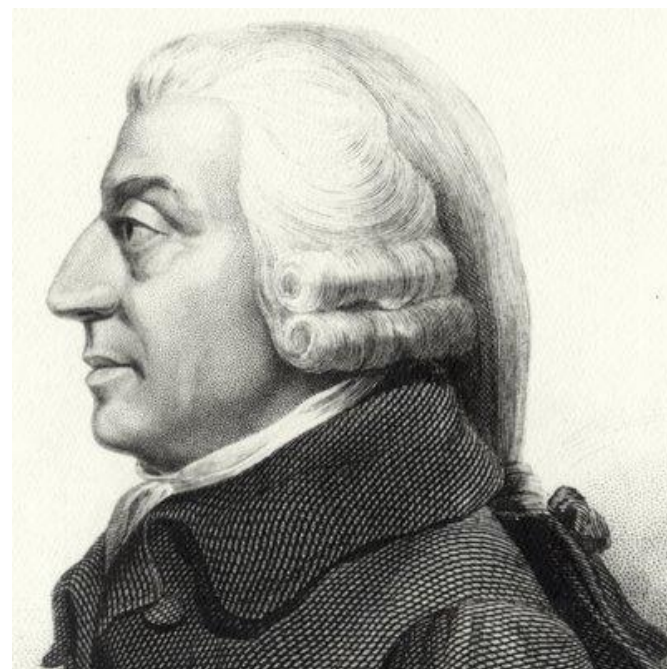


Processes and Division of Labour

To take an example, the trade of a pin-maker: But in the way in which this business is now carried on, it is divided into a number of branches:

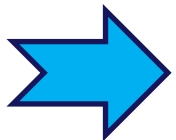
One man draws out the wire;
another straights it;
a third cuts it;
a fourth points it;
a fifth grinds it at the top for receiving the head;
to make the head requires three operations;
to put it on is a peculiar business;
to whiten the pins is another;
to put them into the paper;
and the important business of making a pin is,
in this manner, divided into about eighteen
distinct operations.

[Adam Smith 1776, abbreviated]



Goals of Business Process Management

- get holistic view on how an organisation works
- understand activities of an organisation and their relations
- understand embedding of activities within an organisational and technical context



Potential for improving the business process

Approaches to BPM

Different waves of process-orientation

Scientific Management

F. W. Taylor around 1911



Business Process Re-engineering & Innovation

Hammer & Champy, Davenport 1990s



“Third Wave” BPM

Smith & Finger 2000s



BPM Lifecycle



Basic principles

1. Scientifically analyse and define each element of work
2. Train and teach workers according to the identified rules
3. Assure that work is conducted according to the rules
4. Divide work equally such that management is responsible for planning and worker for performing

Result

Fine-granular division of labour

Less emphasis on the coordination of activities, but on their isolated analysis

Business Process Re-Engineering

Starting point

Business processes had grown to be very bureaucratic and fragmented

Focus too much on individual activities

Re-Engineering

Focus on overall goal of a process

Processes are radically changed

*“It is no longer necessary or desirable for companies to organize their work around Adam Smith’s division of labor. Task-oriented jobs in today’s world of customers, competition, and change are obsolete. Instead, companies must organize work around processes”
[Hammer & Champy]*

Starting point

Radical changes work out only under specific conditions

Re-engineering neglects continuous changes of environment

BPM Lifecycle

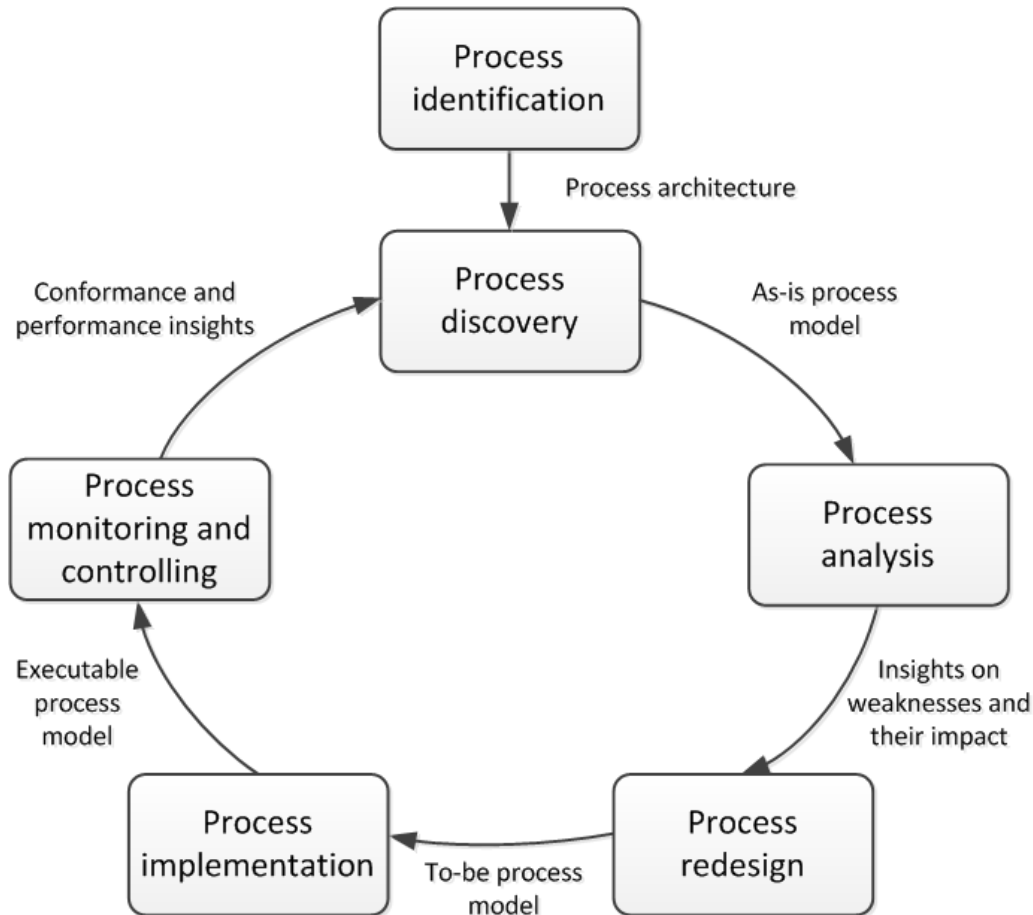
Continuous evaluation and monitoring of a process

Incremental improvements

“Business process management includes concepts, methods, and techniques to support the design, administration, configuration, enactment, and analysis of business processes”

[Weske]

BPM Lifecycle



Business process versus case

Business process

Activity

Business process attributes



Case (process instance)

Instance activity

Case attributes



Essence of Modelling

A model is the result of modelling

- A mapping of an original

- A reduction of the original

- Serving a specific purpose

Original

- May be existing, fictitious, or planned

- May be a model as well

Object Models

Original



Abstraction

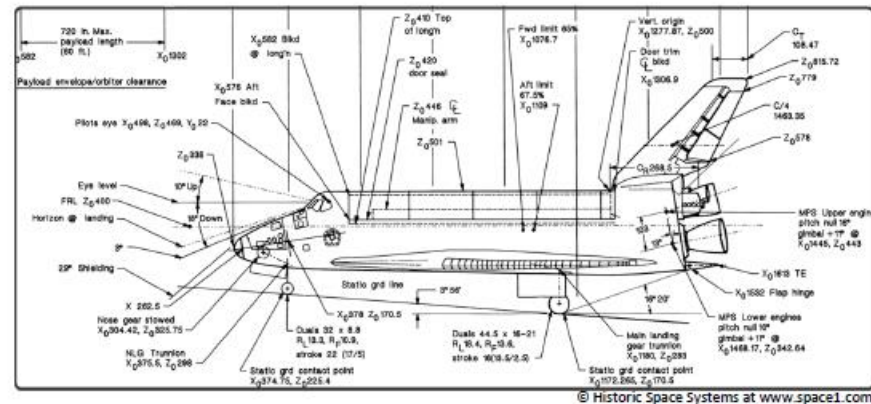
Model of

Model Level



Abstraction

Model of



Process Models

Original



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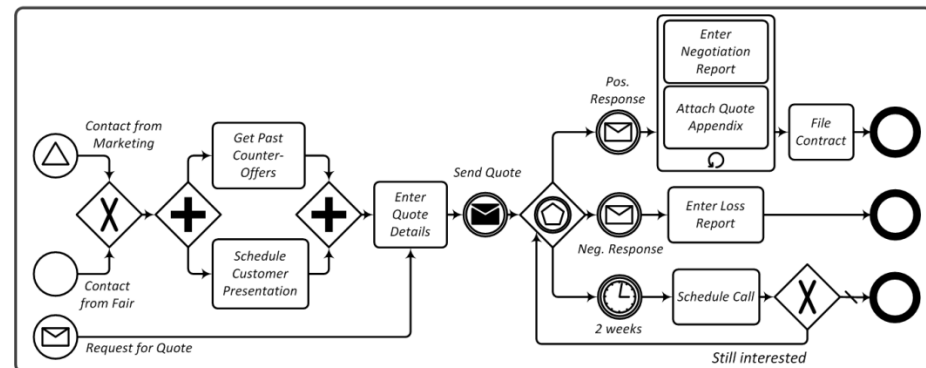
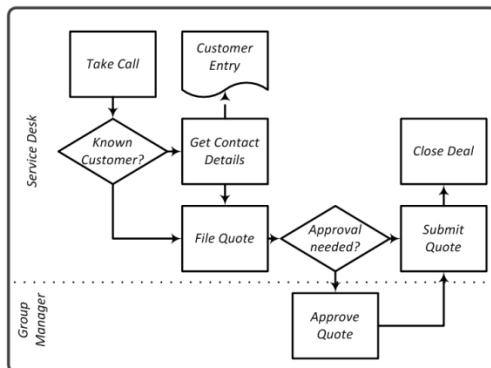
Abstraction

Model of

Abstraction

Model of

Model Level



1) Mapping Business Processes

What is mapped to a process model?

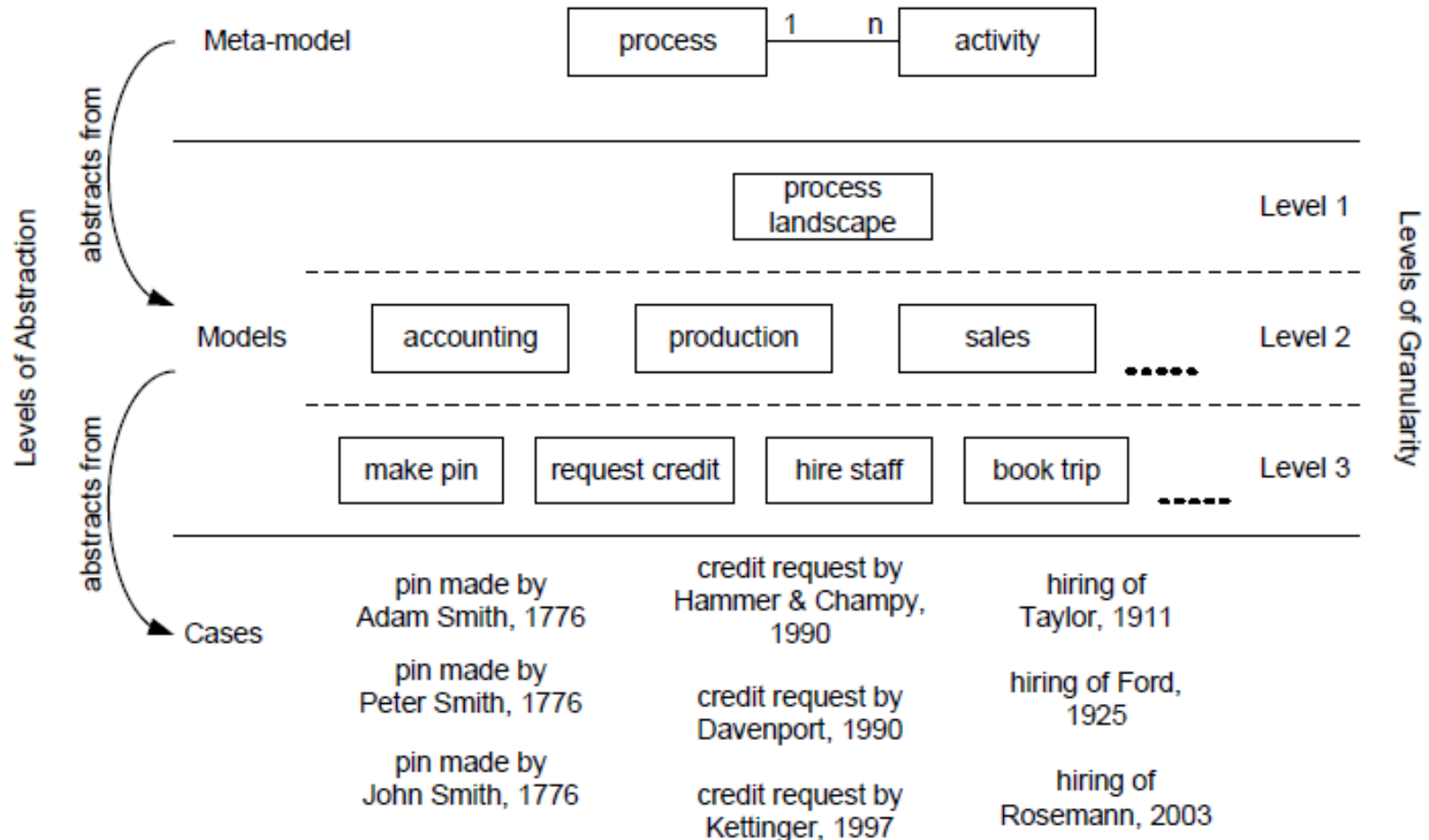
- Activities
Building blocks that describe elementary pieces of work
- Routing conditions
Describe temporal and logical constraints on the execution of activities
- Inputs, Outputs
Informational or physical artefacts processed by activities
- Events
How time, messages, exception influence the execution
- Resources
Persons, organisational units, systems that execute activities

2) Simplifications



- Abstraction is information loss
 - Projection
Remove information considered irrelevant
 - Classification
Aggregate related information
From cases to process types

Abstraction Overview



3) Purpose of a Business Process Model

3.1) Business Scenarios

Process Documentation

Process Improvement

Quality Management Certification

Challenges of Process Modeling

I make a photocopy
before handing
over the application



Why can't I directly
provide cash after
approval?

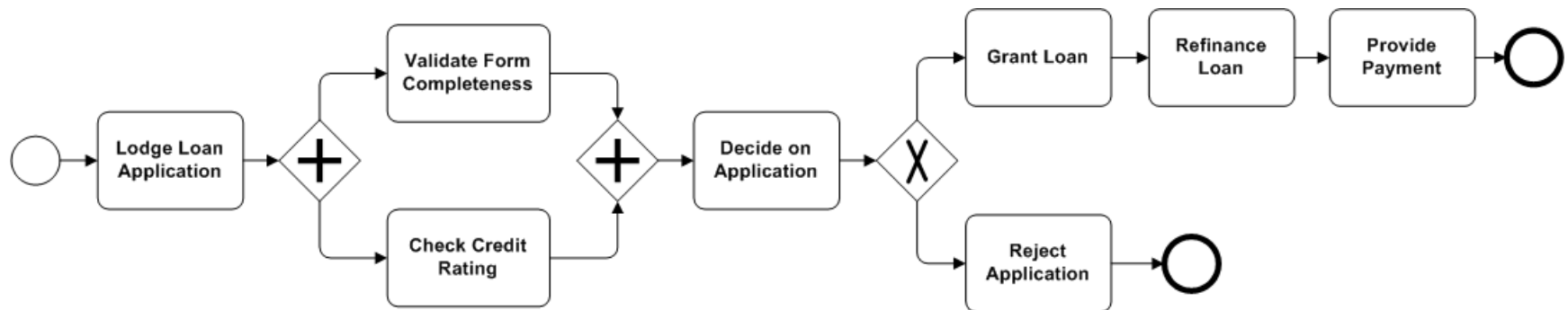


We bundle
refinancing to get
better interest rates.



- Lodge Loan Application
- Validate Form Completeness
- Check Credit Rating
- Decide
- Grant Loan
- Refinance
- Provide Payment

Systematic Description using Process Modeling Languages

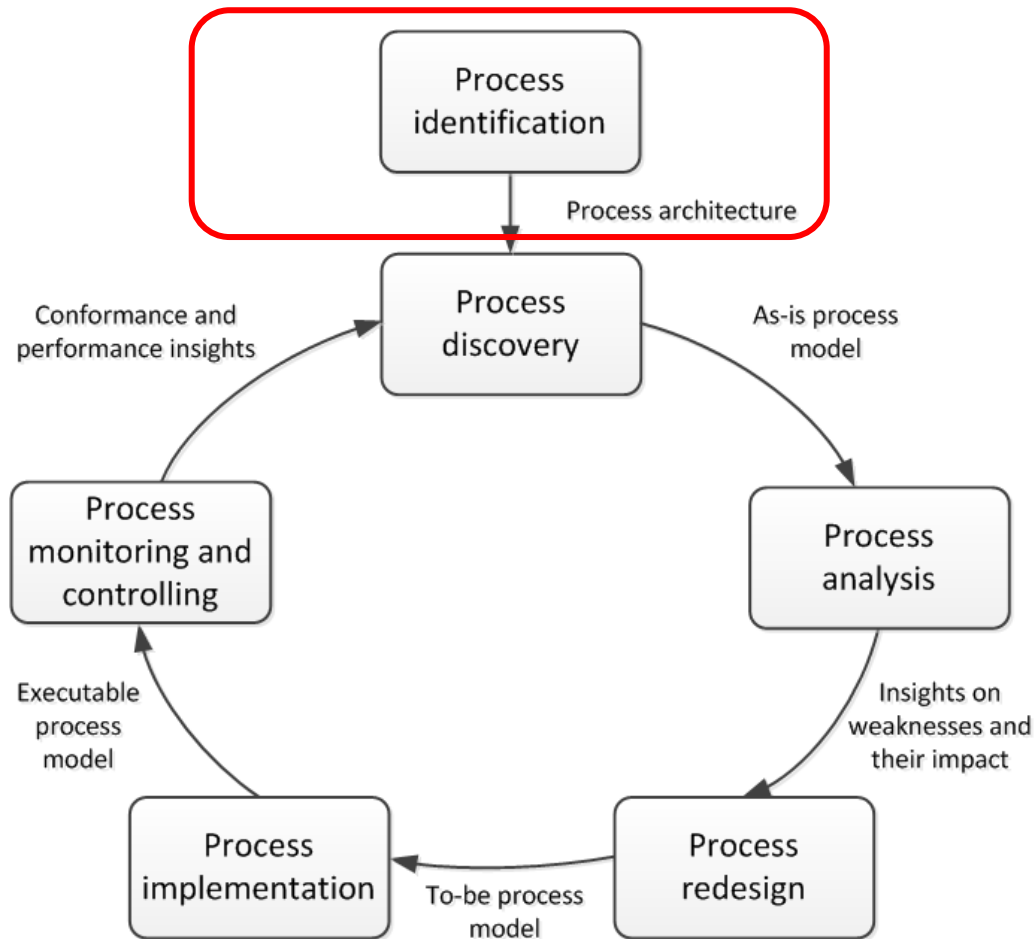


Summary

- BPM as a means to organise and improve operations
- Process models are abstractions of business processes
- Process models support process automation

Process Identification

BPM Lifecycle



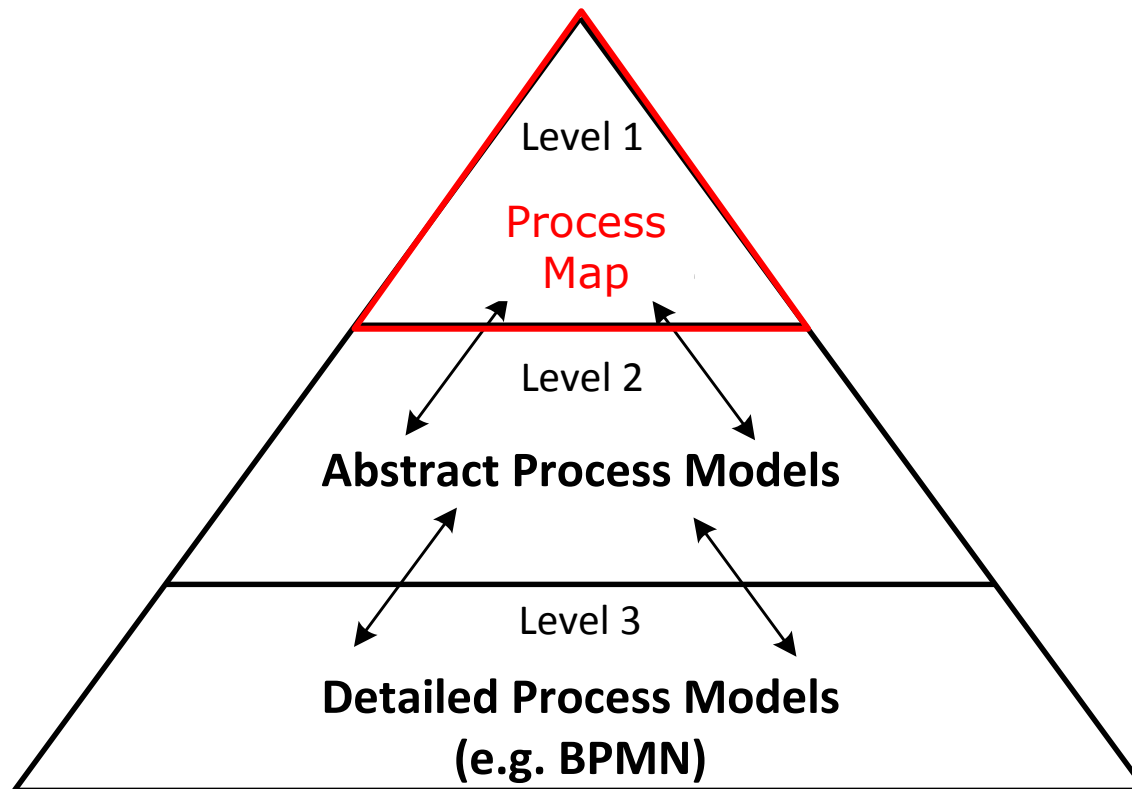
Key activities of Identification: Designation and Evaluation

- Enumerate major processes
 - Determine process boundaries
-
- Assess strategic relevance of each process
 - Render high-level judgments of the “health” of each process
 - Qualify the culture and politics of each process
 - Define manageable process innovation scope












See Davenport (1993)

Different Levels of a Process Architecture



Definition of Modeling Guidelines

Allowed Elements	
	Start Event
	End Event
	Task
	AND Gateway
	XOR Gateway
	Sequence Flow
	Message flow
	Pool/Lane
	Data object

- ▶ **Level 1** processes
 - ▶ shown as activities
 - ▶ Allowed elements: task
- ▶ **Level 2** processes
 - ▶ shown as activities
 - ▶ Allowed elements: task
- ▶ **Level 3** processes
 - ▶ shown with sequential flow
 - ▶ Allowed elements: start/end event, task, sequence flow
- ▶ **Level 4** processes
 - ▶ elaborately modeled
 - ▶ Allowed elements: all

Example Process Landscape

Management processes



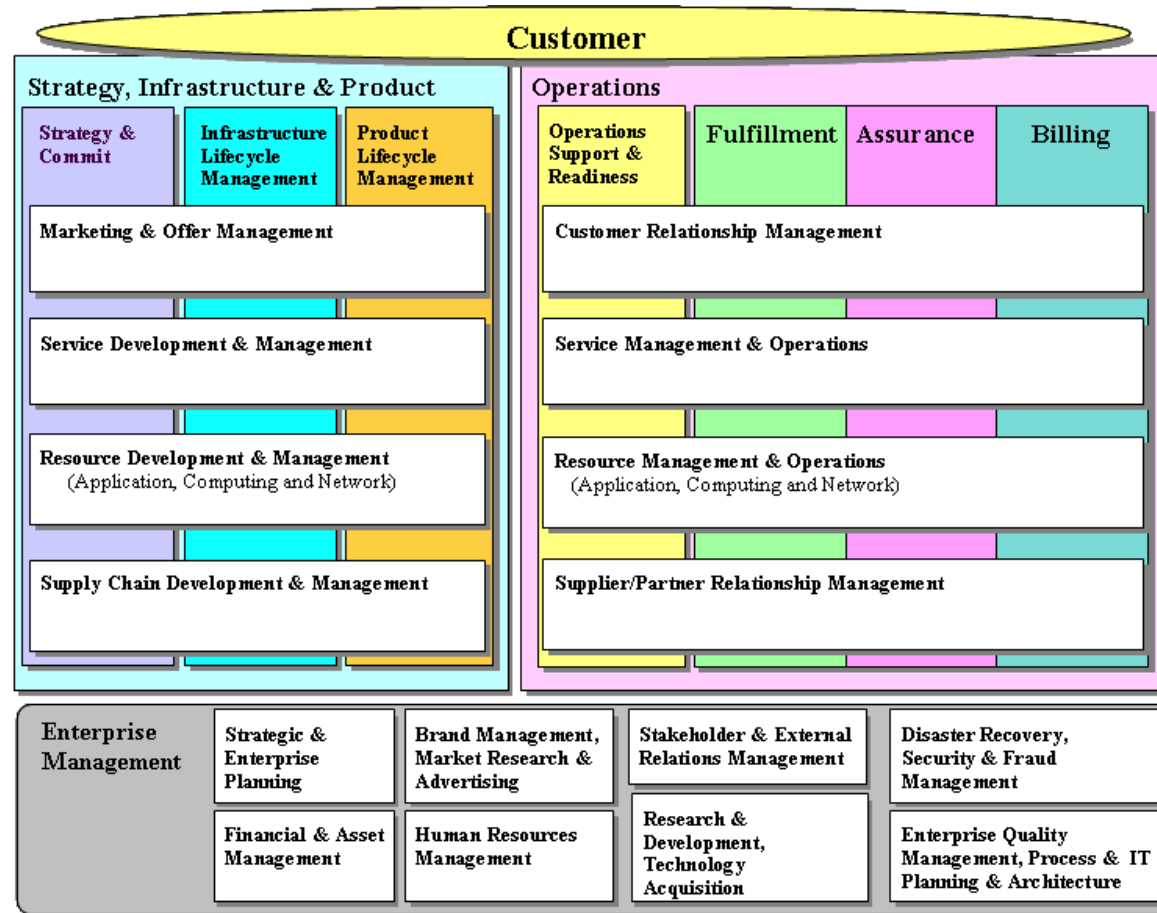
Core processes



Support processes



Reuse Reference Models, e.g., eTOM



Reuse Classification, e.g., APQC

APQC

1.0 Develop Vision and Strategy

1.1 Define the business concept and long-term vision

1.2 Develop business strategy

1.3 Manage strategic initiatives

2.0 Develop & Manage Products and Services

2.1 Manage product and service portfolio

2.2 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 sales strategy

3.4 Develop and manage marketing plans

3.5 Develop and manage sales plans

...

Start from Scratch

How to start?

Identify major inputs and outputs

Identify major milestones and their sequence

Define categories, e.g.,

- Managerial processes

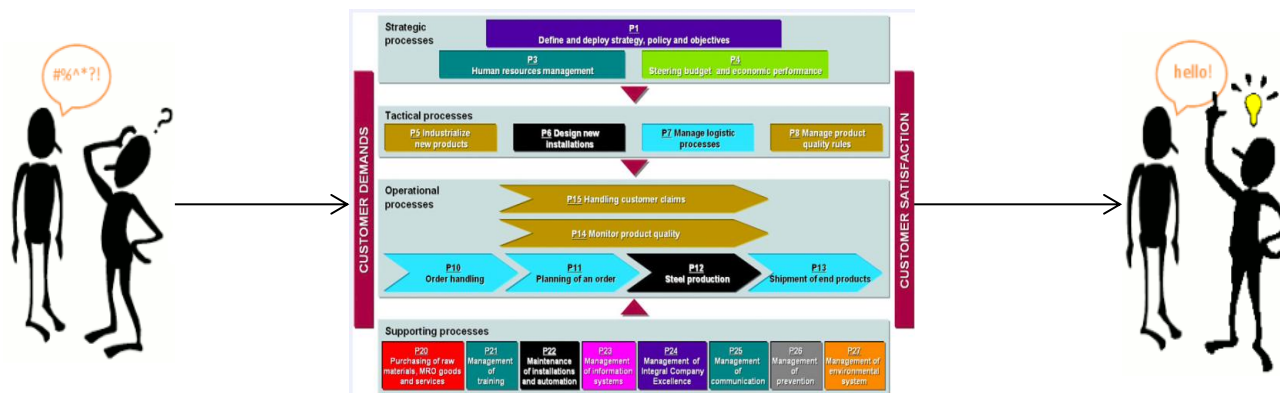
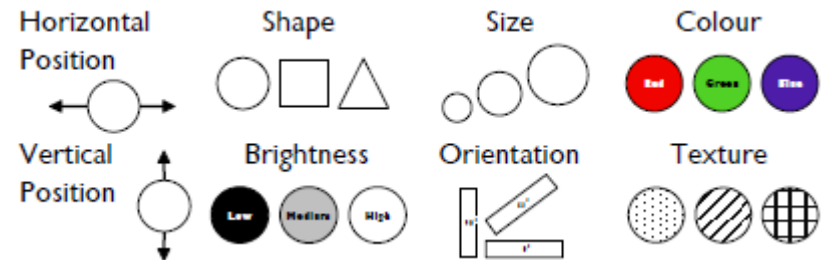
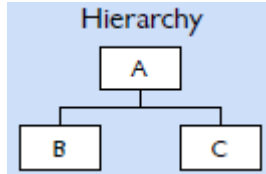
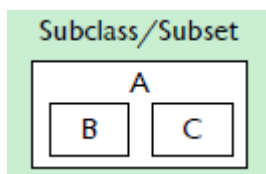
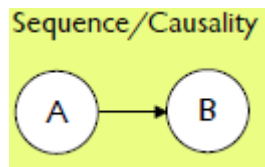
- Core processes

- Support processes

What makes a good process map?

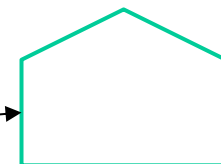
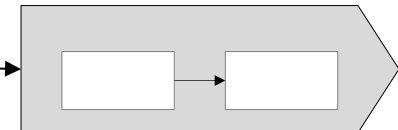
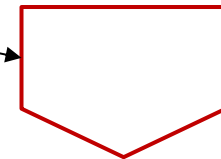
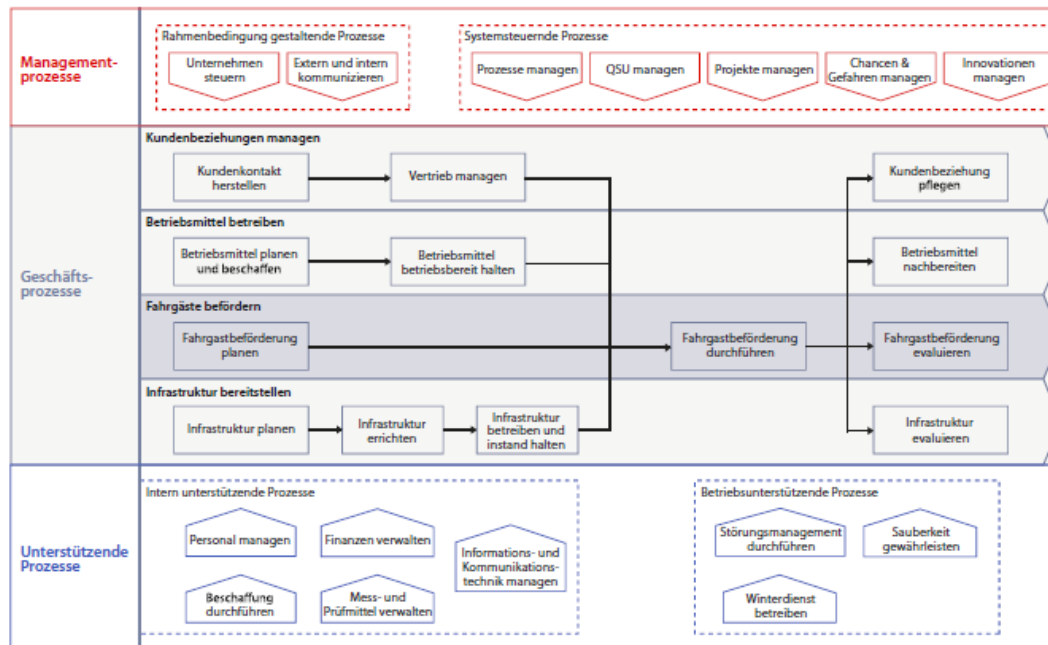
1. Collect all processes and define process relationships

2. Choose appropriate visual variables to represent the processes



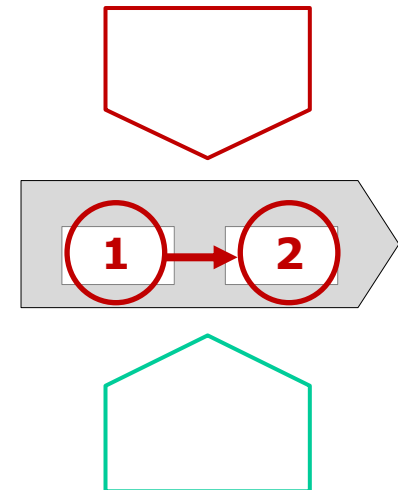
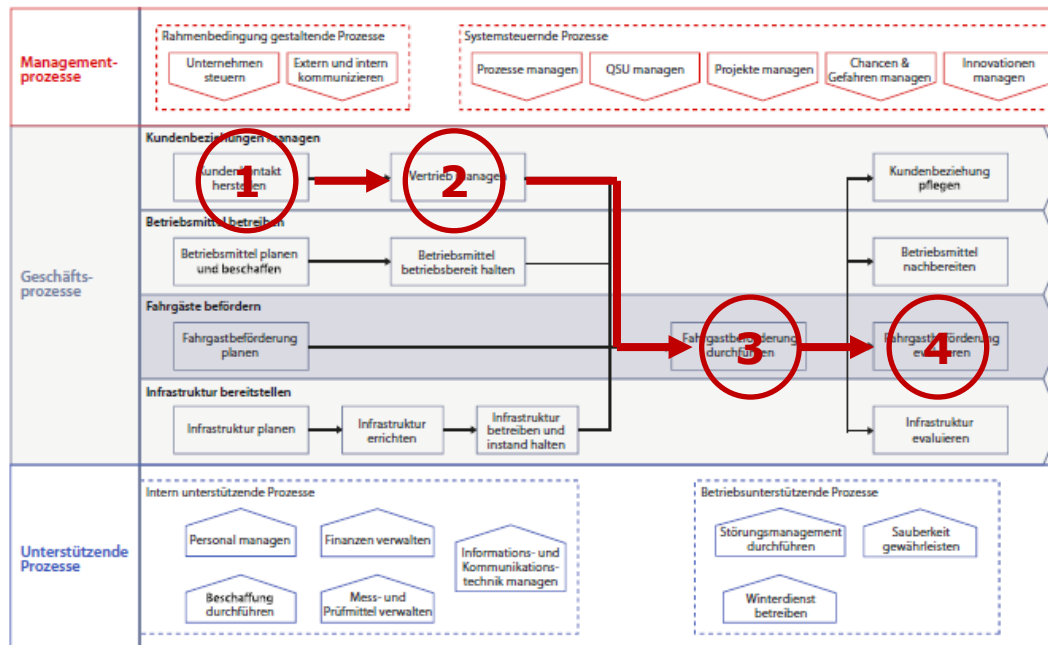
Perceptual discriminability

Process categories are easily distinguishable from each other



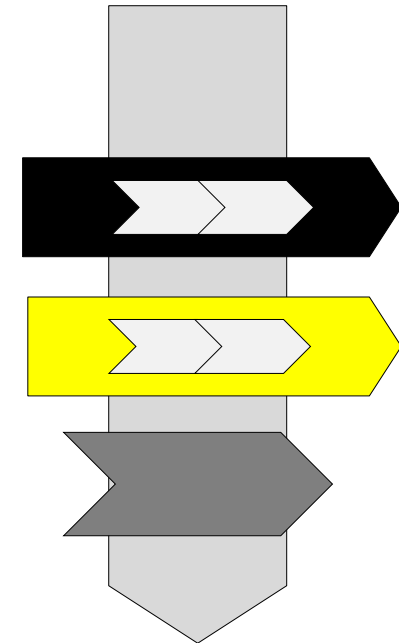
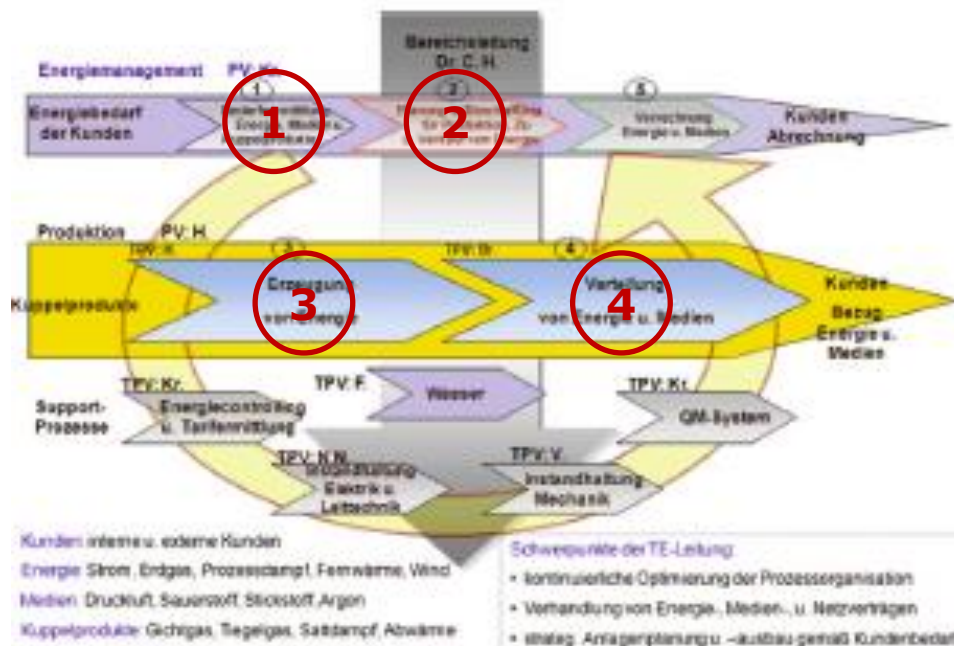
Cognitive fit

Design process map according to goals and audience



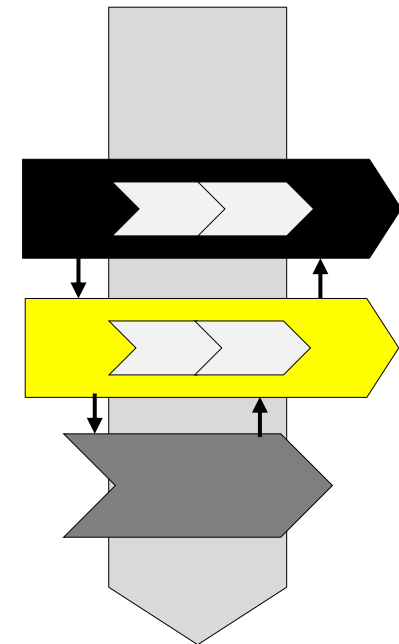
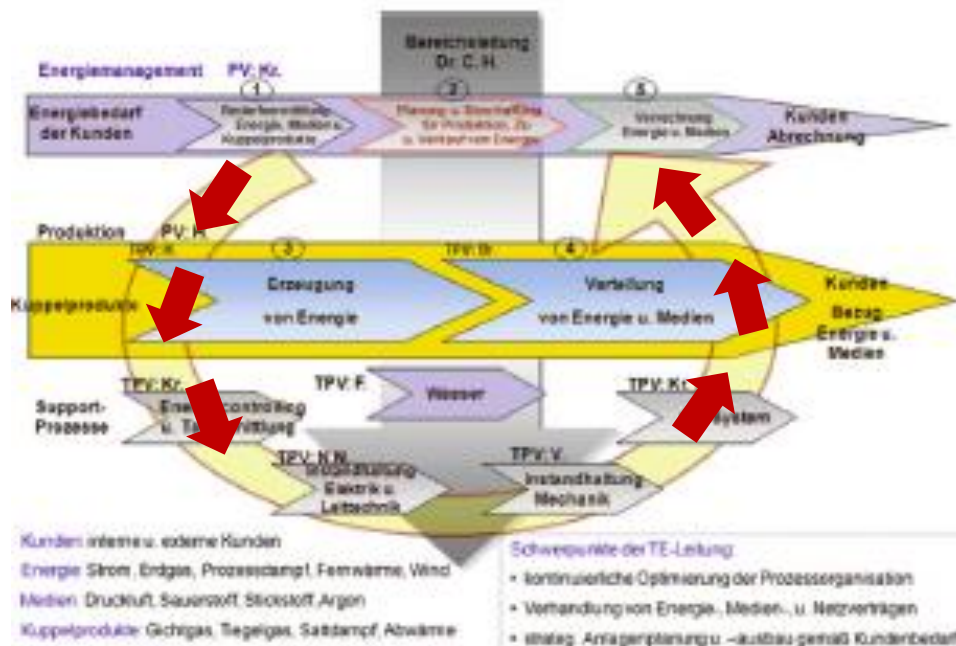
Semantic transparency

Symbols are mnemonic & transparent relationship between processes belonging to same category



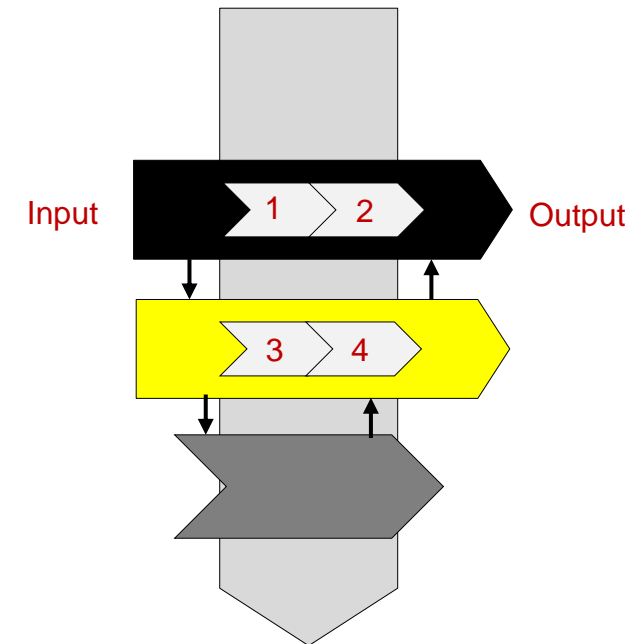
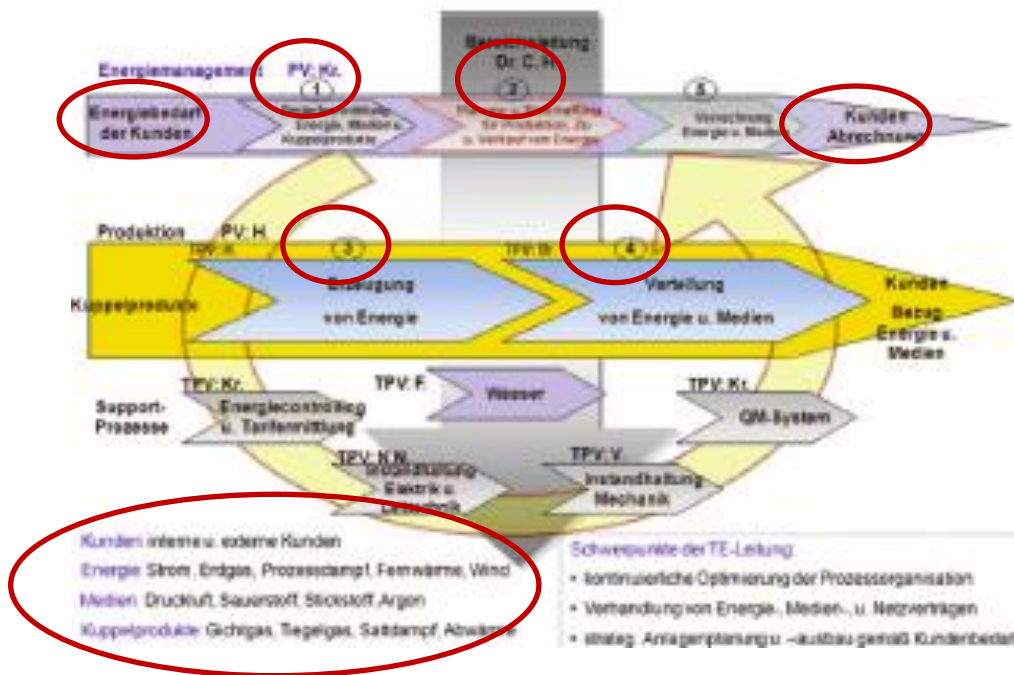
Cognitive integration

Integration between process categories



Dual Coding

Use text to complement graphics



How good are process maps?

Perceptual discriminability

„Categories are easily distinguishable”

Cognitive fit

„Design map according to goals and audience”

Semantic transparency

„Transparent relations between processes”

Cognitive integration

„Integration between process categories“

Dual coding

„Use text to complement graphics”

Summary

- Process Map of strategic importance for identification
- Reuse reference models or start from scratch
- Carefully consider quality criteria