EA at TATA Steel with ArchiMate®

Experiences, best practices, and lessons learned

Rob Kroese, EA-consultant, BiZZdesign

ARCHIMATE®

THE Open GROUP
Making standards work®

BiZZdesign

Building Strong Organizations

Rob Kroese

- EA Consultant at BiZZdesign
- Also trainer in:
  - ArchiMate
  - TOGAF
  - BiZZdesign Architect (tool)
- Some of my clients:
  - Rogers (Canada)
  - Dutch Tax office
  - ING Investment Management
  - Tata Steel Europe (February 2011-March 2012)
    - Setting up EA practice
    - Supporting SCT project
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Agenda

- Brief introduction of ArchiMate
- Case TATA-steel
  - Business profile
  - Approach on EA and ArchiMate
    - History & Start-up
    - Examples of use of ArchiMate
    - Governance
  - Lessons learned and key messages

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Service lines BiZZdesign

- Business model innovation
- Enterprise architecture management
- Business process design and management
- Lean Six Sigma
- Structured implementation and governance

Each service line consists of proven and easy to use software tools, best practice models and methods, training, and business consultancy

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BiZZdesign's integrated solutions

Tools

- Powerfull
- User friendly

- Design tools for EA and BPM
- Monitoring tools for Governance
- Publication via InSite Portal

Consultancy

- Experienced
- Certified

- Architecture, Business and IT
- Project Management
- Design / modeling

Best practices

- Practical
- Open standards

- ArchiMate®
- TOGAF™
- Reference models

Training

- Personal attention
- Practical focus

- Foundation
- Practitioner
- Certification
- Accredited by The Open Group

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Presence and support

- Offices
  - The Netherlands, East – Worldwide Support and R&D
  - The Netherlands, Central – Sales, Training, Consultancy
  - Belgium, Leuven – Sales, Training and Consultancy
  - North America, Toronto – Sales, Training and Consultancy
  - UK, London - Sales, Training and Consultancy
  - Germany, Düsseldorf - Sales, Training and Consultancy
  - France, Paris - Sales, Training and Consultancy
  - Resell partners in Europe, Mexico, South America, Australia
  - Other countries supported from the nearest office
- Resell partners and service partners in many countries
  - Both local resell partners and global consultancy partners (e.g. Capgemini, Atos, Logica,)
- Customers in all regions
  - Netherlands, Belgium, UK, Sweden, Switzerland, Canada, USA, Saudi Arabia, Germany, China, Brazil, Colombia, South Africa, Mexico, Australia

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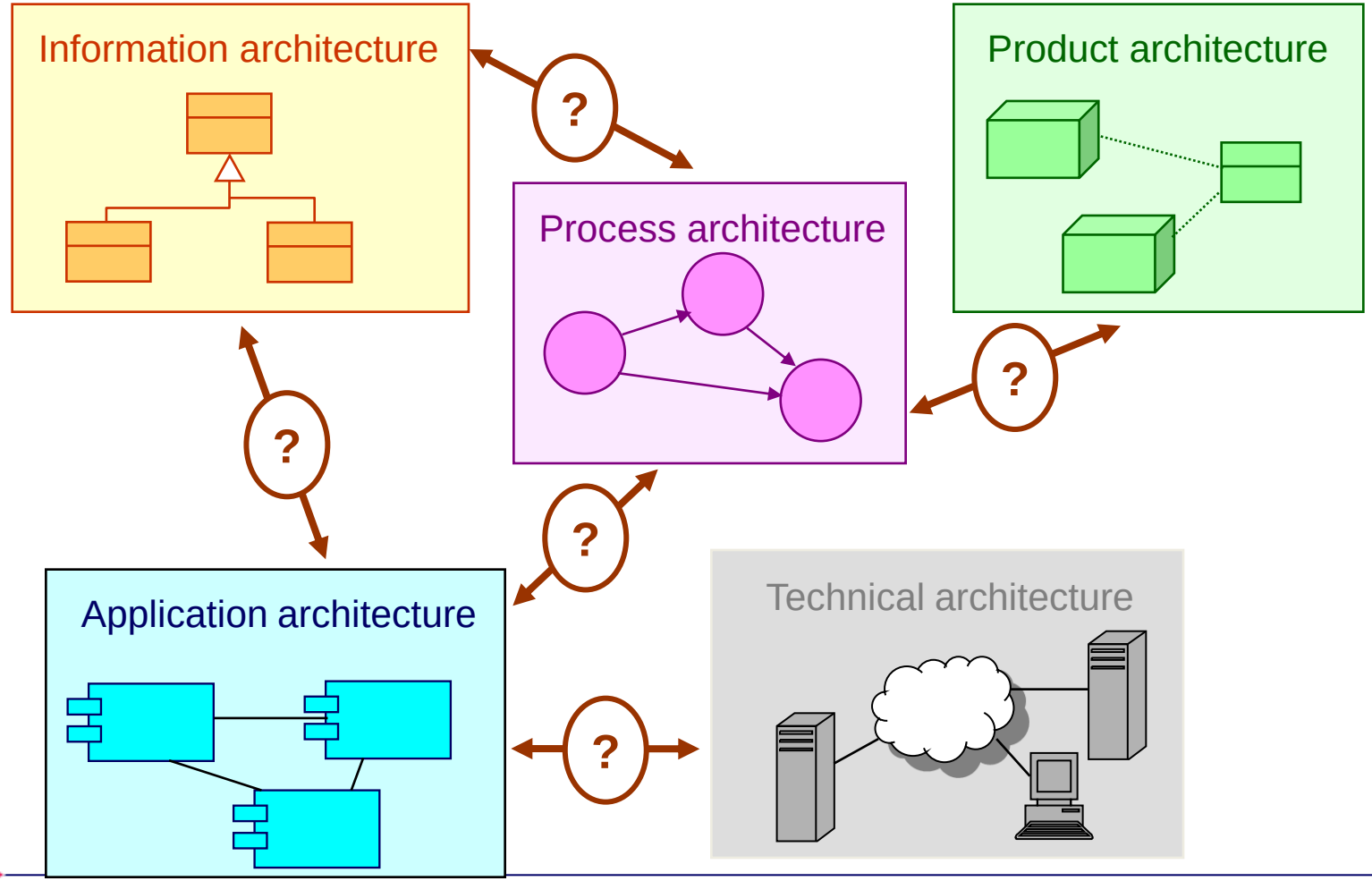
Do you recognize this?



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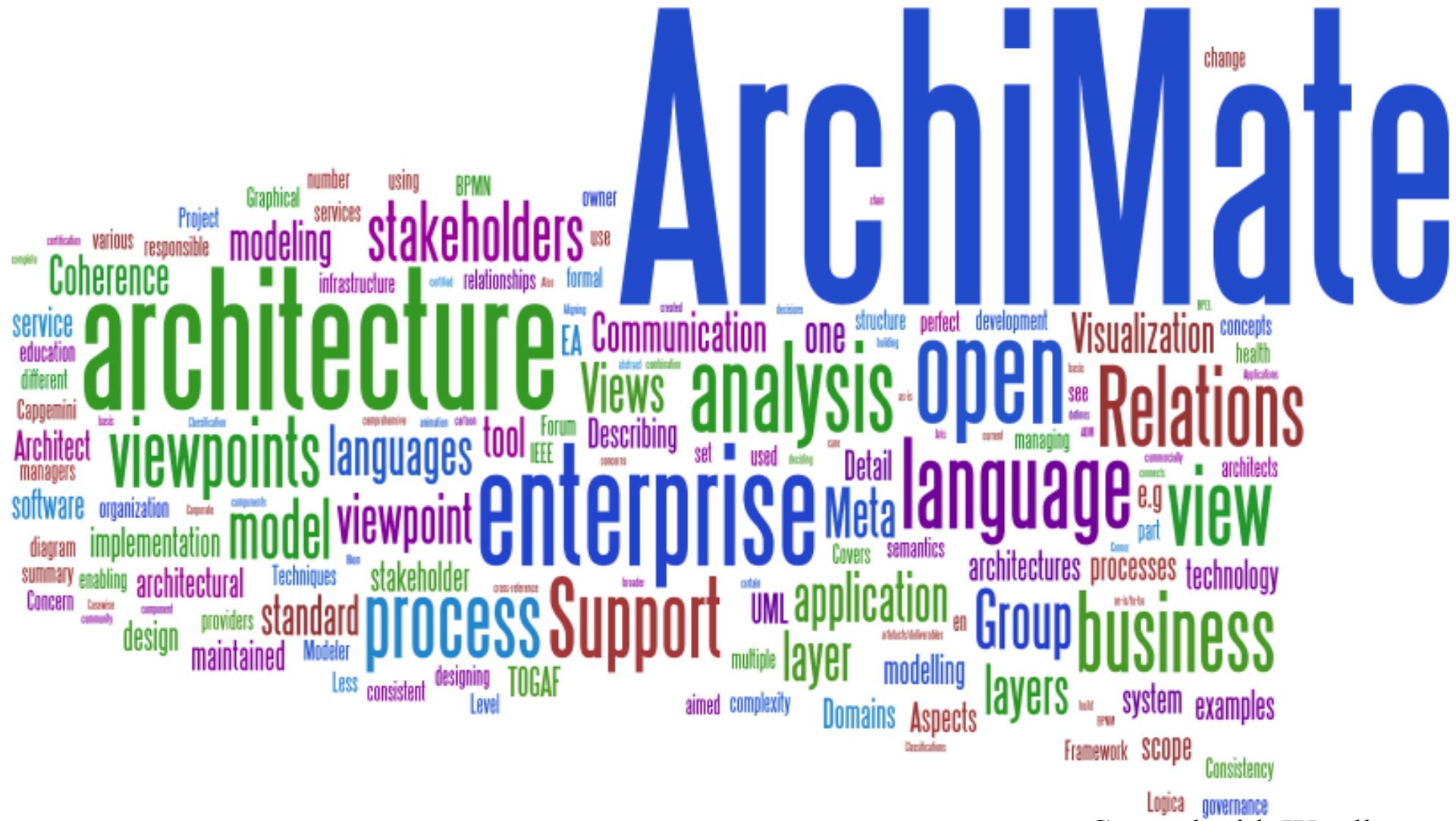
What are we talking about…?



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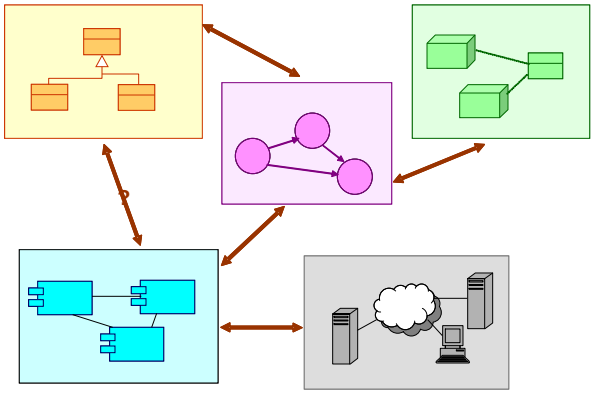
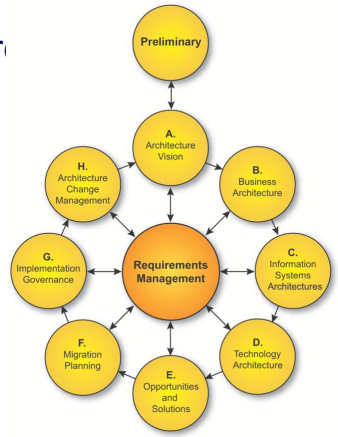
What is Enterprise Architecture?



- A *discipline*, with the objective of *steering changes*
- A *product*
  - A design that shows the coherence between products, processes, organisation, information supply and infrastructure, based on a vision and certain explicit starting points, principles and prefer
- A *process*
  - Way of working
  - Aimed at the development and use of enterprise architectures within an enterprise
  - With people and resources



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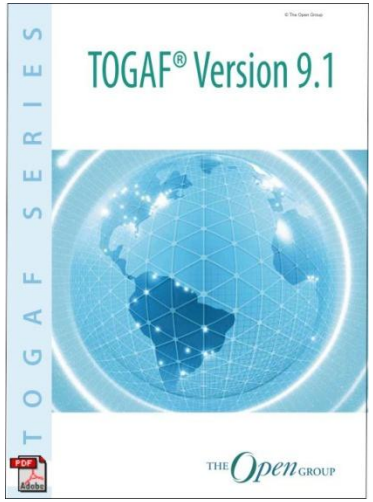
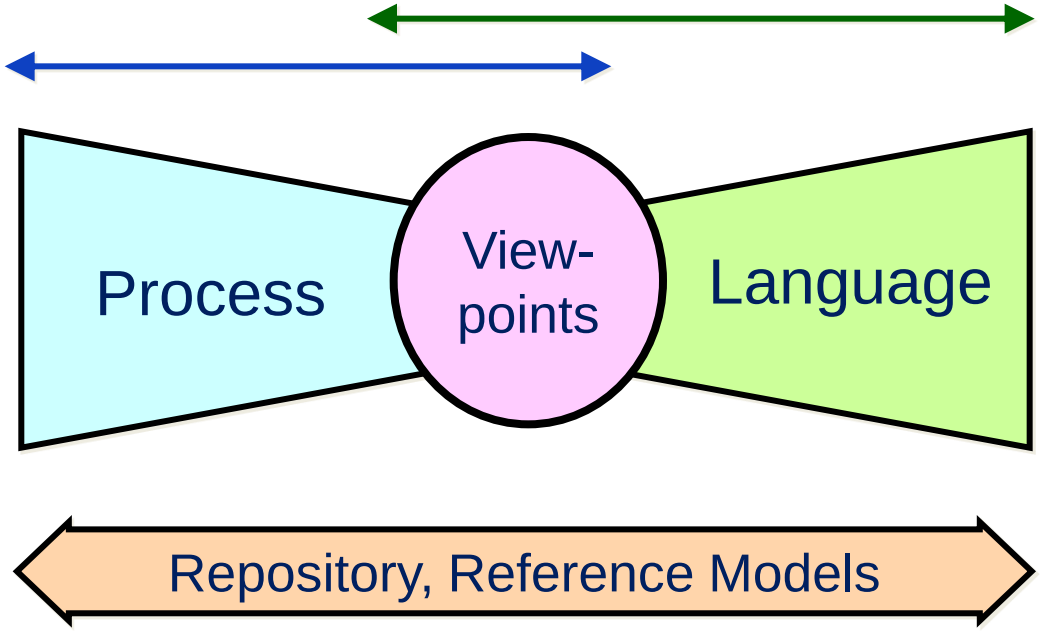
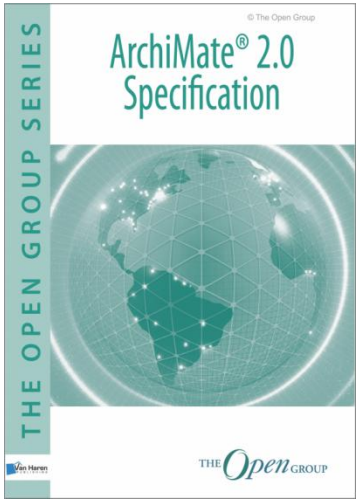
Ingredients of an EA Approach

TOGAF

ArchiMate







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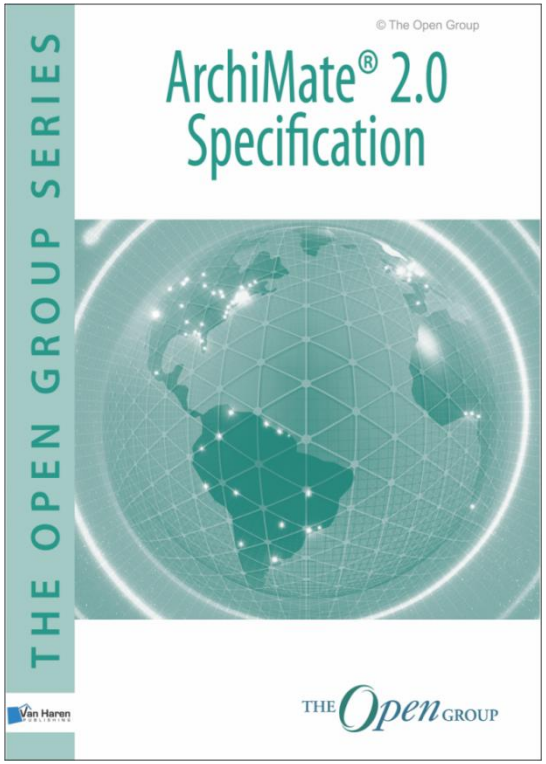
ArchiMate

- A *language* for describing architectures
- Covers business, application and technology layers
  - With relations between these layers
- Graphical language with formal semantics, enabling analysis and tool support
- Techniques for *visualization* and *analysis*, aimed at various stakeholders
- Open standard maintained by The Open Group
- See www.opengroup.org/archimate or www.archimate.org



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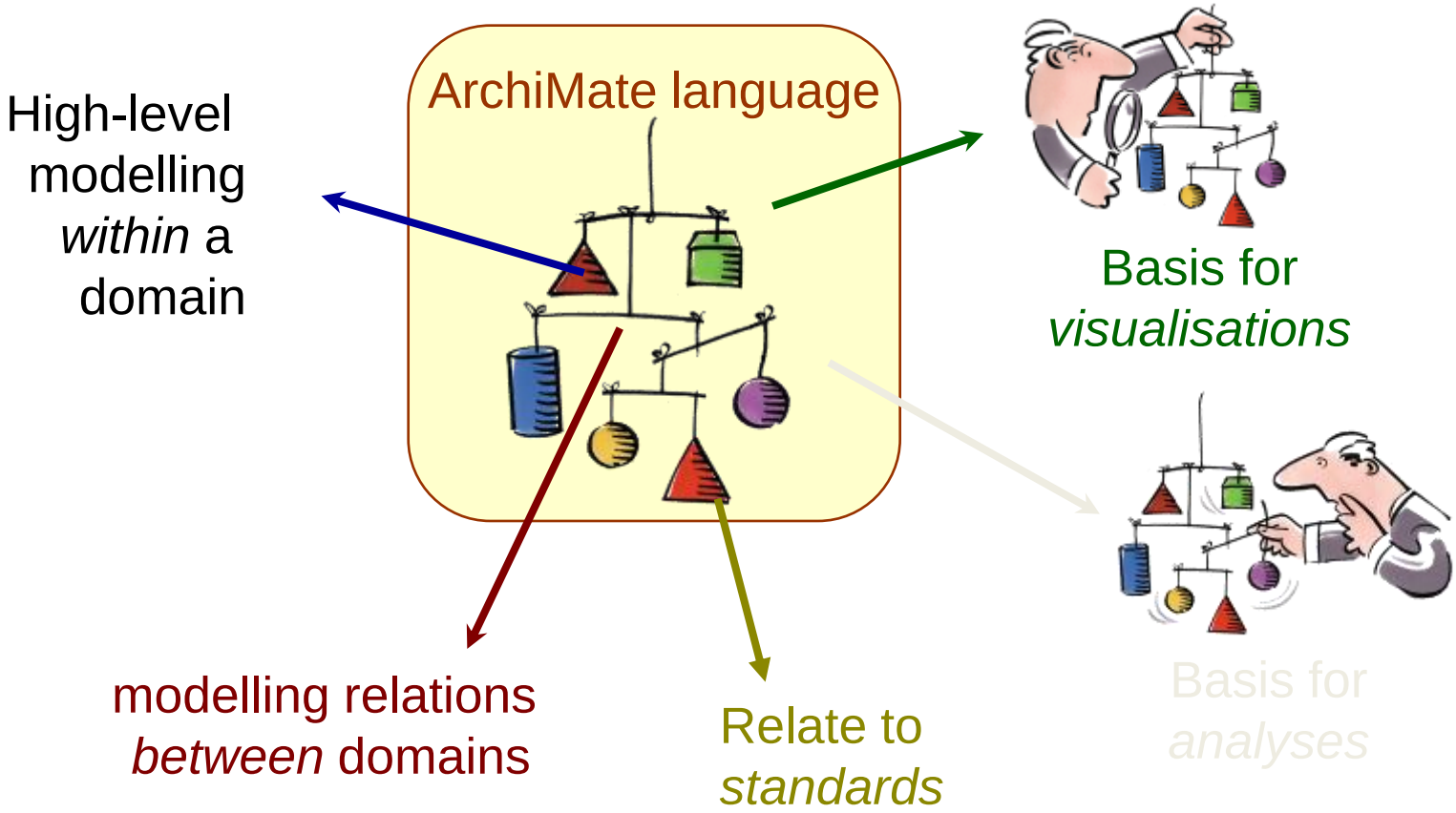
The ArchiMate Language



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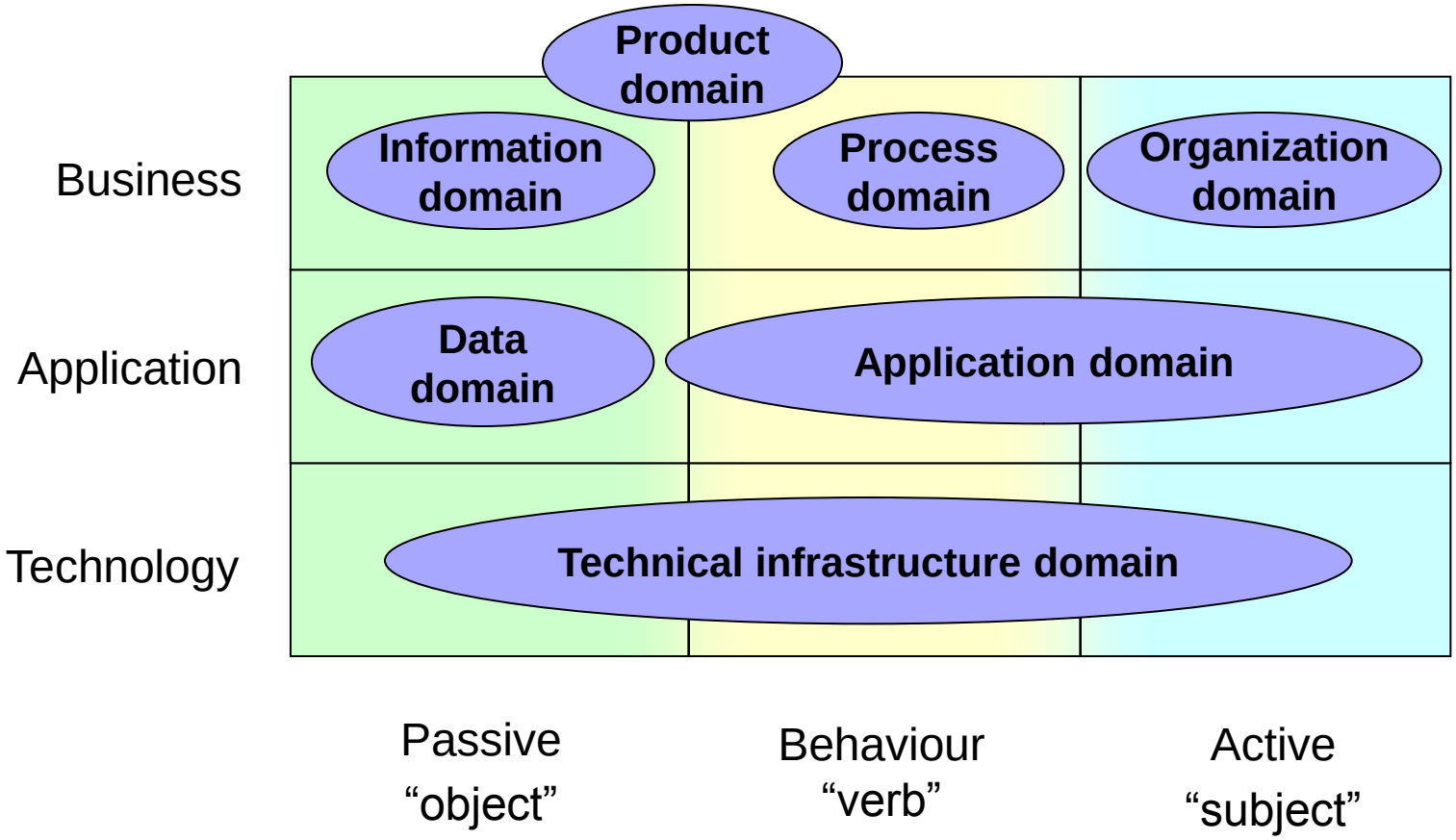
Layers, Aspects, and Domains



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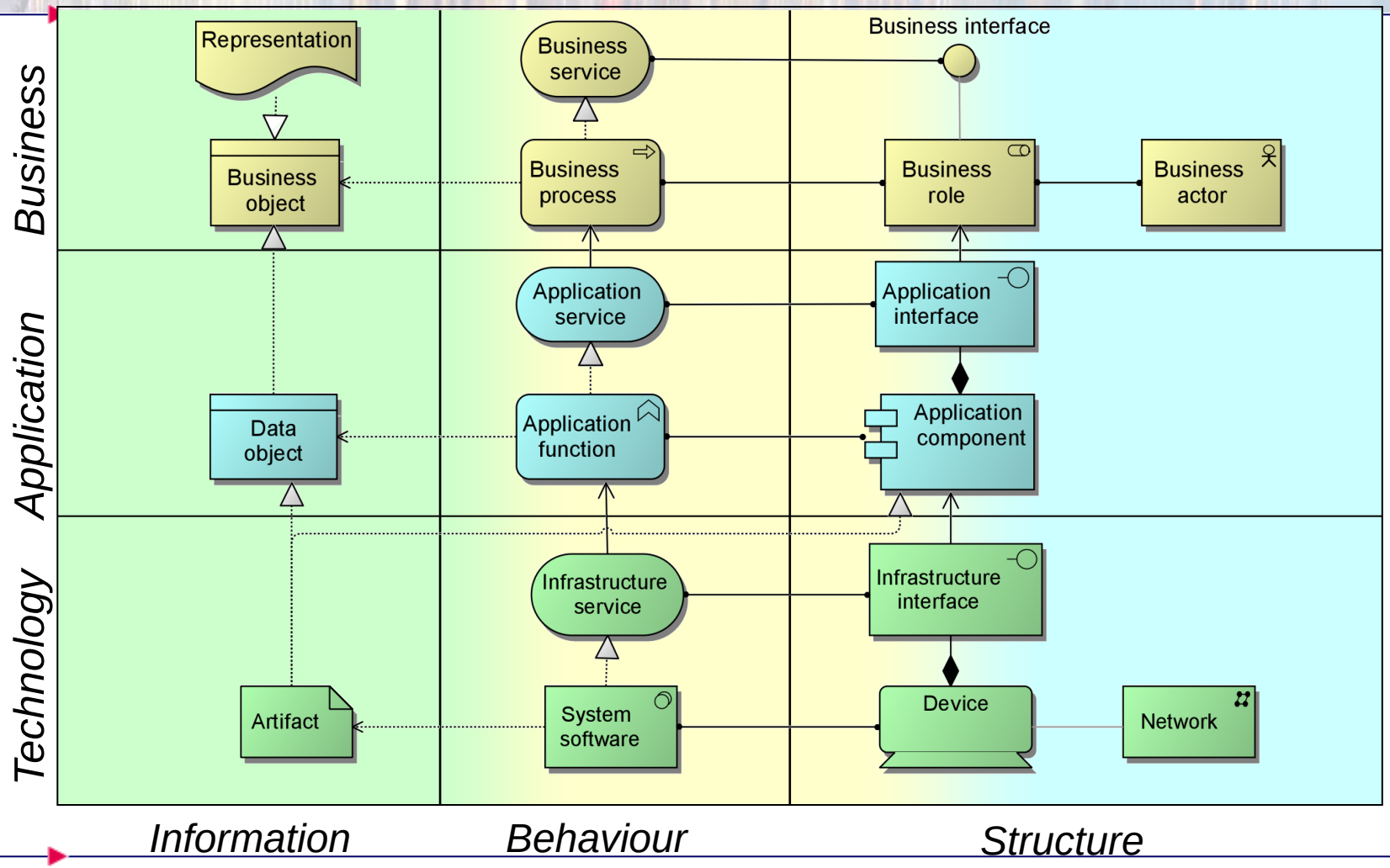
ArchiMate Core Summary



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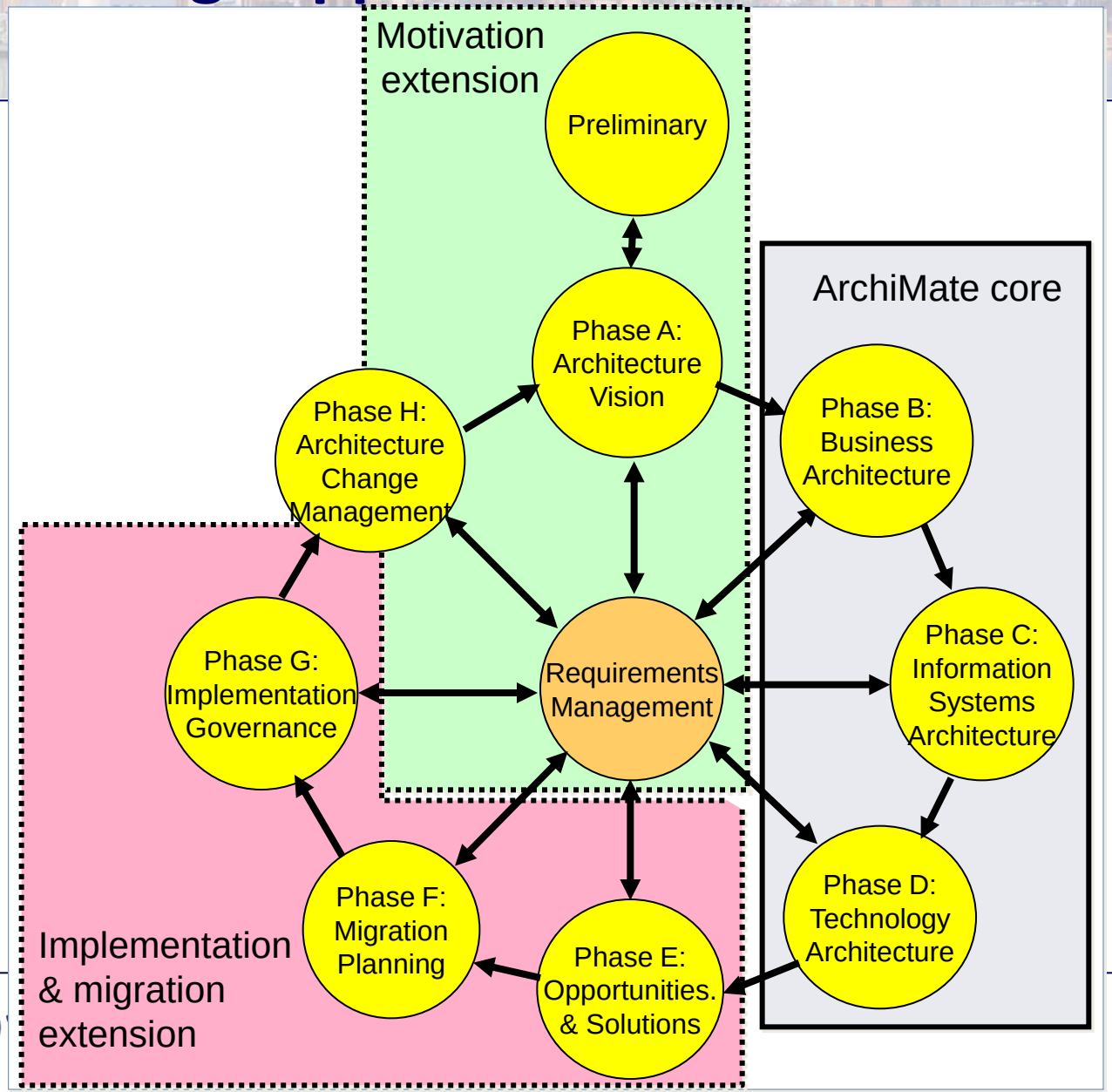
Modeling support for TOGAF



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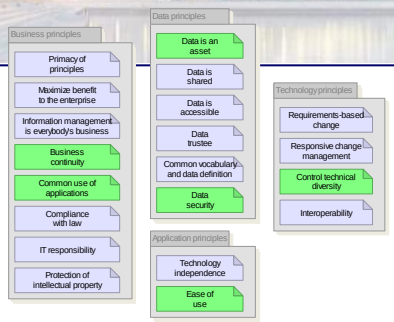
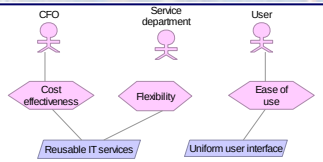
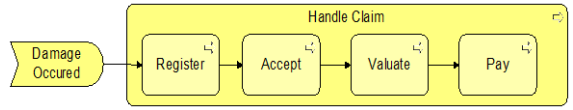
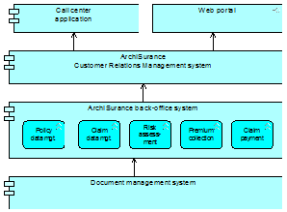
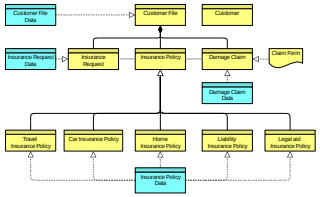
Models throughout the ADM

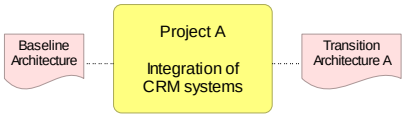


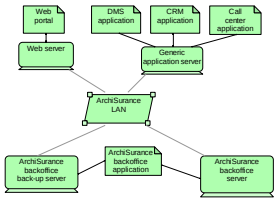


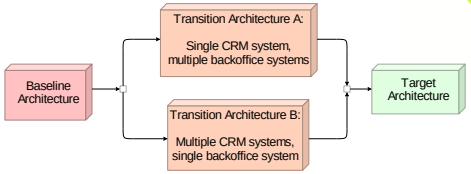












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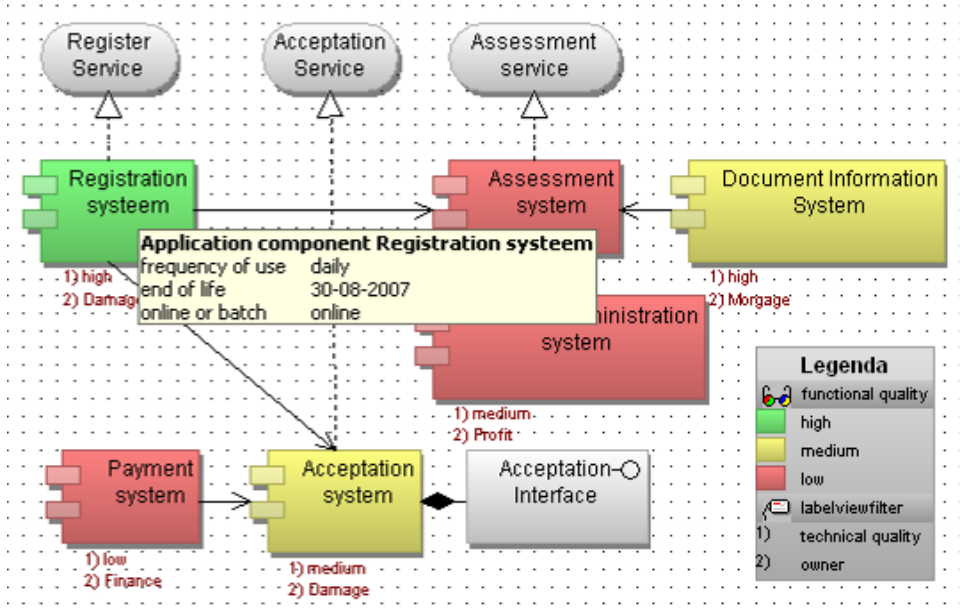
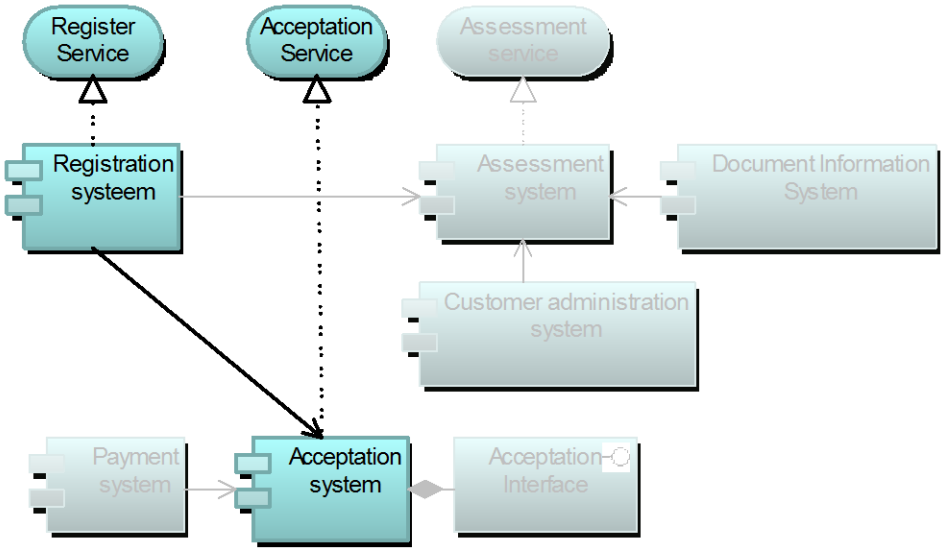
Examples views





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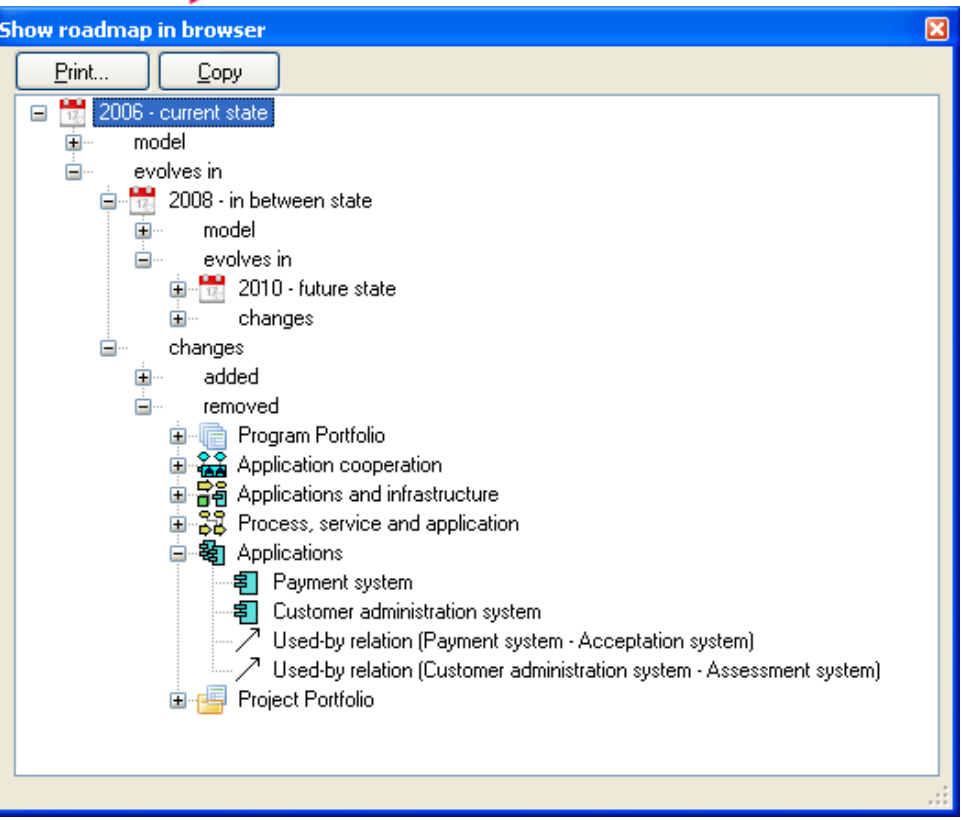
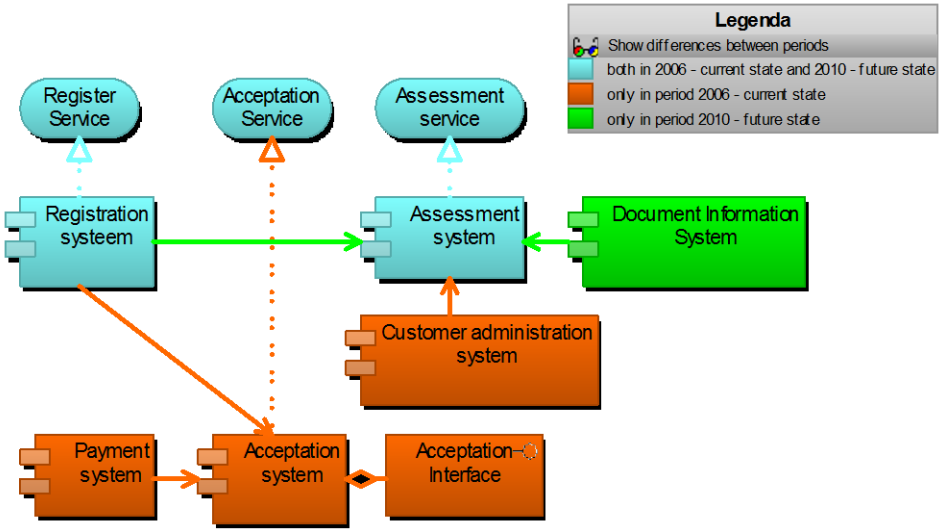
Roadmapping: differences as-is/to-be





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Some Organizations that benefit from ArchiMate

- Financial services,pharmaceuticals, government, transport, construction, energy, utility, media, healthcare, social security, services and education
- Various case studies available

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Case:
EA and ArchiMate at TATA steel

TATA

TATA STEEL

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Building Strong Organizations

Business Profile TATA Steel

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Building Strong Organizations

Tata Group: A worldwide concern

- One of the world's fastest growing and most respected corporations
- Tata businesses span 7 major industry sectors
- India's largest private sector employer, with 400,000 employees worldwide.
- Operations in more than 80 countries
- Total revenue in 2009-10: $68 billion

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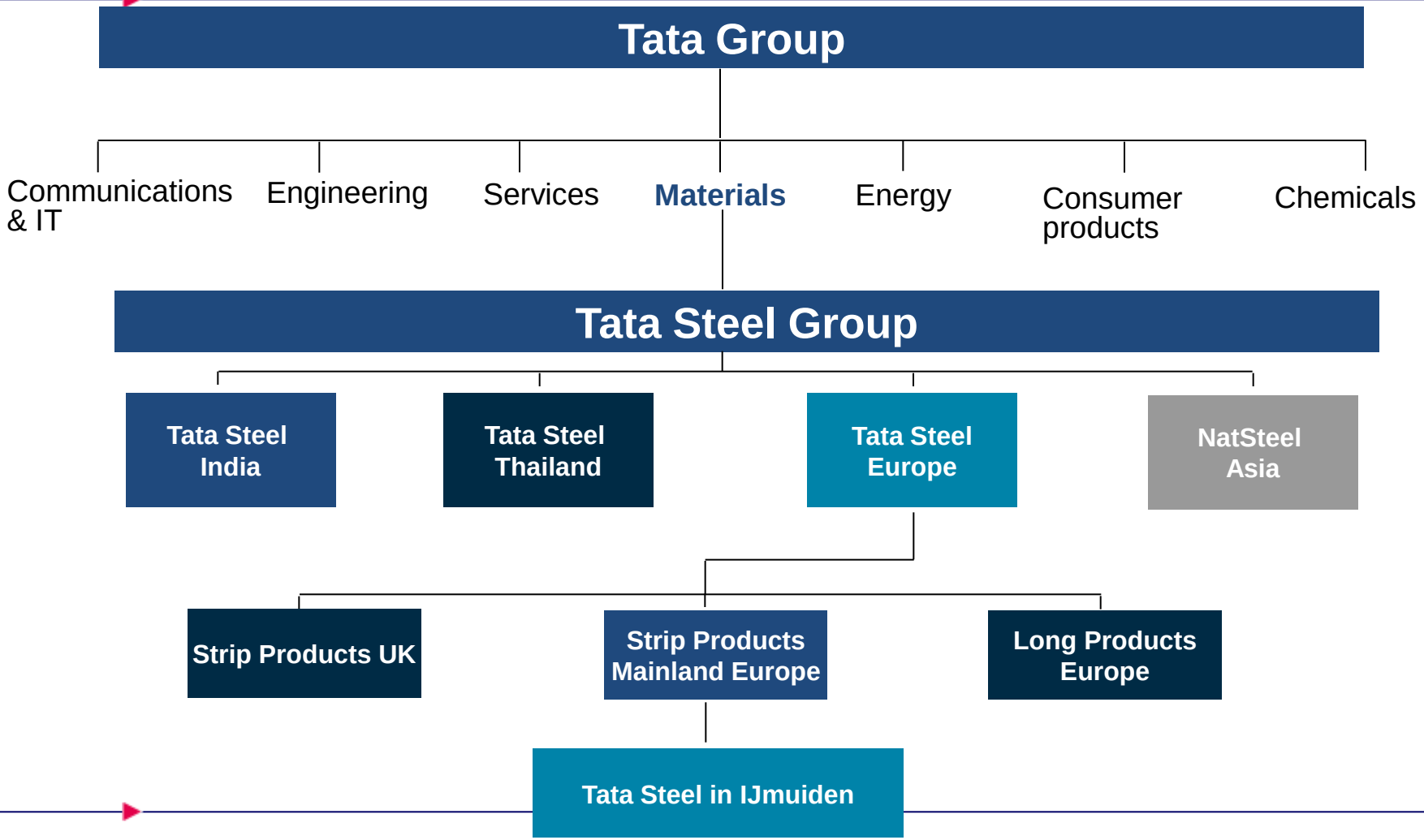
From Tata Group to Tata Steel in IJmuiden



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Tata Steel in Europe: Market sector focus

Automotive

Construction

Energy & power

Lifting & excavating

Packaging

Rail

Industry & portfolio
(consumer goods, shipbuilding, aerospace, defence & security)

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Market & steelmaking hubs

Tata Steel in Europe

- Strip Products Mainland Europe
  - largest production facility located in IJmuiden
- Strip Products UK
  - largest production facility located in Port Talbot
- Long Products Europe
  - largest production facility located in Scunthorpe
- Speciality businesses and services close to the customer

Representative of major sites only

● Production location

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Large and complex production sites

Example: IJmuiden

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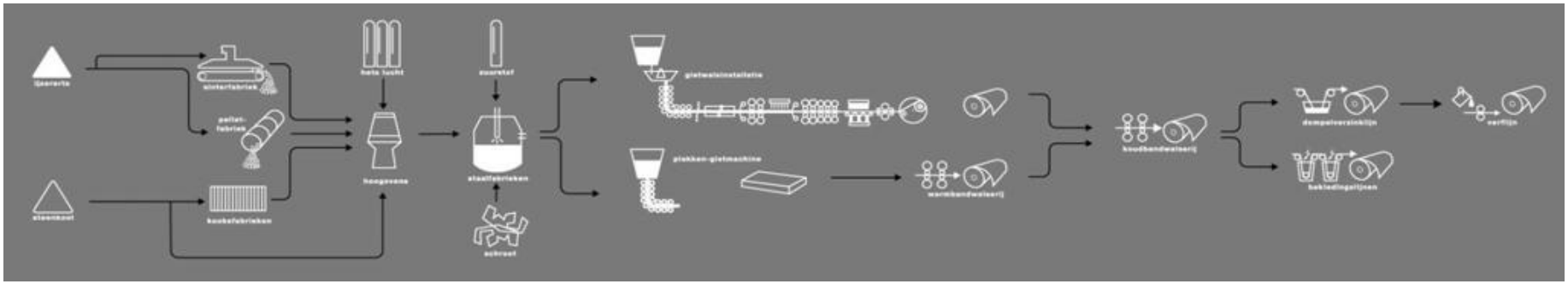
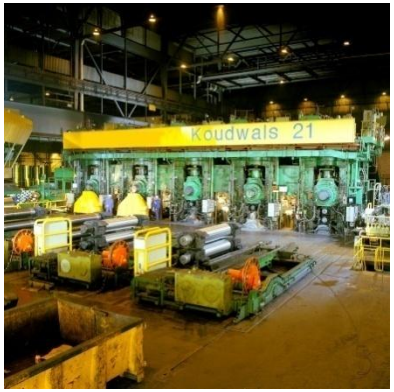
Tata Steel in IJmuiden: high-quality processes

TS IJmuiden produces high-quality hot-rolled, cold-rolled and coated steel



Raw materials - Pig iron - Steelmaking - Casting - Rolling - Coating



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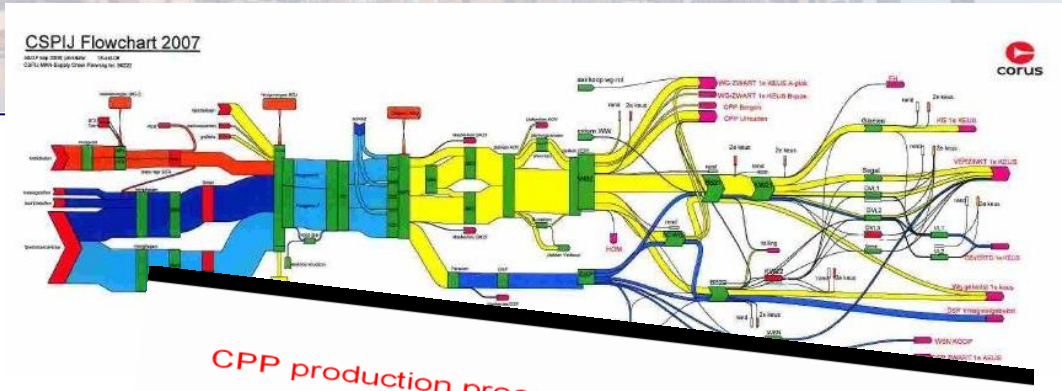
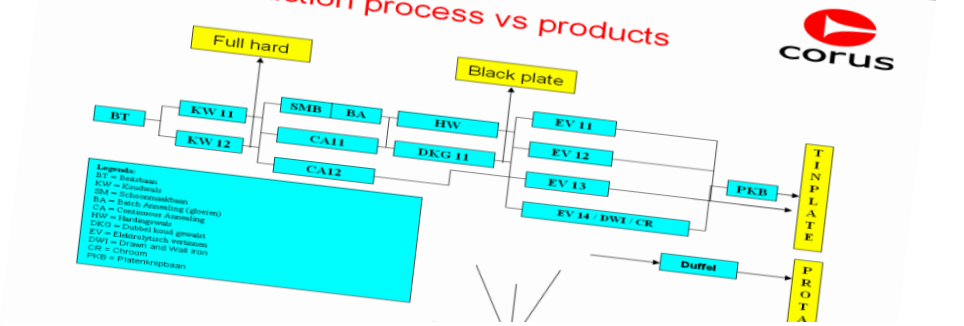
Approach on EA and ArchiMate

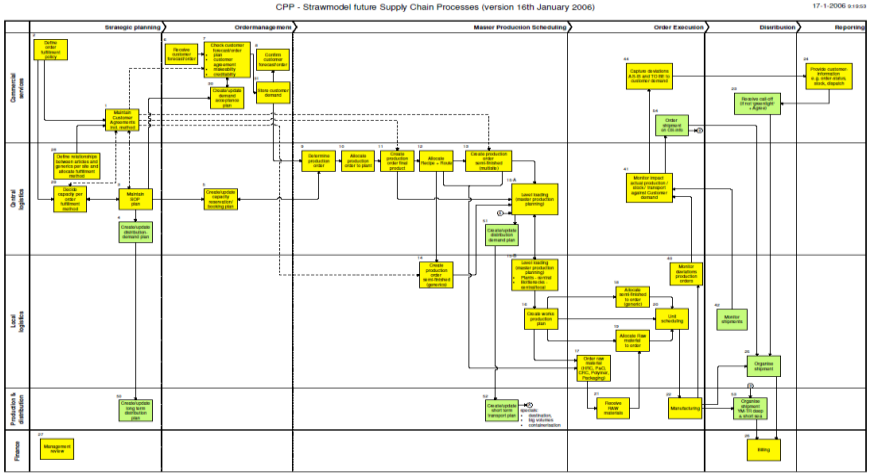
History & Start-up

History of Process Architecture @ Tata Steel

- In manufacturing information processing is not the core business.
- Process Optimization is common practice in manufacturing (PDCA, Lean/6sigma, visual factory).
- Hardly any synergy in process-modelling.
- Process descriptions are used as reference material and for internal and external audits.







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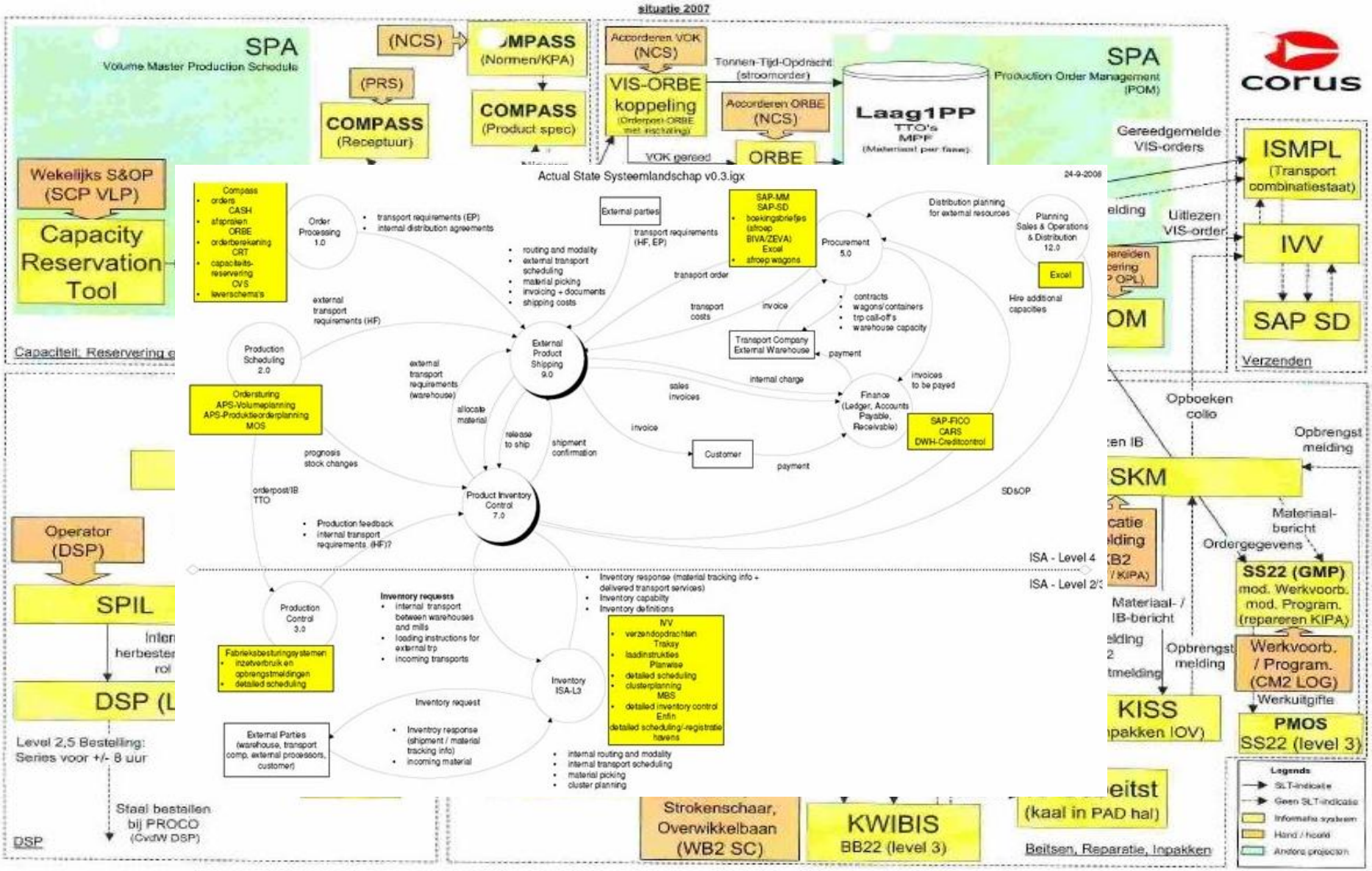
History of Application Architecture @ Tata Steel



Enterprise Architecture @ Tata Steel Europe

- Enterprise Architecture ("EA") is the consistent framework of principles and models that guides the design and development of business processes, information systems and technology, with emphasis put on coherence.

Open
Complete
Coherent

EA-steps at Tata Steel 2008-2010:

- 2008: **ArchiMate** selected as EA-modelling language and **BiZZdesign-Architect** (BDA) as EA-modelling tool.
- 2009: First trials with modelling; **Workgroup EA@Tata Steel**
- 2010: local developments at some works; smaller developments at other units. **TOGAF** selected as EA Framework
- 2011: More extensive use of ArchiMate

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Why now EA @ Tata Steel?

- The change from Corus to Tata Steel, including the synergy challenges and opportunities this brings.
- The introduction of the New Operating Model (NOM).
- The creation of GIS (Group Information Services) in which IM-demand and IT-supply will be combined.
- Strategic developments like TBEM.
- And some very large projects like: Supply Chain Transformation (SCT), Journey to Excellence, IJmuiden 2012.
- Economic Crisis

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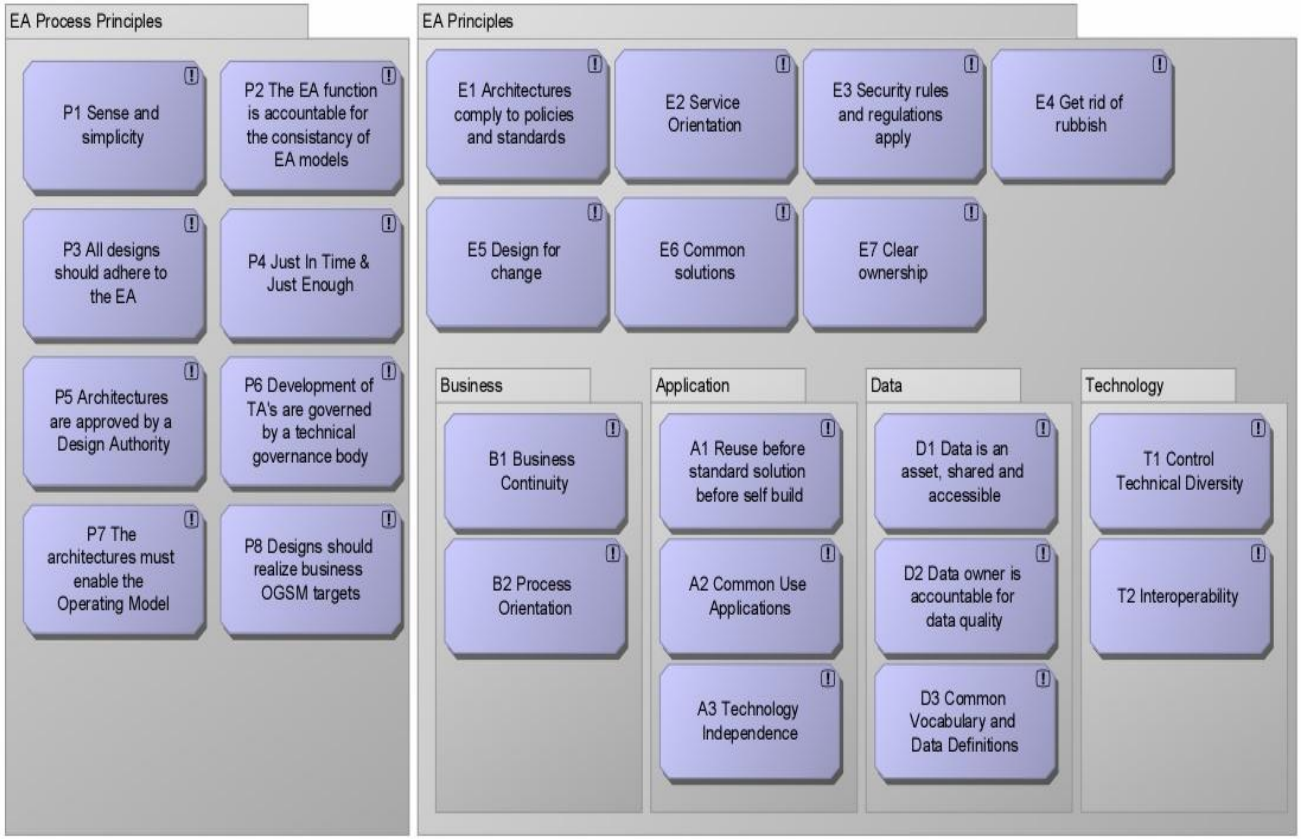
Approach on EA and ArchiMate

Examples of use of ArchiMate
at Tata Steel

EA Principles

- Starting point: EA-principles defined when we started with EA.
- To be known and understood by everyone who is working with Ea, checked in the Compliancy assessment.



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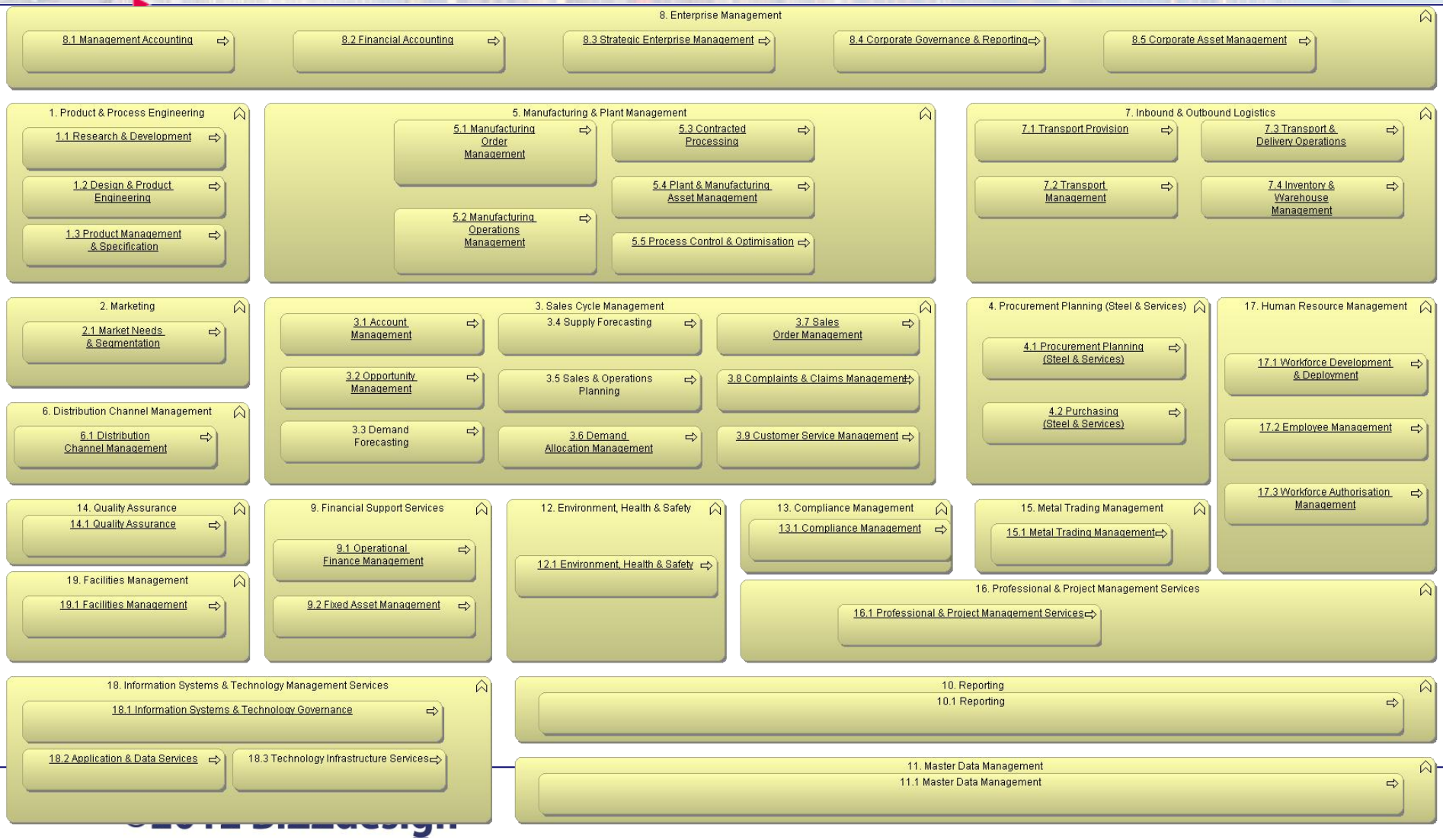
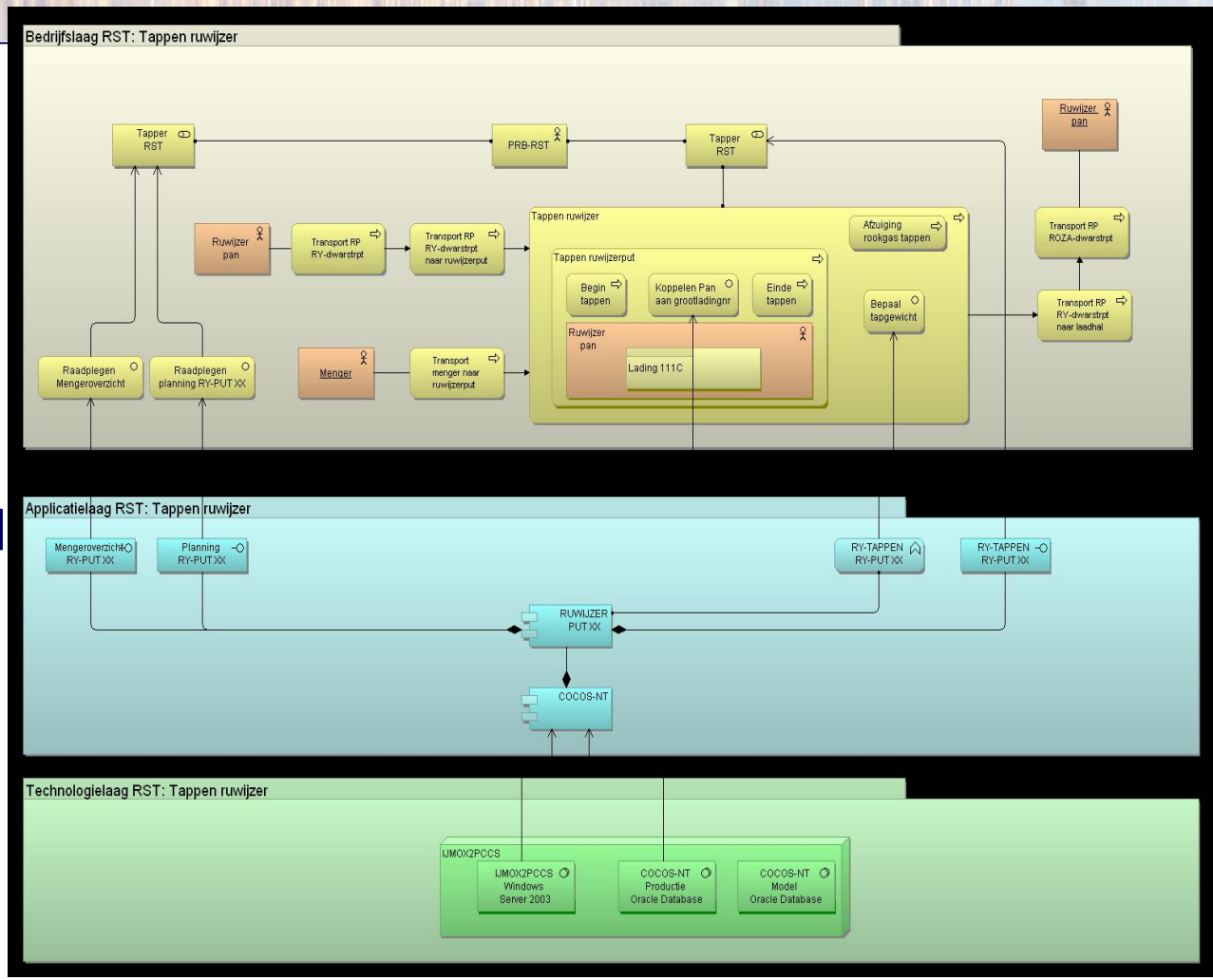
Enterprise Processes Reference model



Use in Steelplant: Overview

- Stakeholders:
  - Information Management
  - Project Management
- Purpose: High level overview of (coherence of) processes, applications and technology



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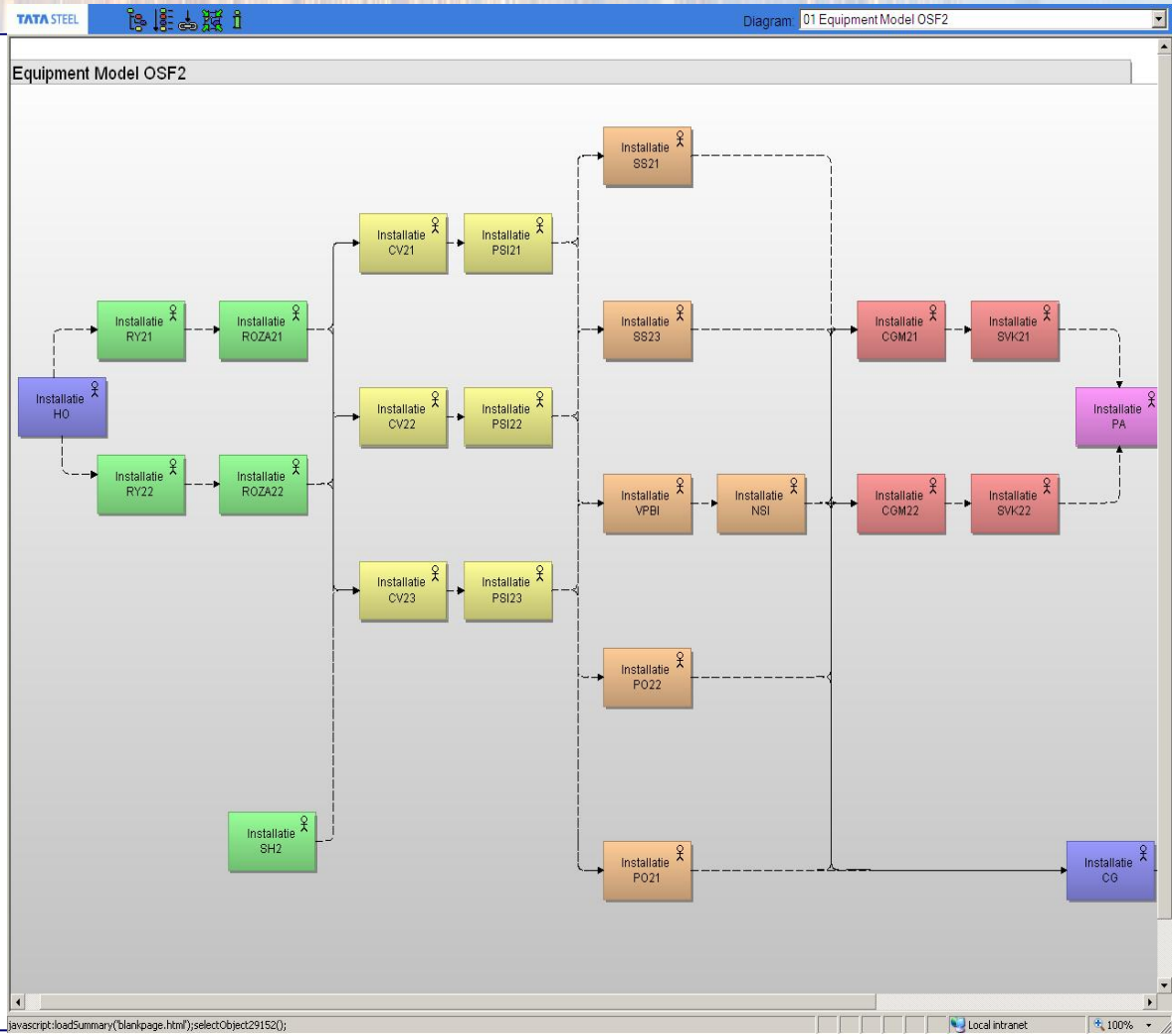
Steelplant: Equipment model

- Stakeholders:
  - Plant Maintenance
- Purpose: how are similar processes supported by equipment in different ways.
- Context:
  - Req: installations come with their own descriptions and manuals. Hard to find similarities over installations/plants.
  - Approach: translate specific pictures to generic views.
  - Result: visibility of similar solutions.



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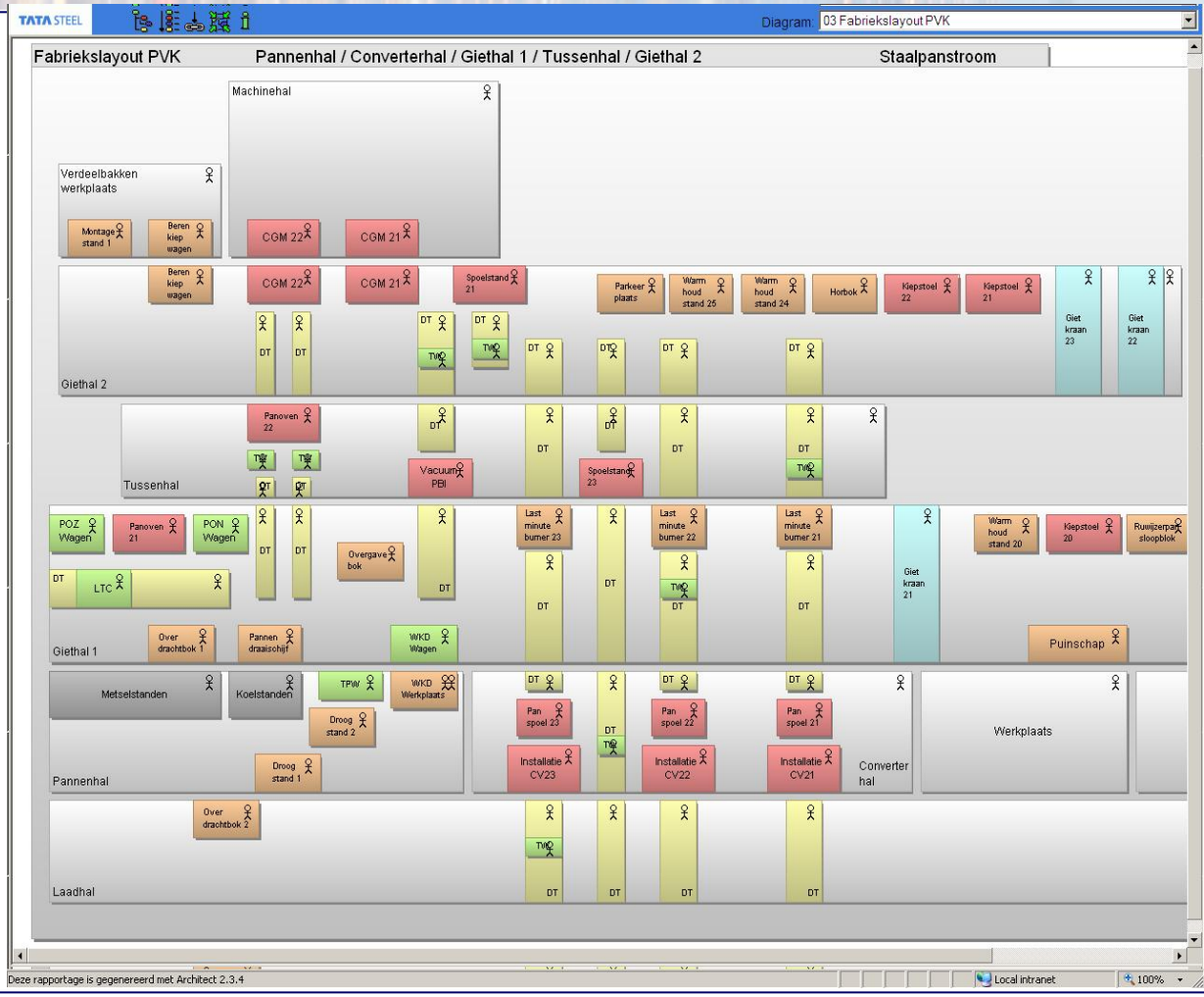
Steelplant: Hall layout

- Stakeholders:
  - Plant Management
- Purpose: Persuade Plant Mgt that EA-modeling is useful.
- Context:
  - Req: Plant Mgt showed plant-layout: can that also be done in ArchiMate?
  - Approach: within 1hr modeled concepts in similar view.
  - Result: acceptance by Plant Mgt.



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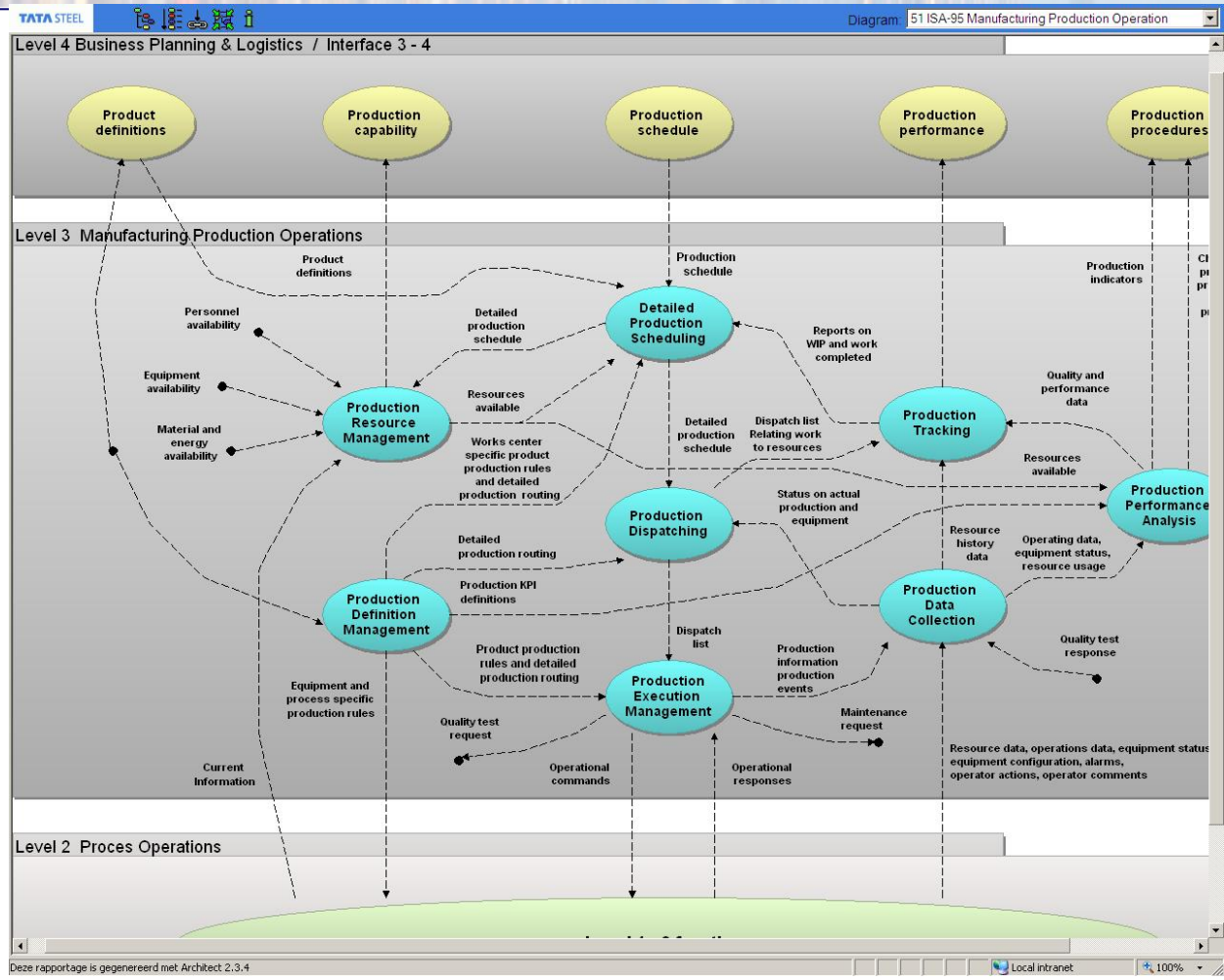
Steelplant: ISA95

- Stakeholders:
  - Process Management
- Purpose: Link process-models at Tata Steel to ISA95 reference model.
- Context:
  - Req: Within production ISA95 is an accepted reference model. Can this be visualised with ArchiMate?
  - Approach: introduce ISA95 viewpoint in EA-tool.
  - Result: visualisation of processes similar to ISA95-symbols



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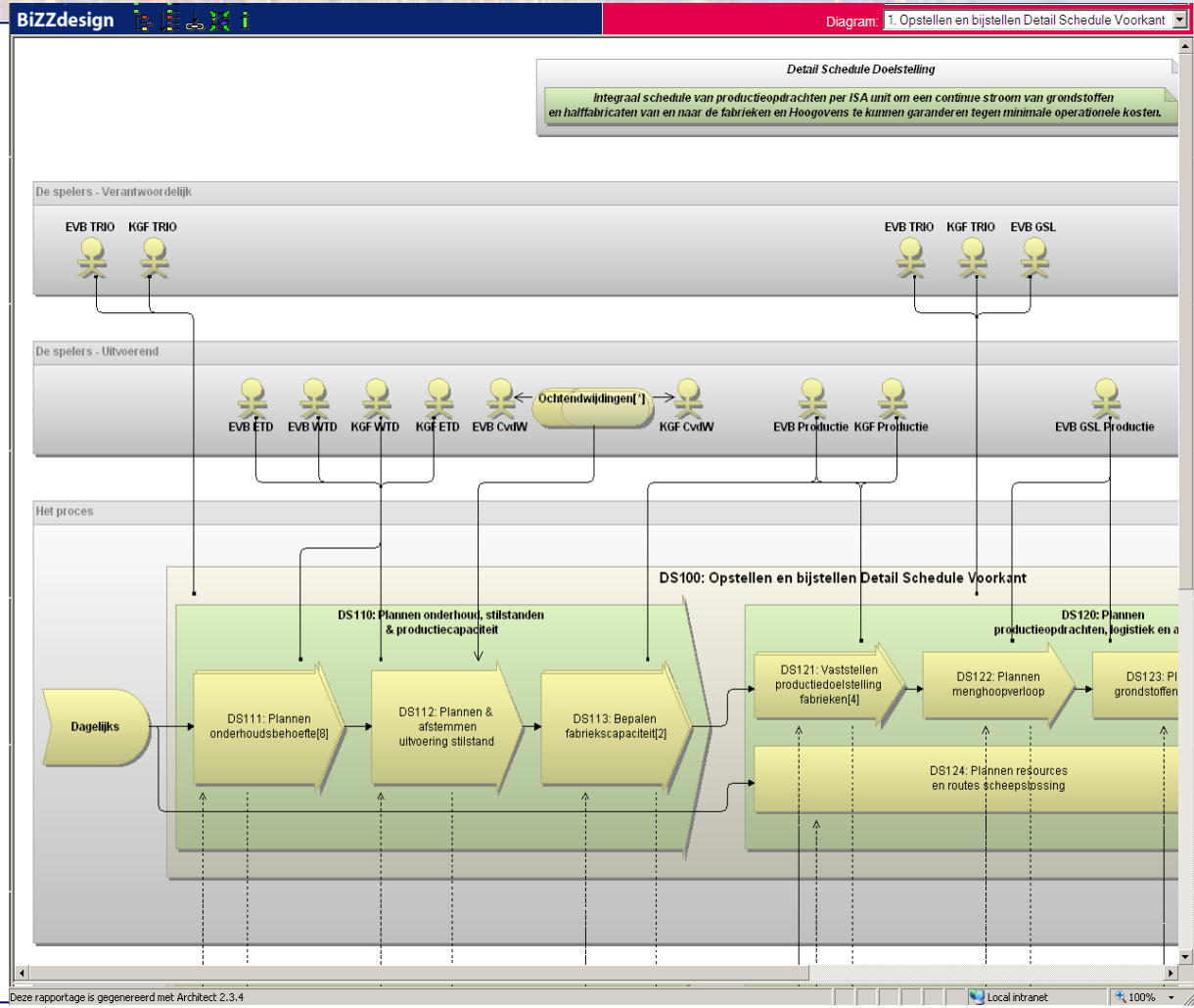
Raw material handling process

- Stakeholders:
  - Middle management
- Purpose: give insight in how specific processes contribute to certain business goals, and which players are involved.
- Context:
  - Req: show execution and management in 1 view.
  - Approach: combine already produced views.
  - Result: drilldown of overview.



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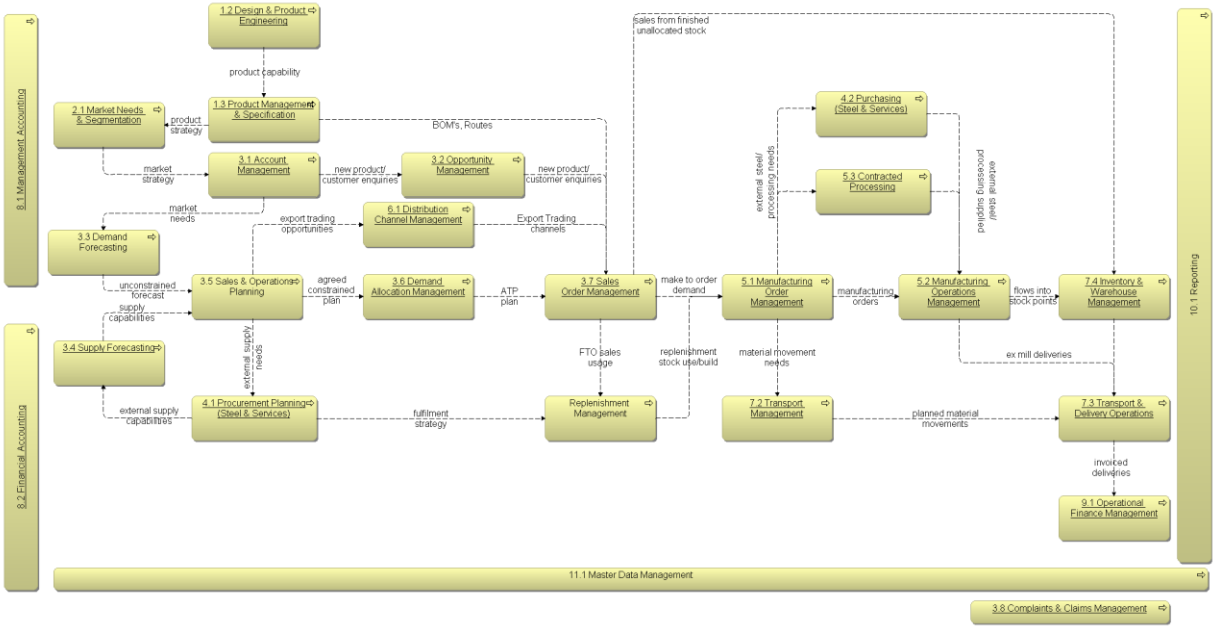
SCT Level 0 process flow

- Stakeholders:
  - Management
- Purpose: Give a high level overview of the business processes and information flows in the new Supply Chain.
- Context:
  - Req: Show total SCT process flow in one diagram
  - Approach: Developed in workshop sessions
  - Result: View is presented in several presentations with management



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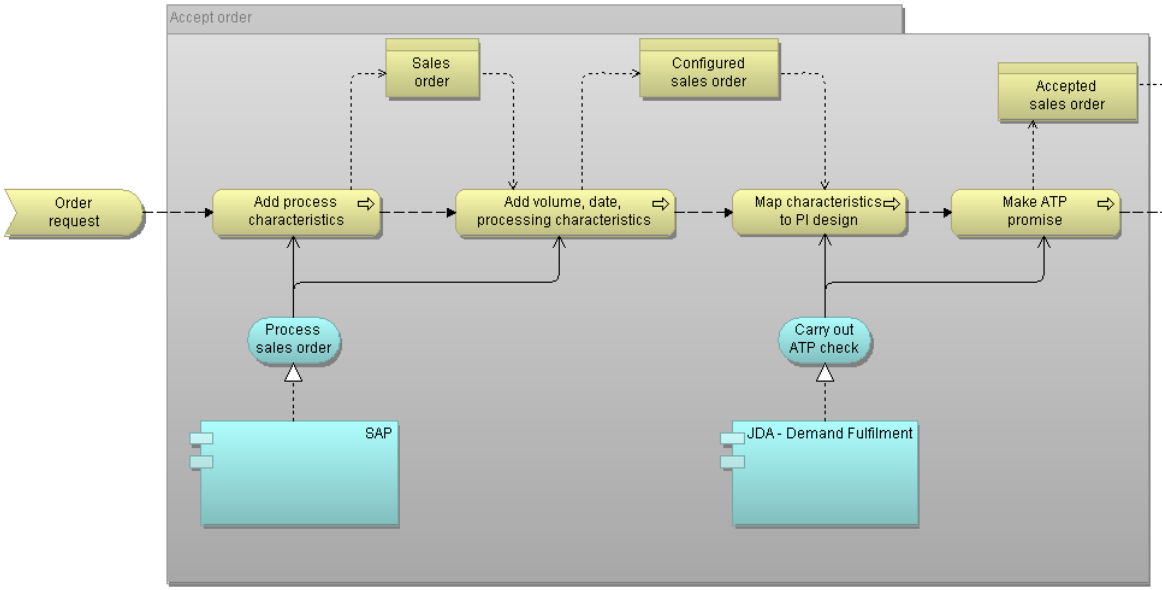
SCT Level 1 processes and applications

- Stakeholders:
  - Process/application designers
- Purpose: Provide a more detailed process flow of a part of the total SCT process.
- Context:
  - Req: Show process steps, information flow, and supporting applications
  - Approach: Developed in workshop sessions
  - Result: Used as input for application development



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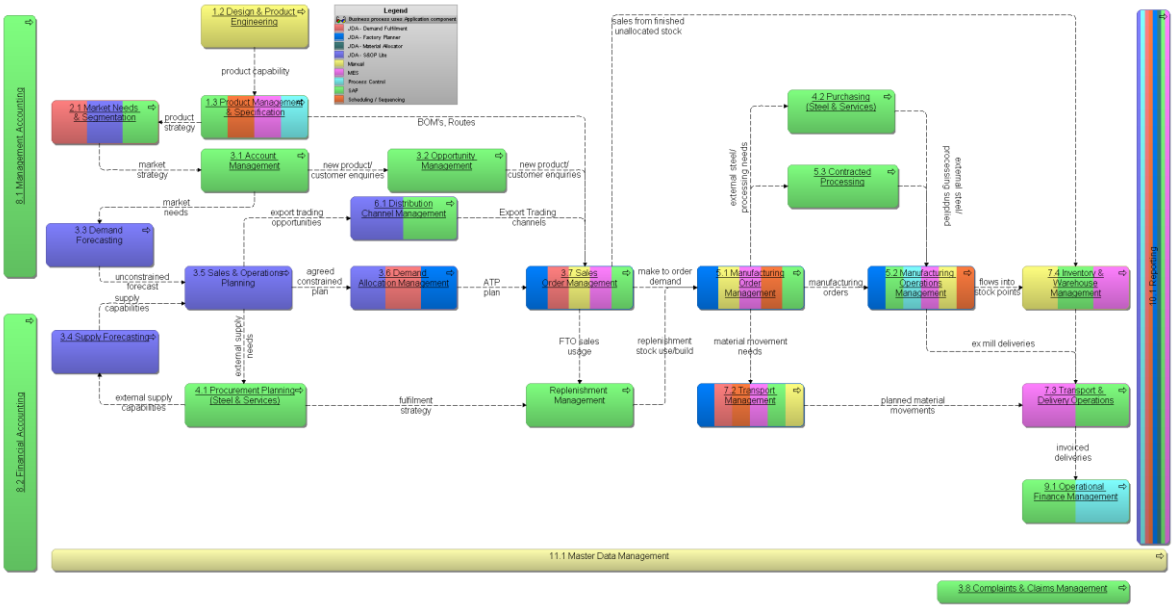
SCT Level 0 Process flow and mapping to applications

- Stakeholders:
  - (Project) Management
- Purpose: Give a high level overview of supporting applications in future Supply Chain
- Context:
  - Req: Take high level process flow as starting point, add application layer
  - Approach: Developed in workshop sessions, used colour view to visualise
  - Result: View is presented in several presentations



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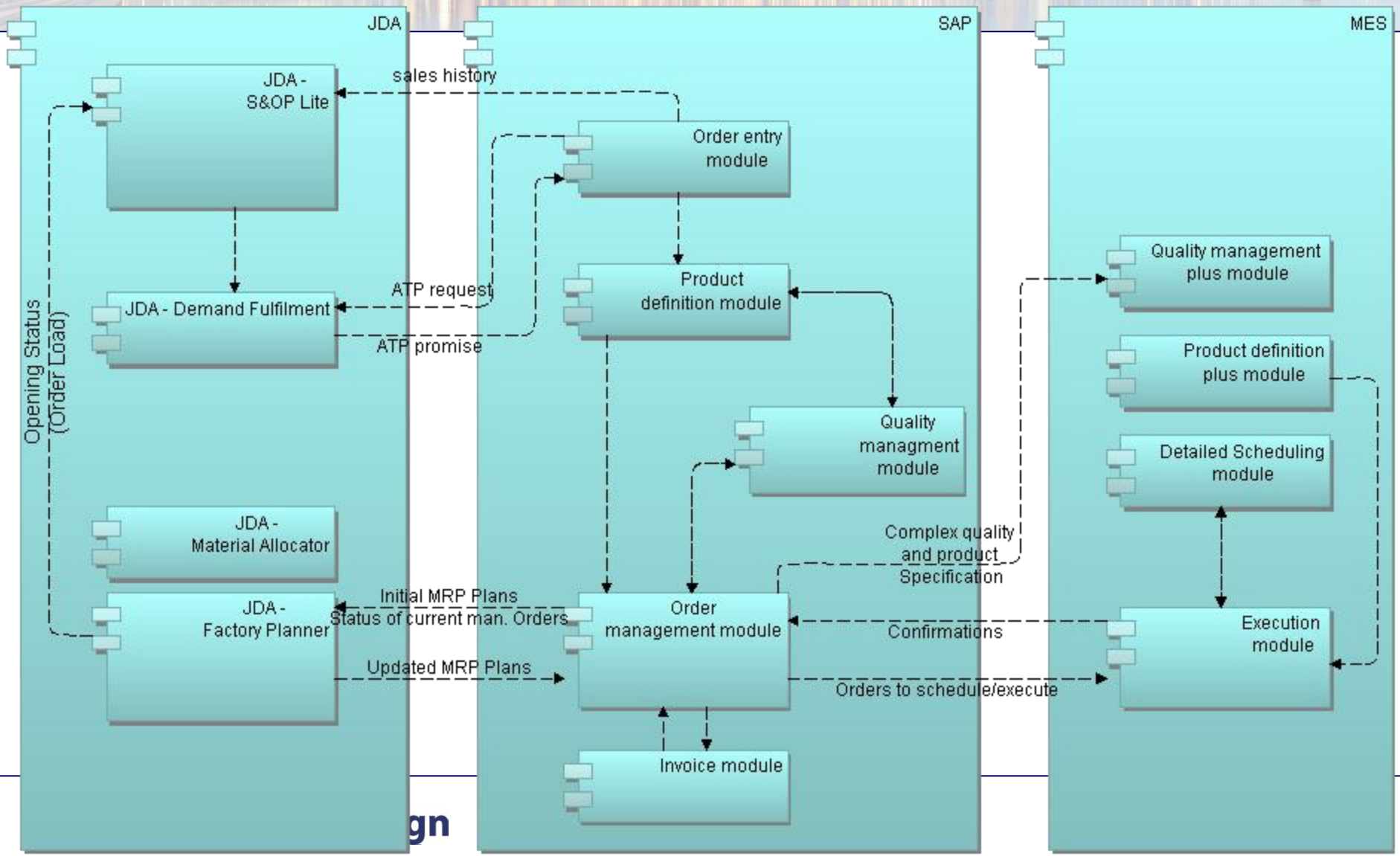
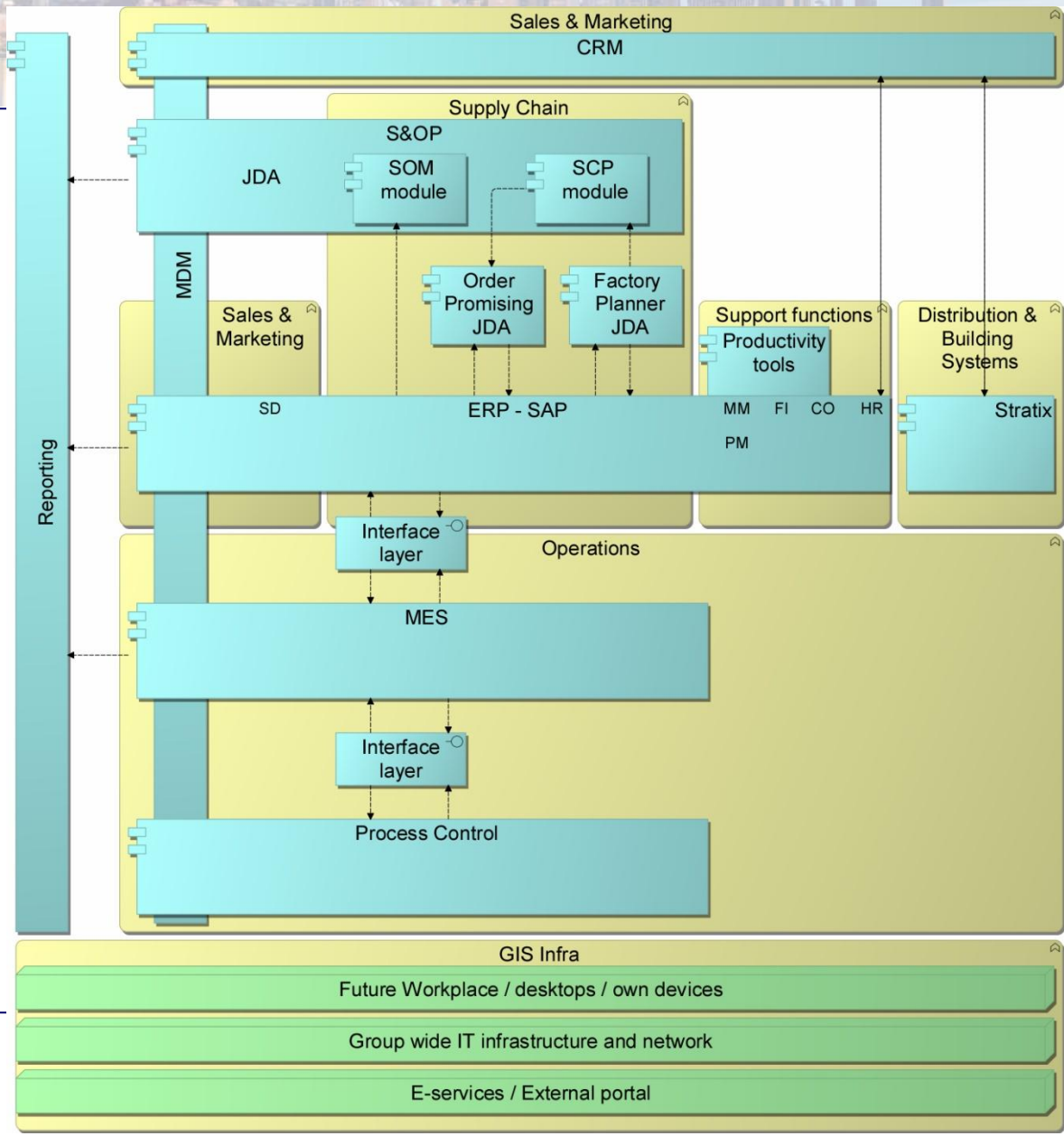
High level application landscape and data flows



Future landscape 2017

- Stakeholders:
  - Higher Management
  - Purpose: Give insight in future landscape (201t)
- Context:
  - Req: All main developments in IT need to be recognizable
  - Approach: Based on existing landscape pictures and additional input of IT directors
  - Result: View is used as common Architecture Vision view



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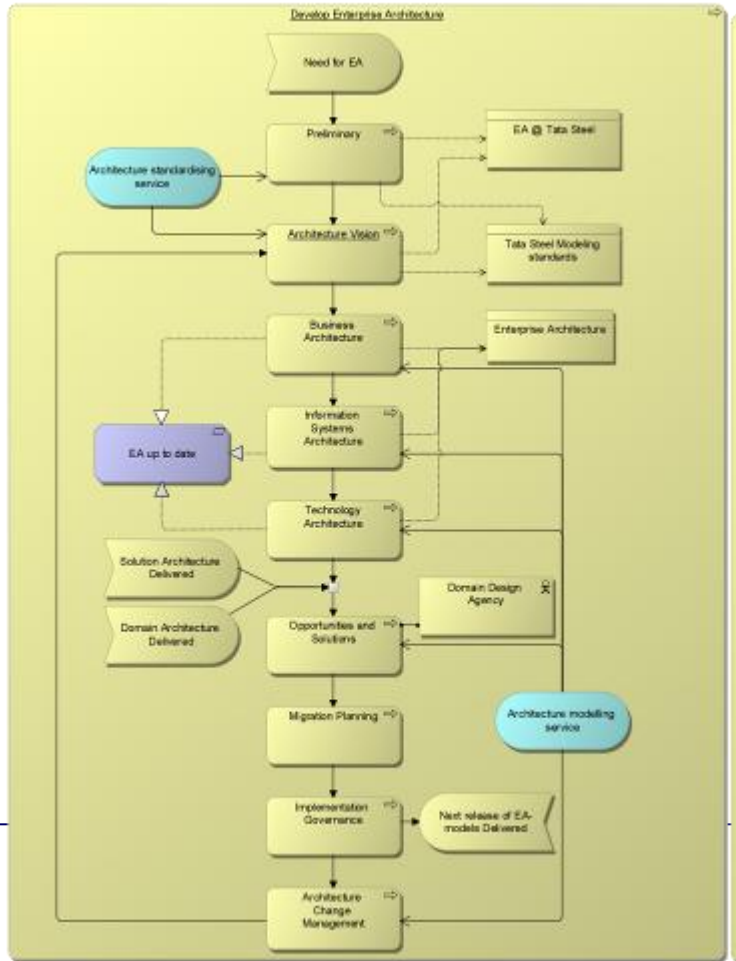
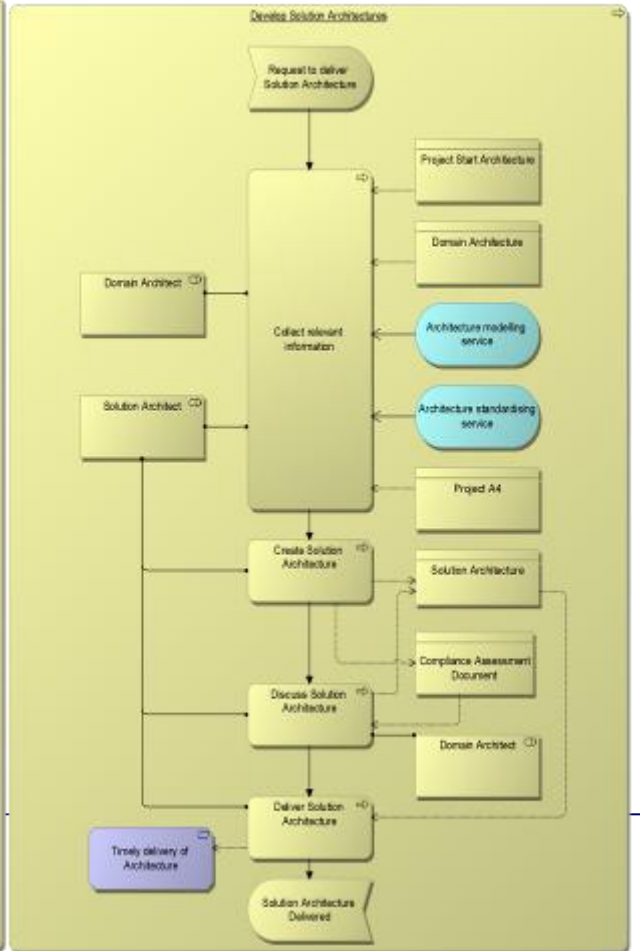
EA Processes modelled in Archimate





- EA governance based on TOGAF
- EA-support for value creation processes are modelled as EA processes

Approach on EA and ArchiMate

Governance

Organisational mapping: Governance

	Business	Information systems	Technology
Enterprise	Validation of Enterprise / Domain architectures	Validation of enterprise / Domain architectures	Validation of enterprise / Domain architectures
	Design Authority		
Domain	Validation of solution architectures	Validation of solution architectures	Validation of solution architectures
	Domain Design Agencies		
Project			

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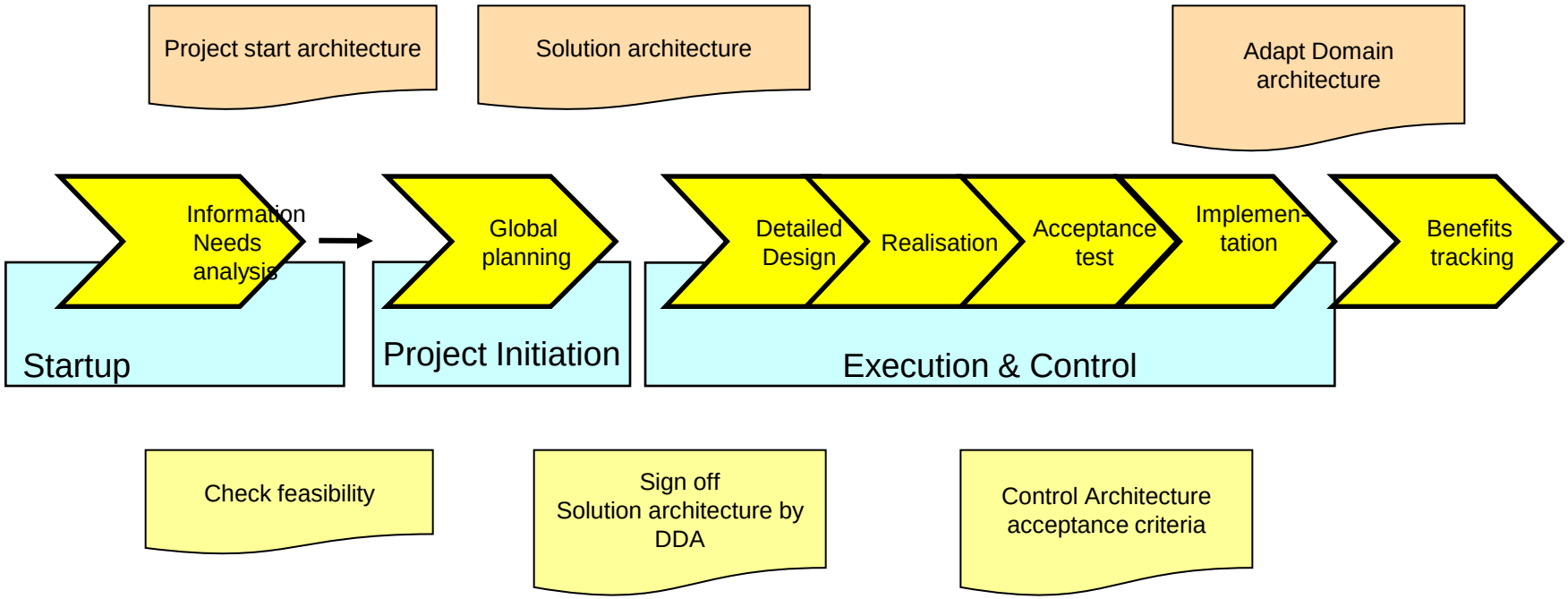
EA and Project Phasing



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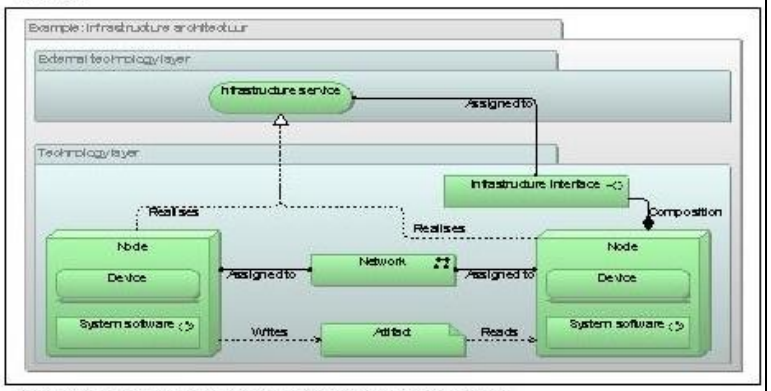
Modelling standards details

Topics in the standards document:

- Usage of ArchiMate@TSE; which symbols and relations to use; naming conventions.
- Starting points in using Bizzdesign-Architect@TSE: practical tips in using the EA-tool.
- Governance.
- Publication (html or word).
- Use of attributes/profiles.
- Use of reference models (ISA95, SCOR, etc.).

2.7.1. Technology Layer

Example:



Picture 4: Example of Archimate symbols in Technology Layer

2.8. External technology layer

External technology layer - Beschrijving		
Name	Definition	
Infrastructure service	Externally visible functionality for application functions, realized by one or more nodes.	Combination of nouns, of which the first one starts with a capital, eg: Database service, Messaging service.

Table 6: Naming conventions for external technology layer

2.9. Technology layer

		Technology layer - Beschrijving
Name	Definition	Naming convention
Network	Physical communication medium between two or more devices.	Logical name by which a network is known, all parts capitalized, e.g.: MQ.
Artifact	A physical piece of information that is used or produced in a software development process or by deployment and operation on a node.	Noun.
Node	A computational resource upon which artifacts may be deployed for execution.	Server: logical name by which the server is known, all parts capitalized, e.g.: EVA, HDN Messageserver. Servertype: abbreviation for supplier + type as used by supplier, e.g.: S595F AB

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EA @ work examples: should we add attributes; and if so: which?

CPP - Windows Internet Explorer provided by Corus RD&T

P:\Appl\Bizzdesign\Architect\CPP\report for cpp sop\html\aa_reportstart.html

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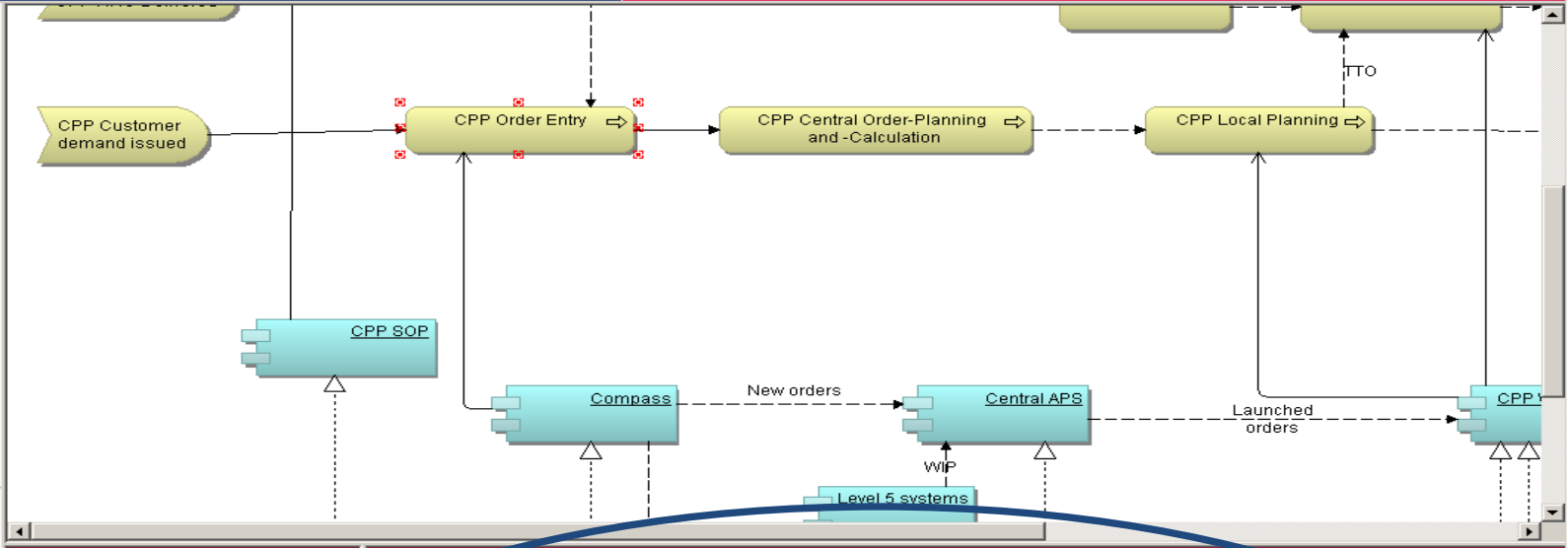
Diagram: CPP Processes and systems

Model browser

- CPP
  - Connectors
  - Bedrijfsprocessen
  - Bedrijfsactoren
  - Bedrijfsfuncties
  - Bedrijfsproducten
  - Bedrijfsinformatie
  - Applicaties
  - Applicatiedata
  - Infrastructuren
  - Architectuurprincipes
  - Programma's en projecten
  - Periodes
  - Balance CPP SOP
  - Category view
  - CPP Master processes
  - CPP Organisation
  - CPP Processes and systems
  - CPP SOP Overview
  - Totaalview uitgebreid



Model index

Index: Name

Go to: A

Expand Collapse

A B C D E F H I K L M N O P Q R S T

CPP Order Entry Profile Summary

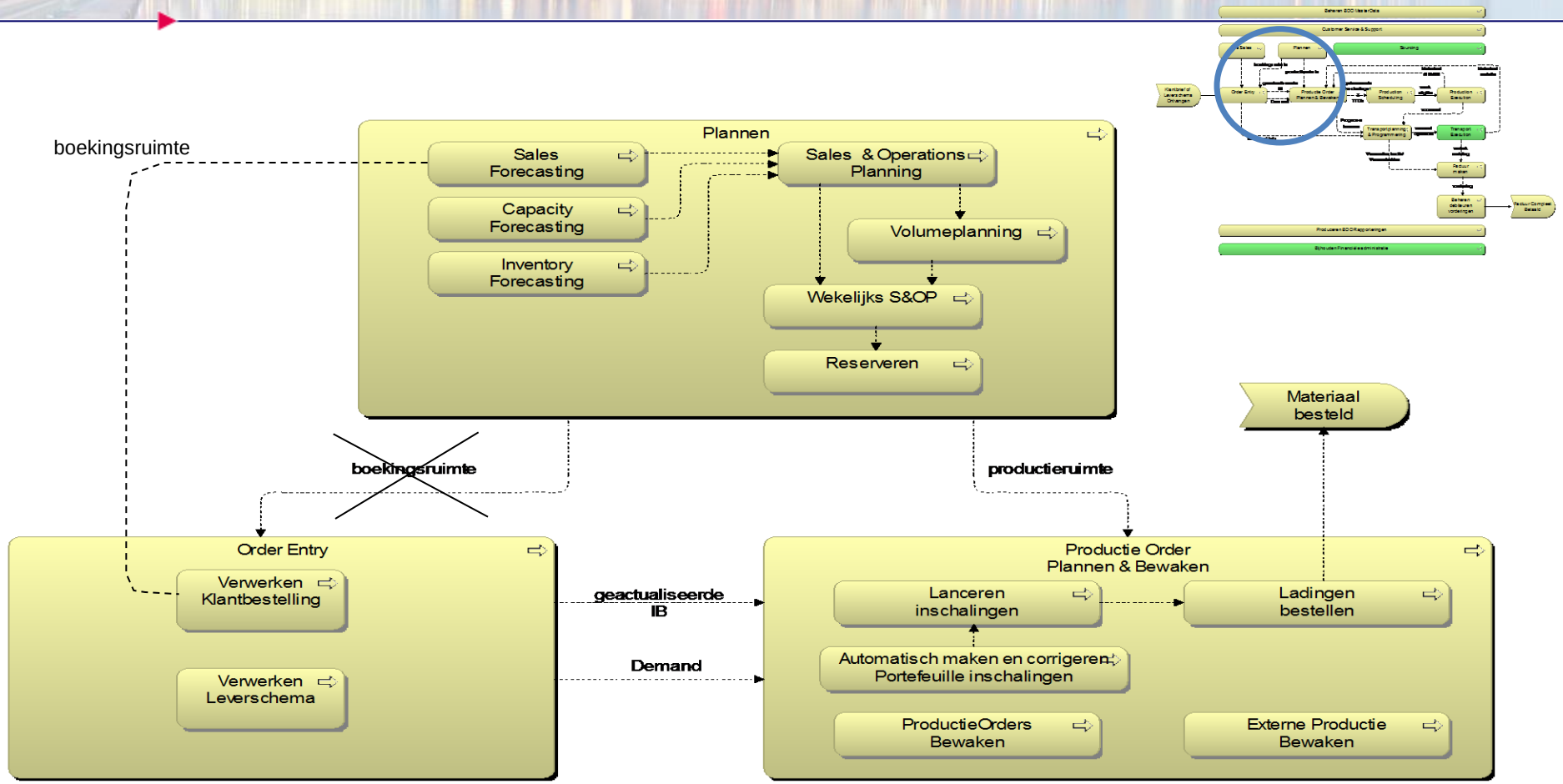
Business process CPP Order Entry	
Documentation All processes around the generation of sales orders (single or repeating).	
Profiles	Attributes for TBEM References to other models

CPP Order Entry Profile Details

Attributes for TBEM	
TBEM-improvements	Currently orders are booked on an order-by-order basis. Booking of repeating orders (Deelleveringen) is possible in the Compass-system, but not being used yet.
TBEM-improvementpriority	none
Is PDCA enforced	
PDCA frequency	none
References to other models	
Reference to SCT-model	OGF_Order_Creation_and_Change
Reference to EFRM-model	MFS_Sales_Cycle_Mgt
Reference to Corus layer-model	LEVEL5
Proc-name in IJmuiden	Order Entry

This report was generated with Architect 2.2.1

EA @ work examples: how to model relations between main processes at a lower level?



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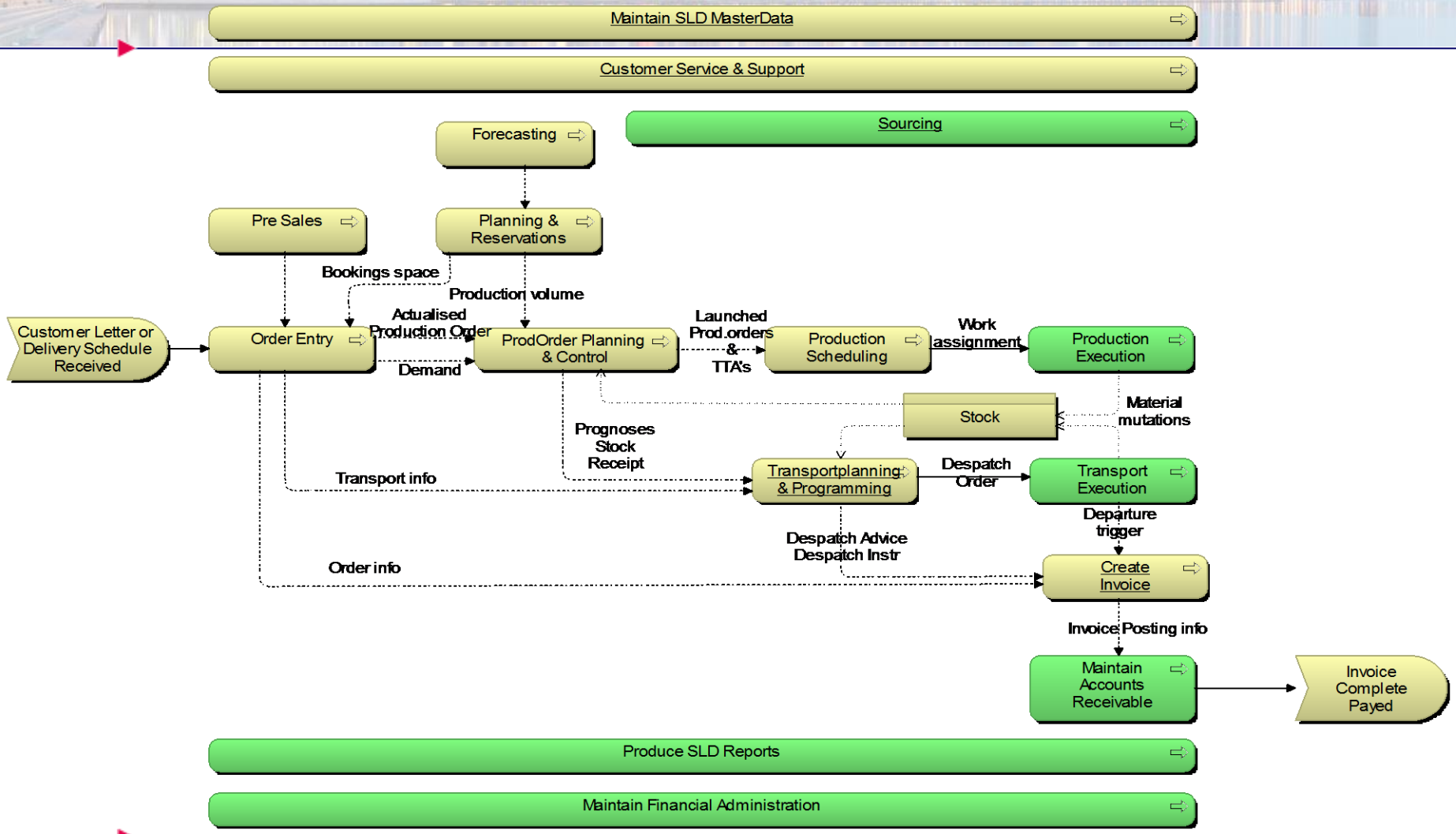
Sales Logistics Distribution high level overview



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Lessons learned

- Participate in (and learn from) the community
  - Learn from working groups
  - Attend conferences (Open Group, Gartner, etc.)
- Create an internal community
  - Knowledge sharing and learning
  - EA@Work is a success
- Think big, start small
  - But don’t wait with modelling conventions. Prevent rework
- Create the role of ‘ArchiMate- expert'
  - For questions and reviews
- Succes at C-level requires communication/political skills
  - ArchiMate is not your entry-ticket, but abstract models prove to be usefull communication tools

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  - want a personal demo
  - want an one-on-one meeting
  - want to receive the slides
  - want to discuss with us what you have just seen
  - want to receive our free EA pocket guide
  - ...

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