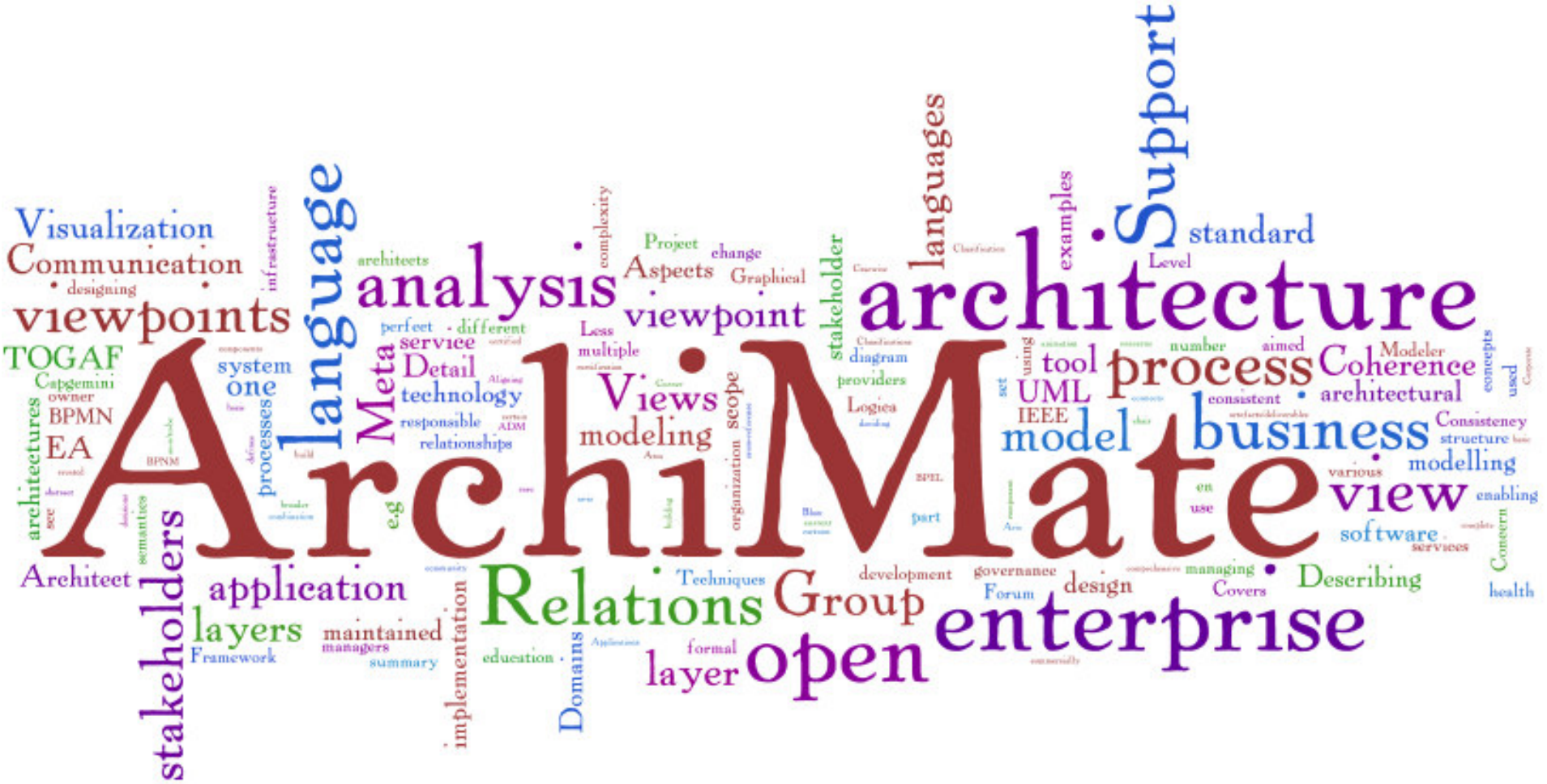
ArchiMate Tutorial

The open standard language for modelling en visualizing enterprise architecture

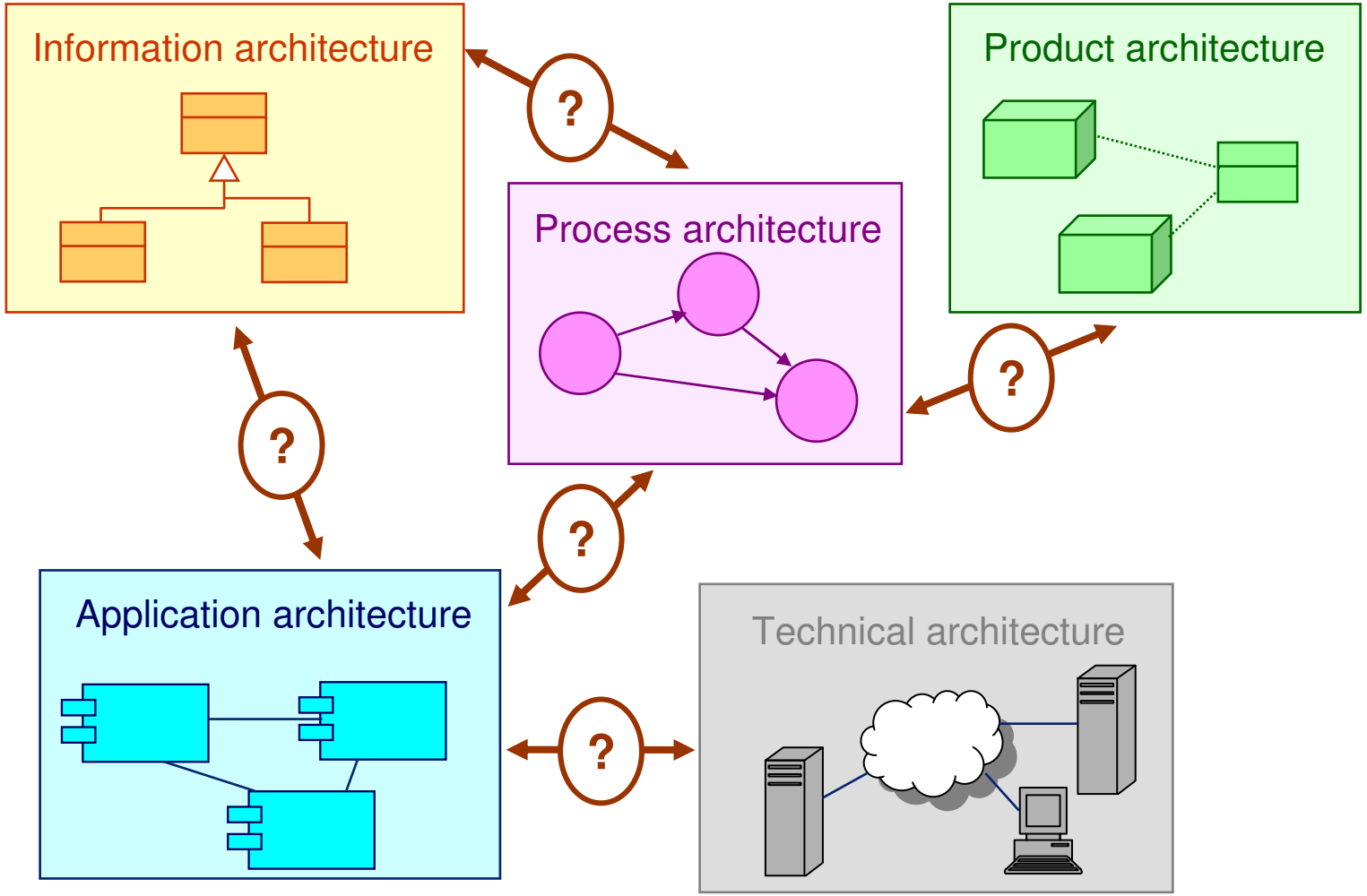
Remco Blom, BiZZdesign

THE Open GROUP
Making standards work®

ARCHIMATE® FORUM

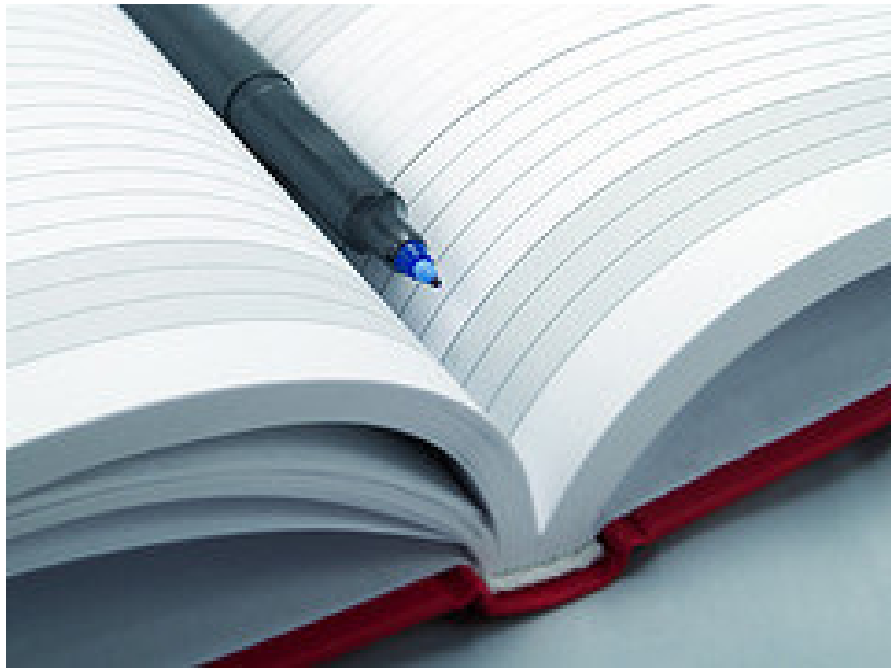

ArchiMate
architecture
Support
language
analysis
viewpoints
Visualization
Communication
TOGAF
Capgemini
owner
BPMN
EA
architectures
stakeholders
Architect
application
layers
Framework
maintained
managers
summary
implementation
Relations
Group
open
enterprise
layer
Domains
education
Techniques
development
governance
Forum
design
Covers
Describing
managing
software
services
view
various
modelling
Consisteney
structure
enabling
business
model
process
Coherence
Modeler
architectural
consistent
tool
UML
IEEE
number
aimed
standard
Level
examples
languages
stakeholder
Aspects
viewpoint
Views
modeling
Meta
Detail
service
technology
responsible
relationships
system
one
processes
Less
multiple
Project
change
Graphical
complexity
architects
infrastructure
designing
perfect
different
diagram
providers
Logies
scope
organization
part
use
en
set
using
concepts
used
Concern
health

Do you recognize this?



Proposed schedule

- Introduction
- Enterprise Architecture
- ArchiMate
  - Motivation and scope
  - Framework
  - Examples
  - Meta model
  - Views and viewpoints
  - Relations with other languages
  - Support for ArchiMate
- Summary



Enterprise Architecture

- Some basic concepts…

Enterprise Architecture

ISO/IEC 42010:

Architecture: the structure of a system in terms of

- its *components*,
- their *externally visible properties*,
- their *relations*,
- and the underlying *principles*

"Structure with a vision"

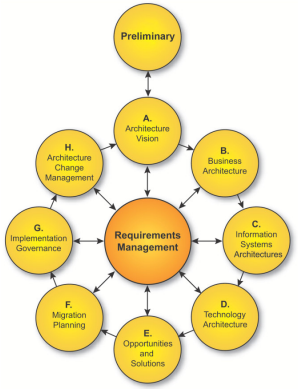
Why Enterprise Architecture?

- Managing change and complexity:
  - Aligning business and IT
  - Outsourcing
  - Impact analysis
  - Project support (project start architectures)
  - Portfolio management
  - Communication with stakeholders
  - …
- Obtaining insight in current situation (as-is)
- So enterprise architecture as a tool
  - for communication
  - for governance
  - for innovation

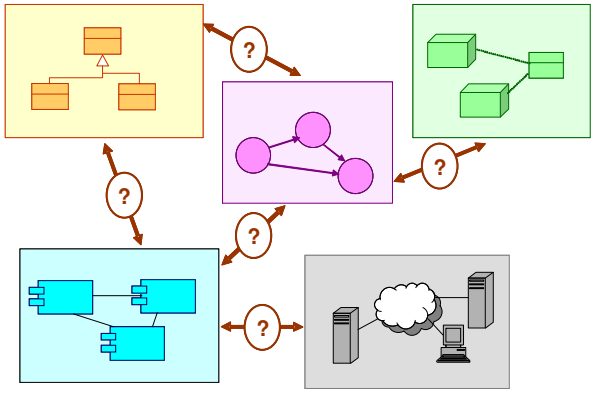
Flickr by neil nathanson

Views on Enterprise Architecture?

- A *process*
  - Way of working
  - Aimed at the development and use of enterprise architectures within an enterprise
  - With people and resources



- 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 preferences



- With the objective of *steering changes*

Important notions (IEEE 1471)

- A *stakeholder* is a person or organisation with a certain interest in (part of) an architecture
- A *view* is a representation of a system from the perspective of a set of concerns of one or more stakeholders. A view is what you see.
- A *viewpoint* is where you are looking from. It defines how to build a view, e.g. by means of a template.
- Different stakeholders
  - Have different interests and use different concepts
  - Have different views
  - Have different viewpoints
  - On the basis of one consistent architectural model

Example viewpoint en view

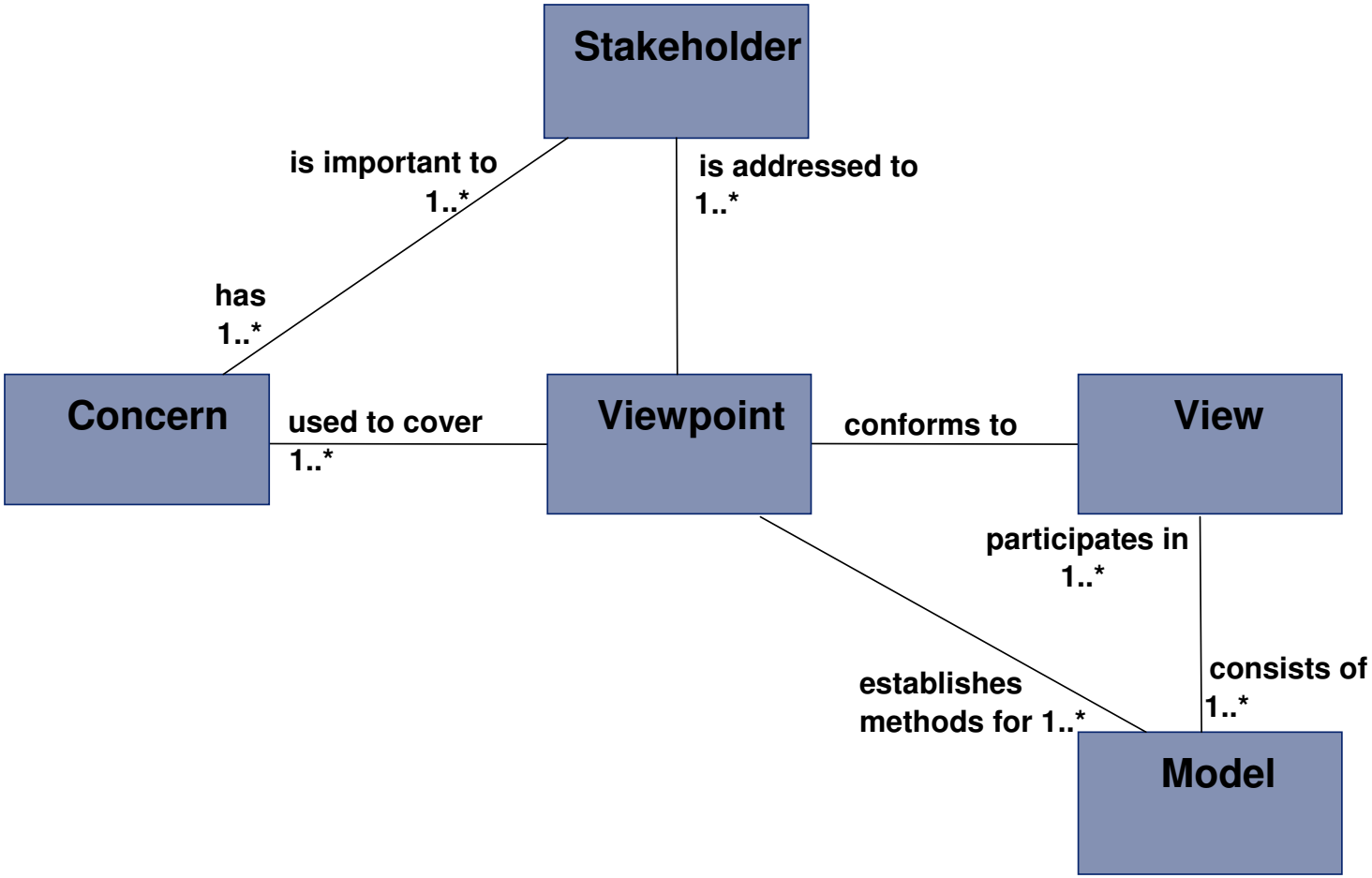
Example 1

- Stakeholder: city council
- Concern: development plan
- Viewpoint: photo of district from the air
- View: Aerial

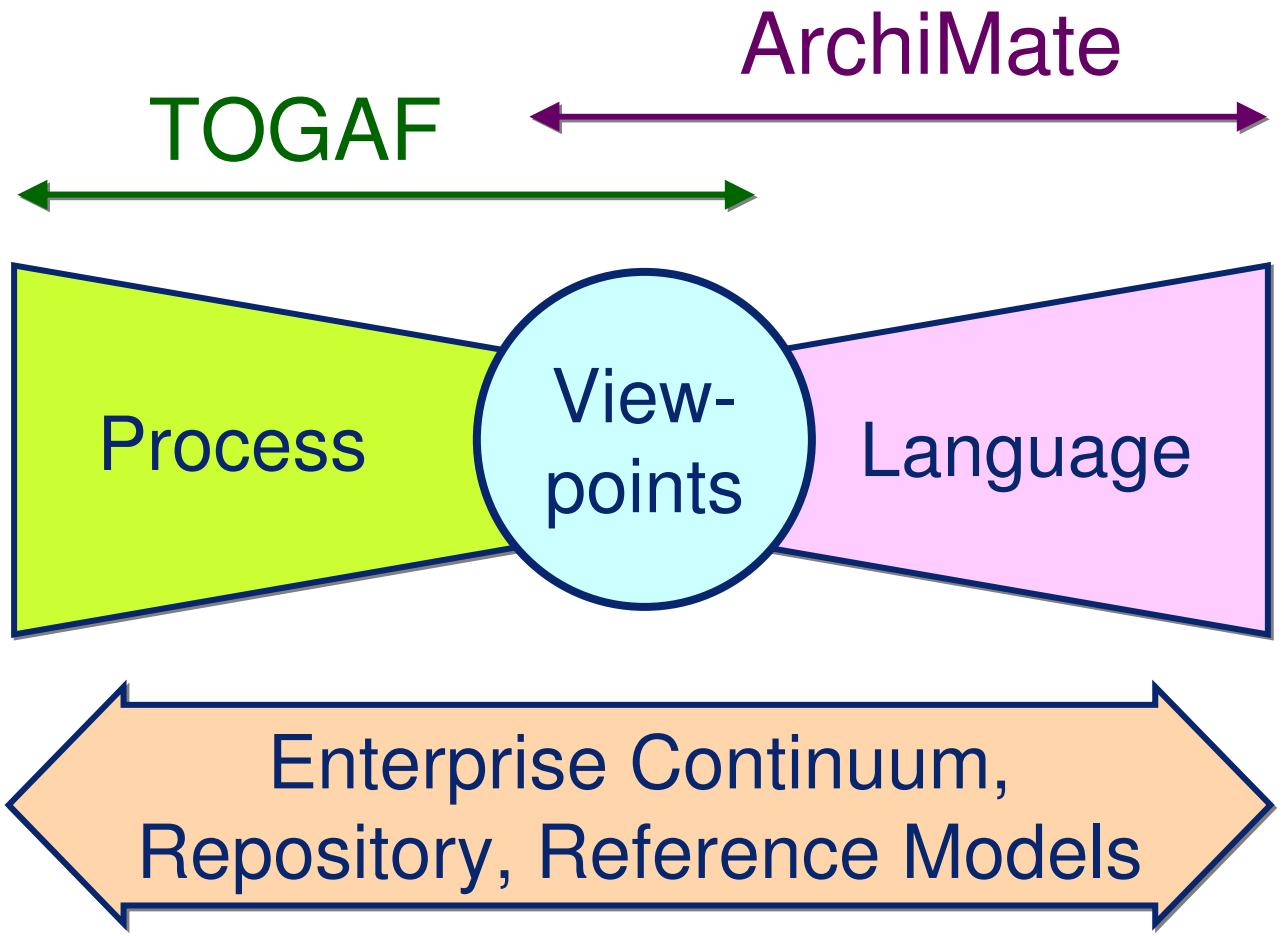
Example 2

- Stakeholder: house owner
- Concern: building permit
- Viewpoint: Corner of the street, scope is one house
- View: Ground photo

IEEE 1471 (summary)

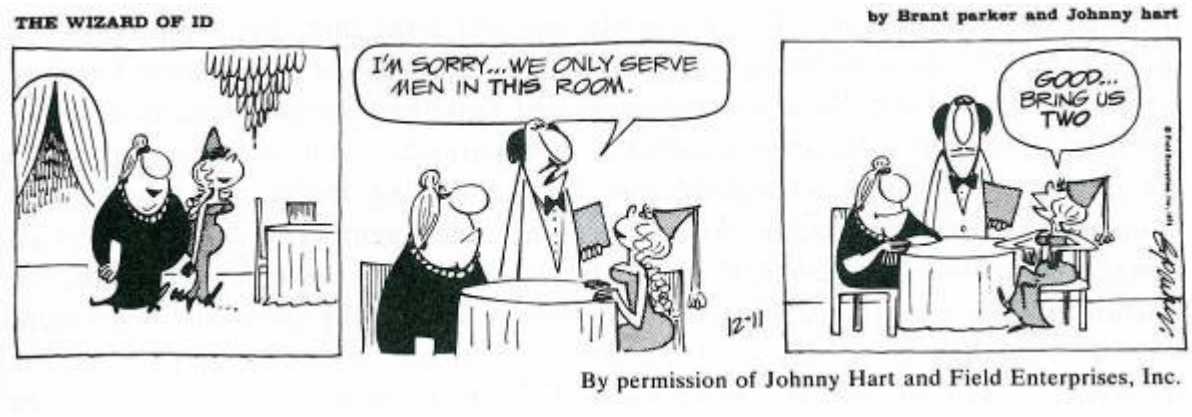


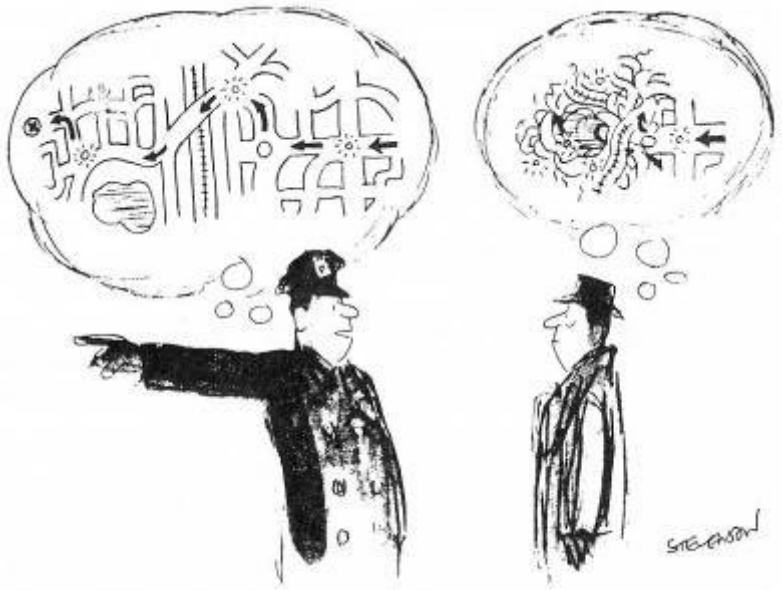
Ingredients of an EA Approach



Why one language?

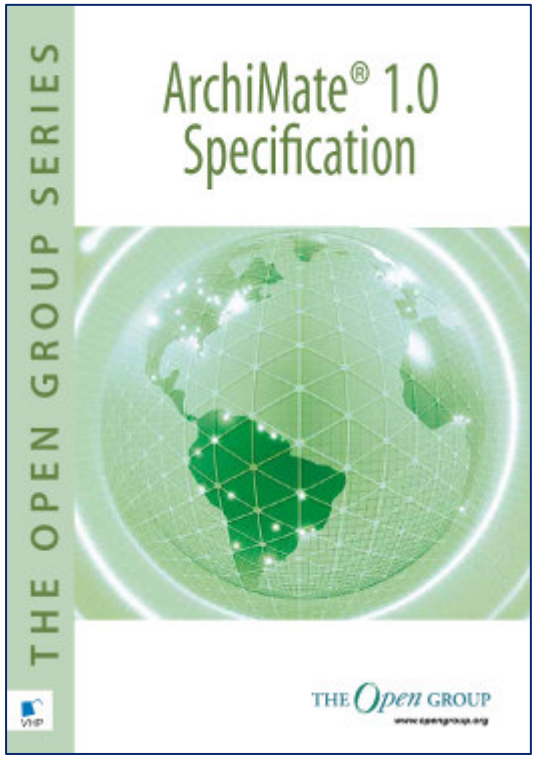
- Communication
- No ambiguity
- Coherence
- Consistency
- Visualization
- Analysis
- …



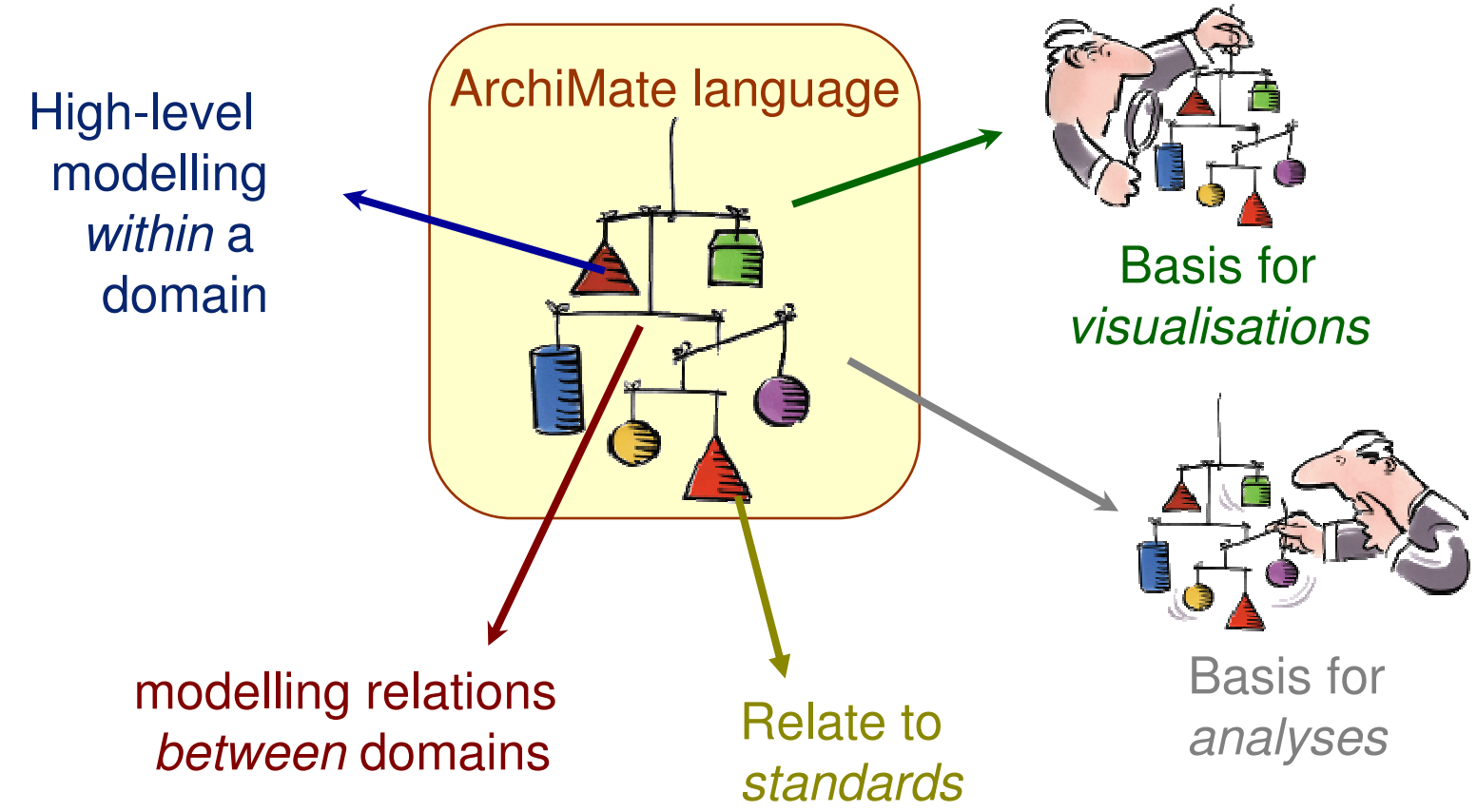


ArchiMate

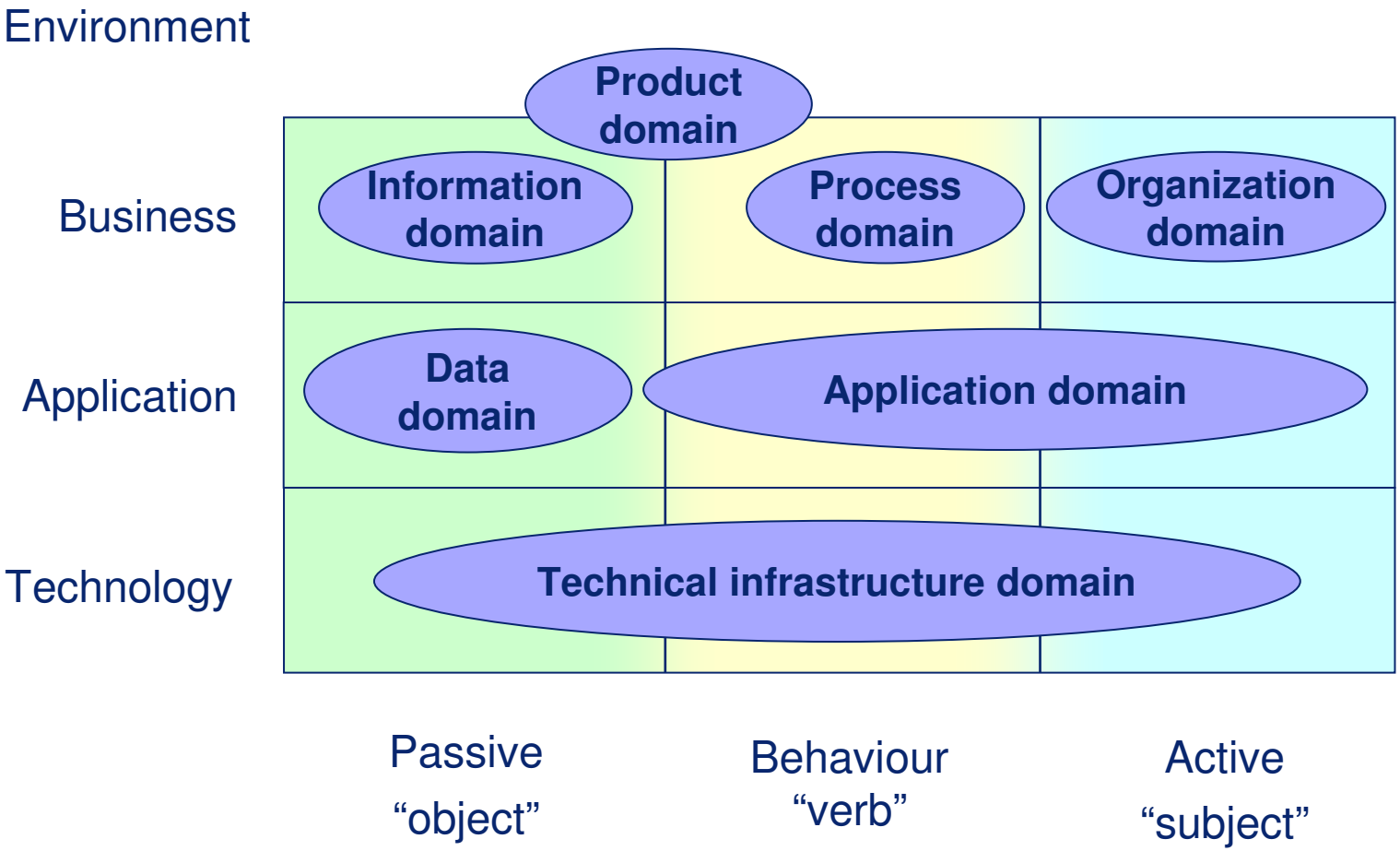
- A *language* for describing architectures
- Covers business, application and technology layers
  - With relations between these layers
- Graphical language with formal semantics, enabling analysis and tool support
- Techniques for *visualization* and *analysis*, aimed at various stakeholders
- Open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



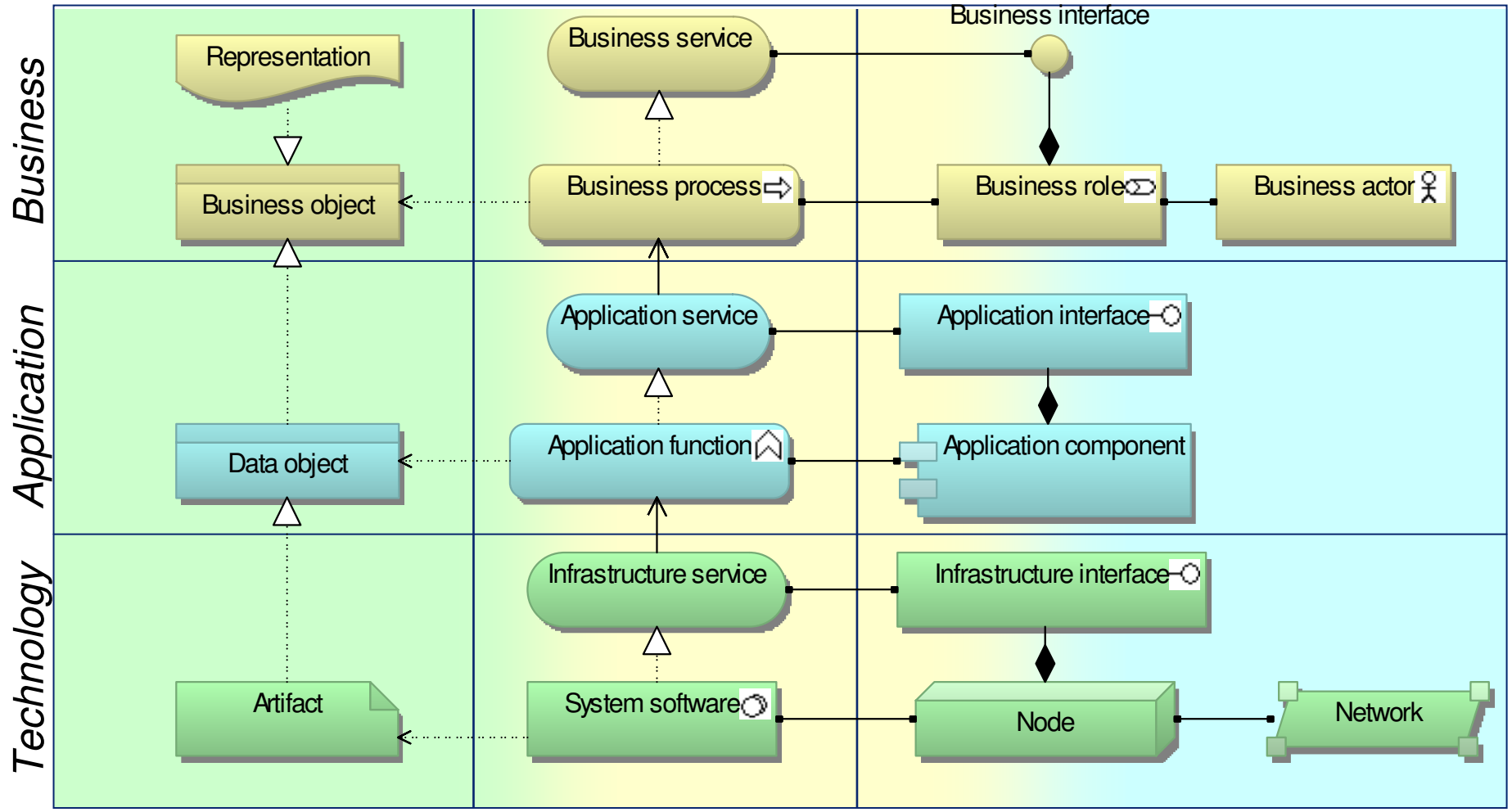
The ArchiMate Language



Layers, Aspects, and Domains

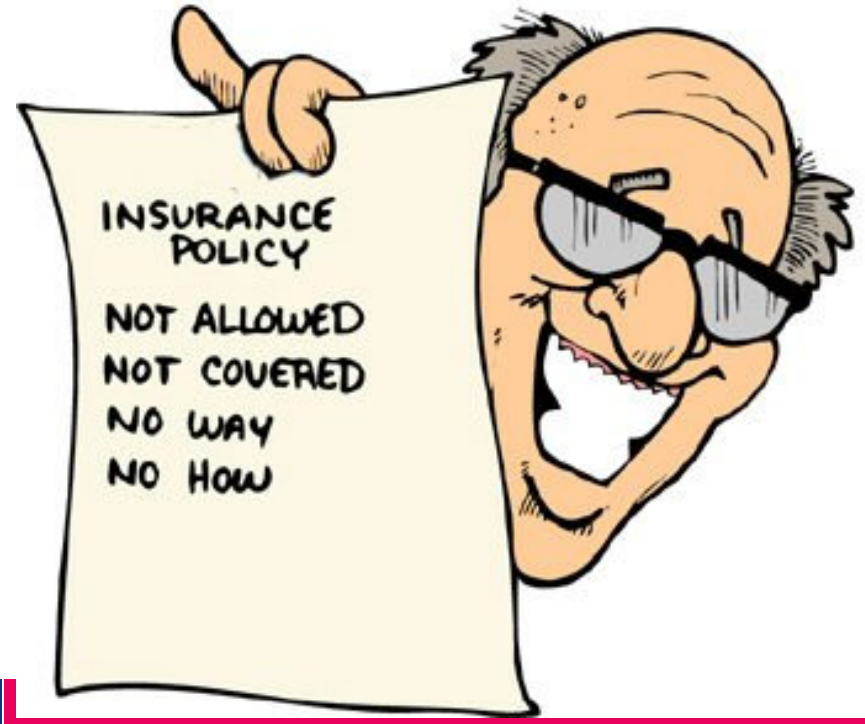


Language summary

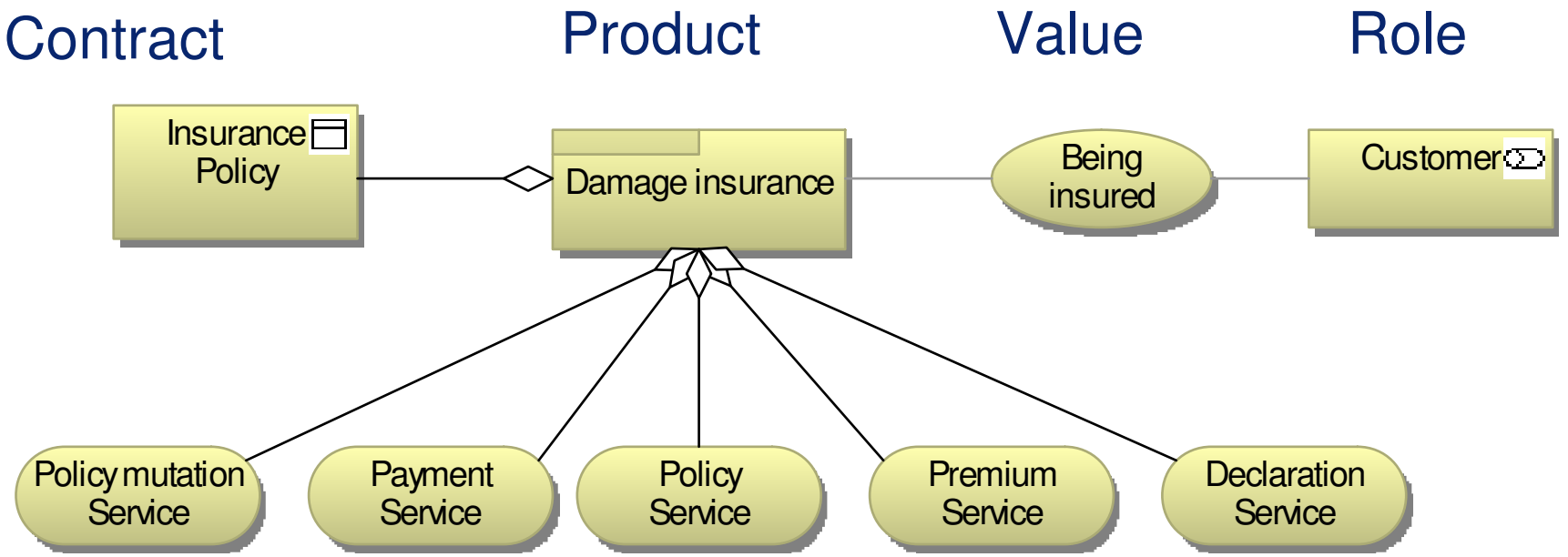


Some examples of the ArchiMate language for “educational purposes”

Examples created using BiZZdesign Architect



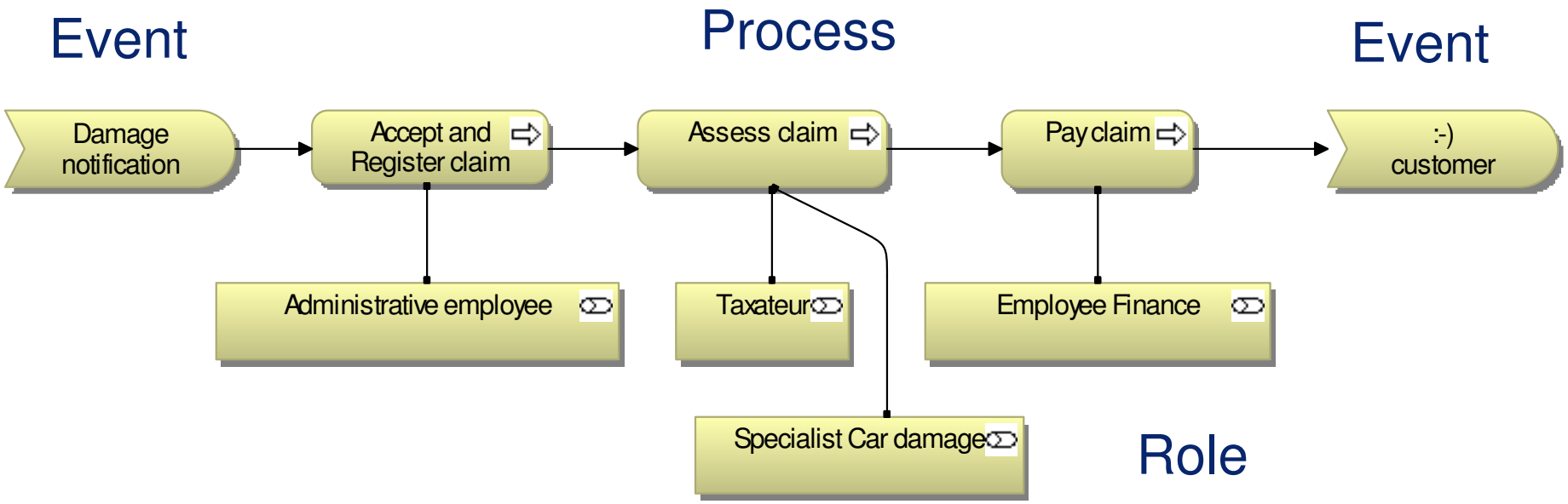
Products and services



Business services

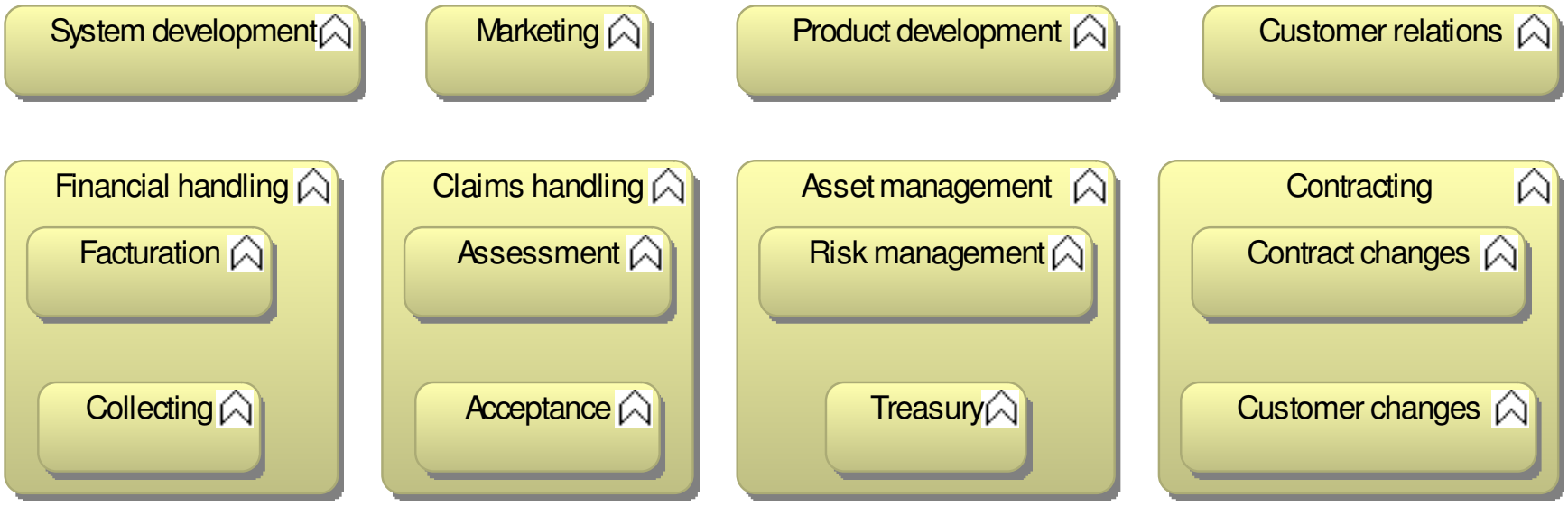
Aggregation
Association

Processes and roles



Triggering
Assignment

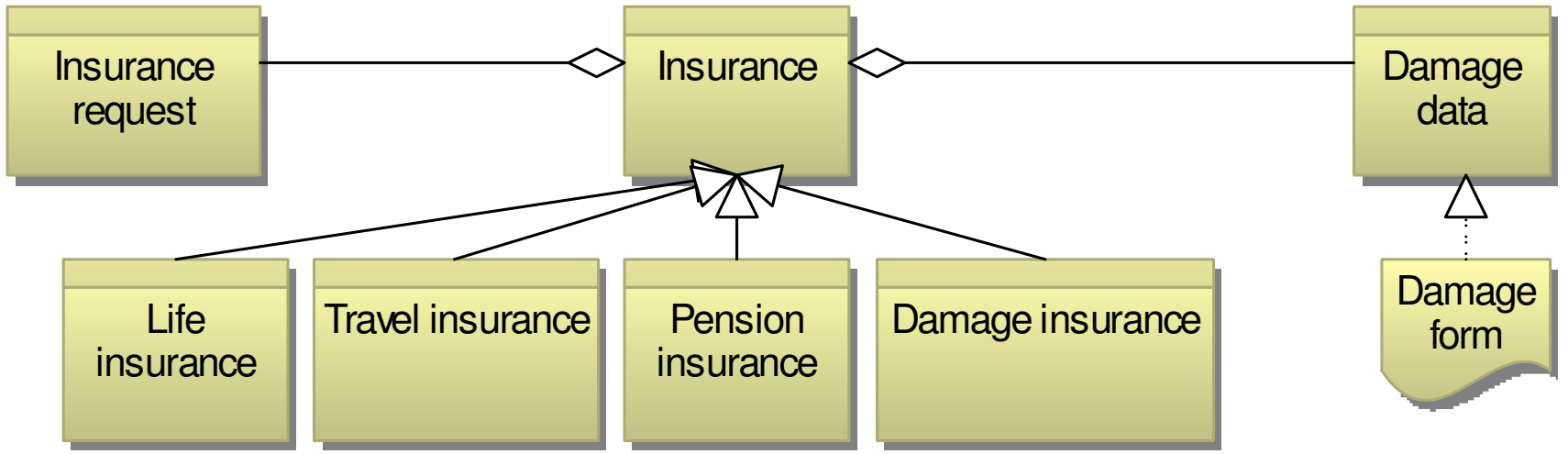
Business functions



Business Function

Composition (by nesting)

Business objects

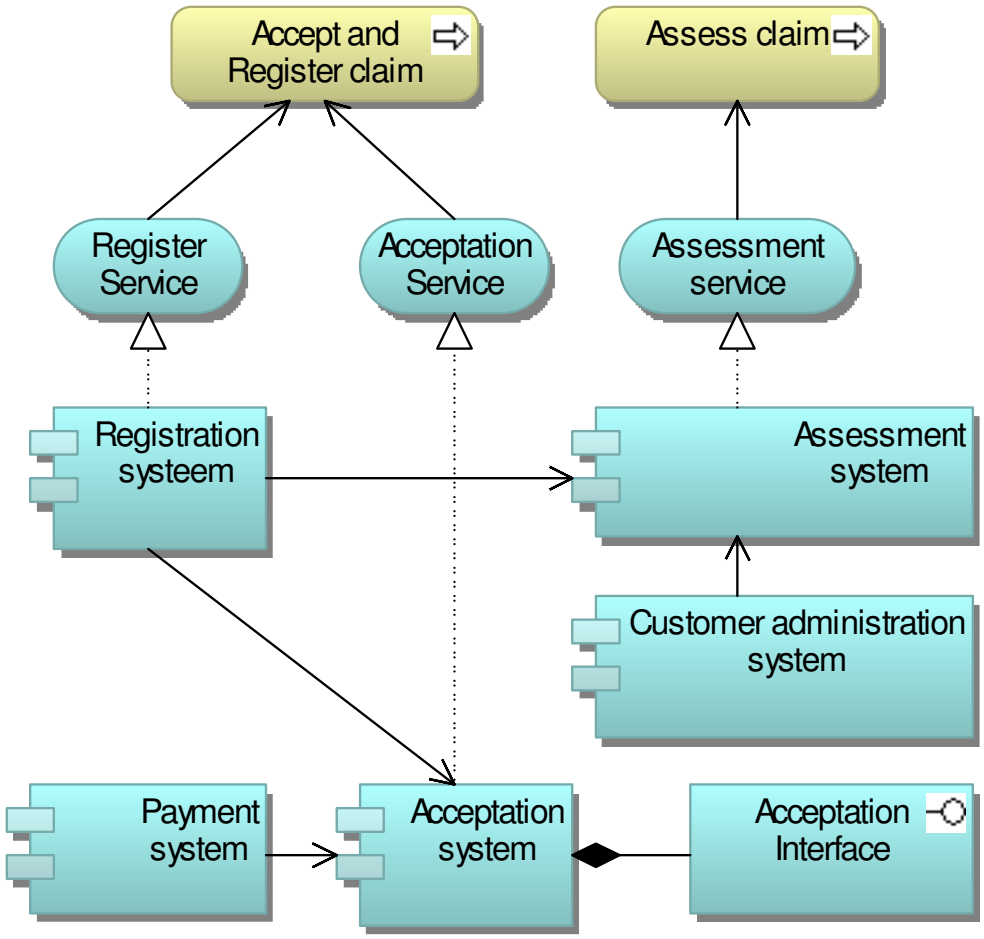


Representation

Business object

Aggregation
Specialization
Realization

Applications and application services



Business process

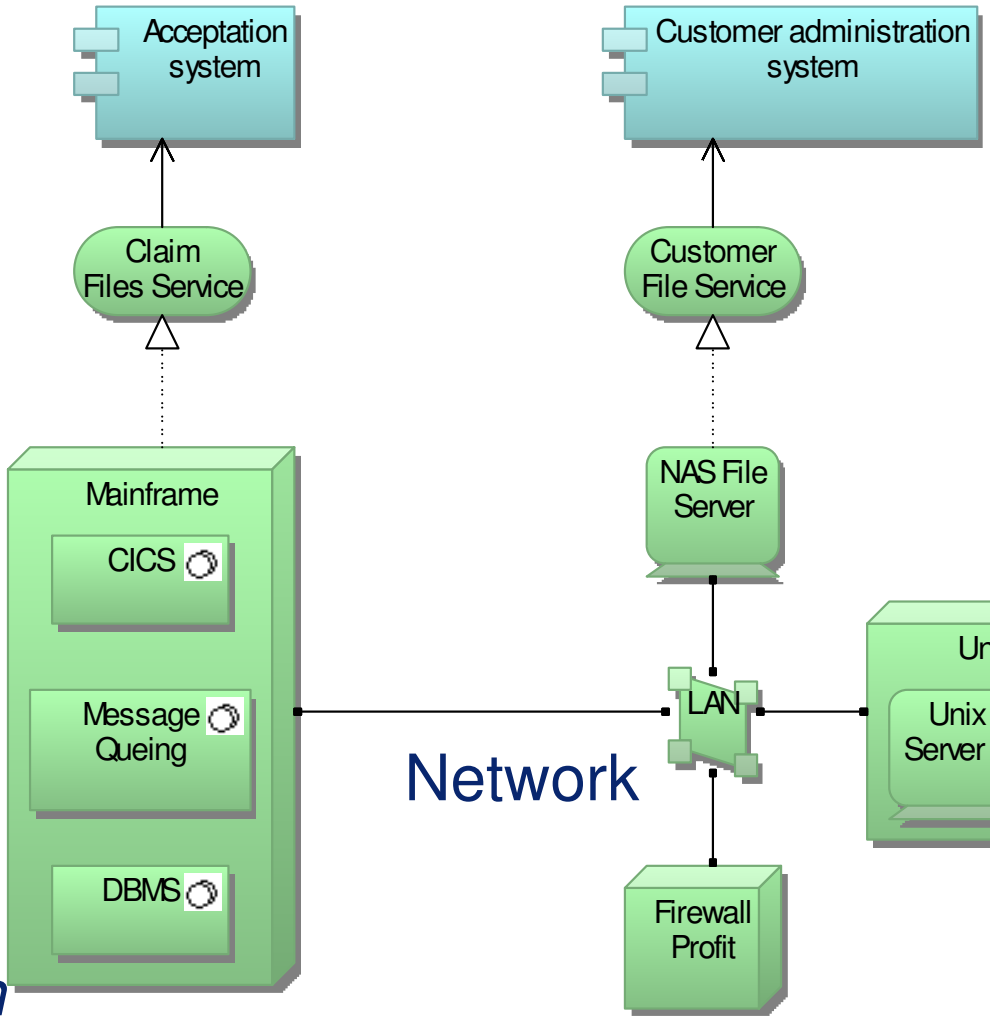
Application service

Application component

Application interface

Used-by
Realization
Composition

Infrastructure



Application component

Infrastructure service

System software

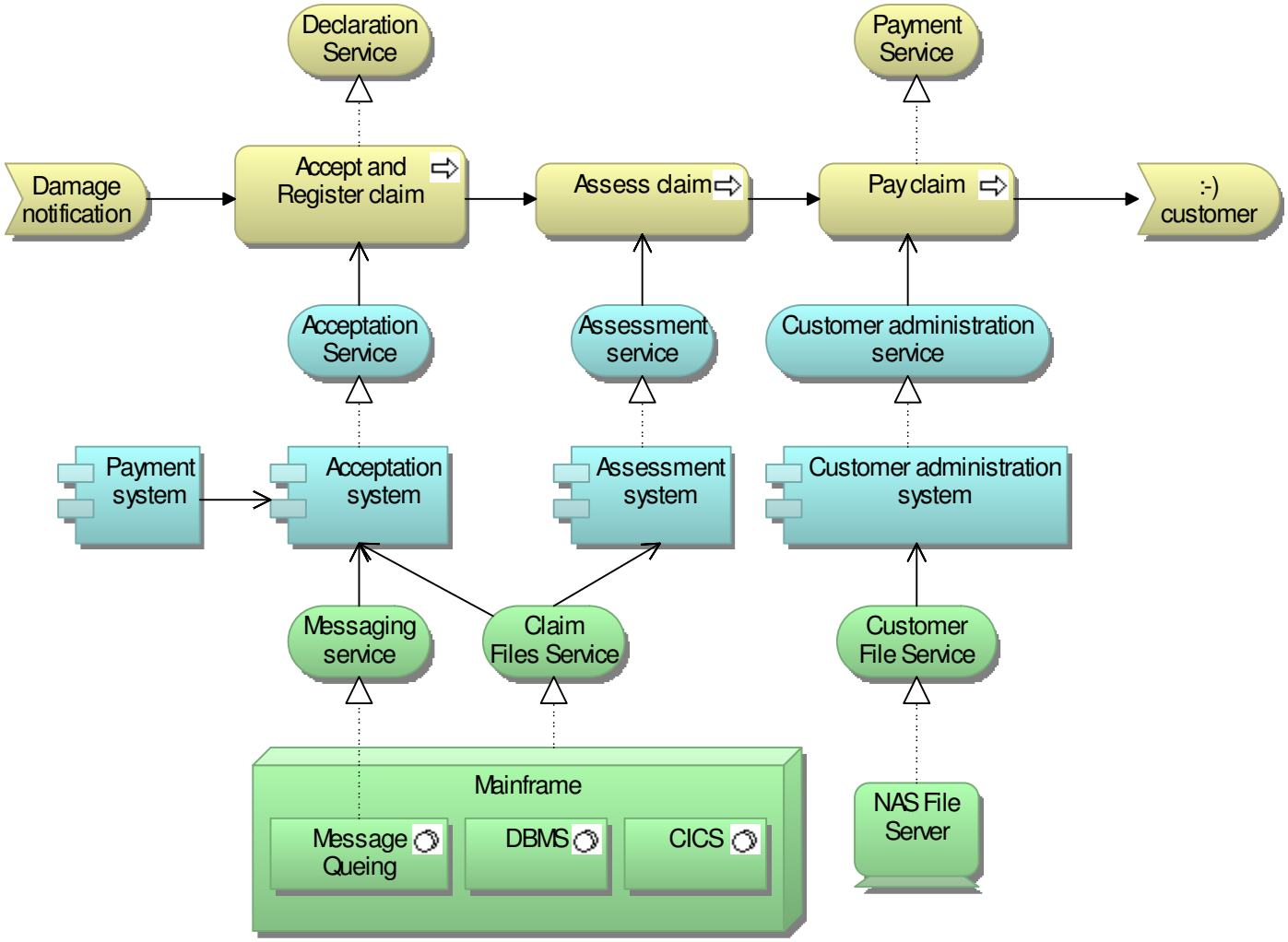
Node

Device

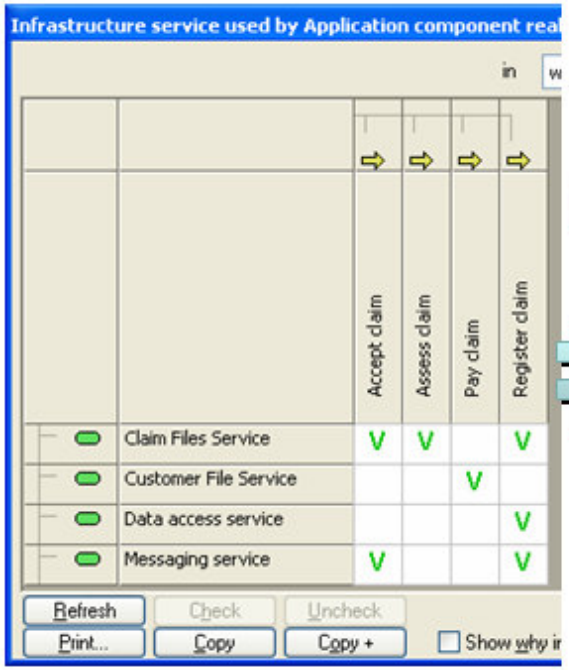
Network

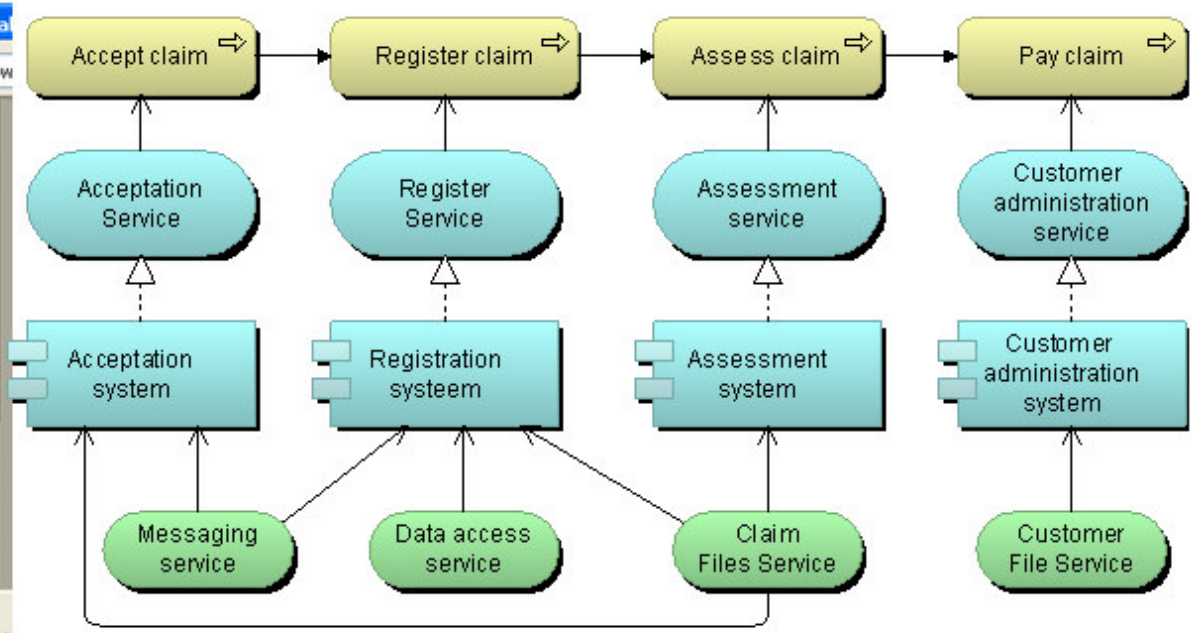
Used-by
Realization
Assignment
Composition

Layered view

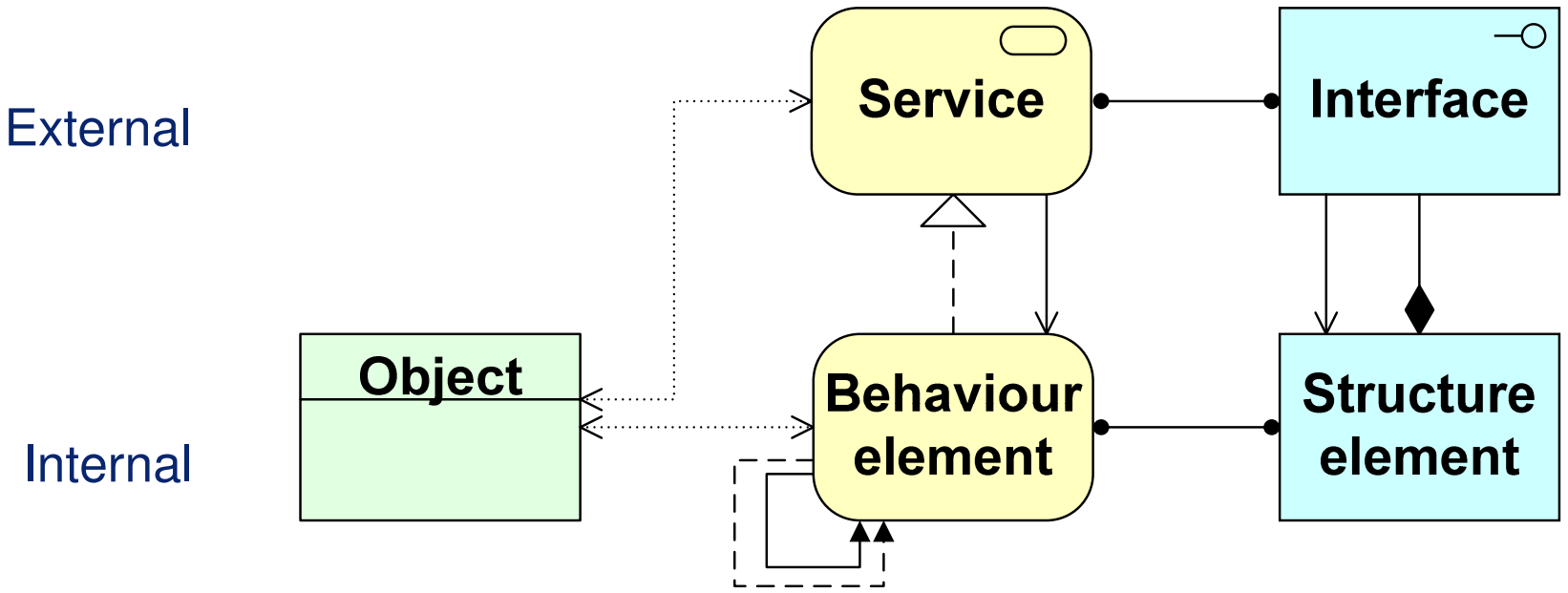


Derived relations

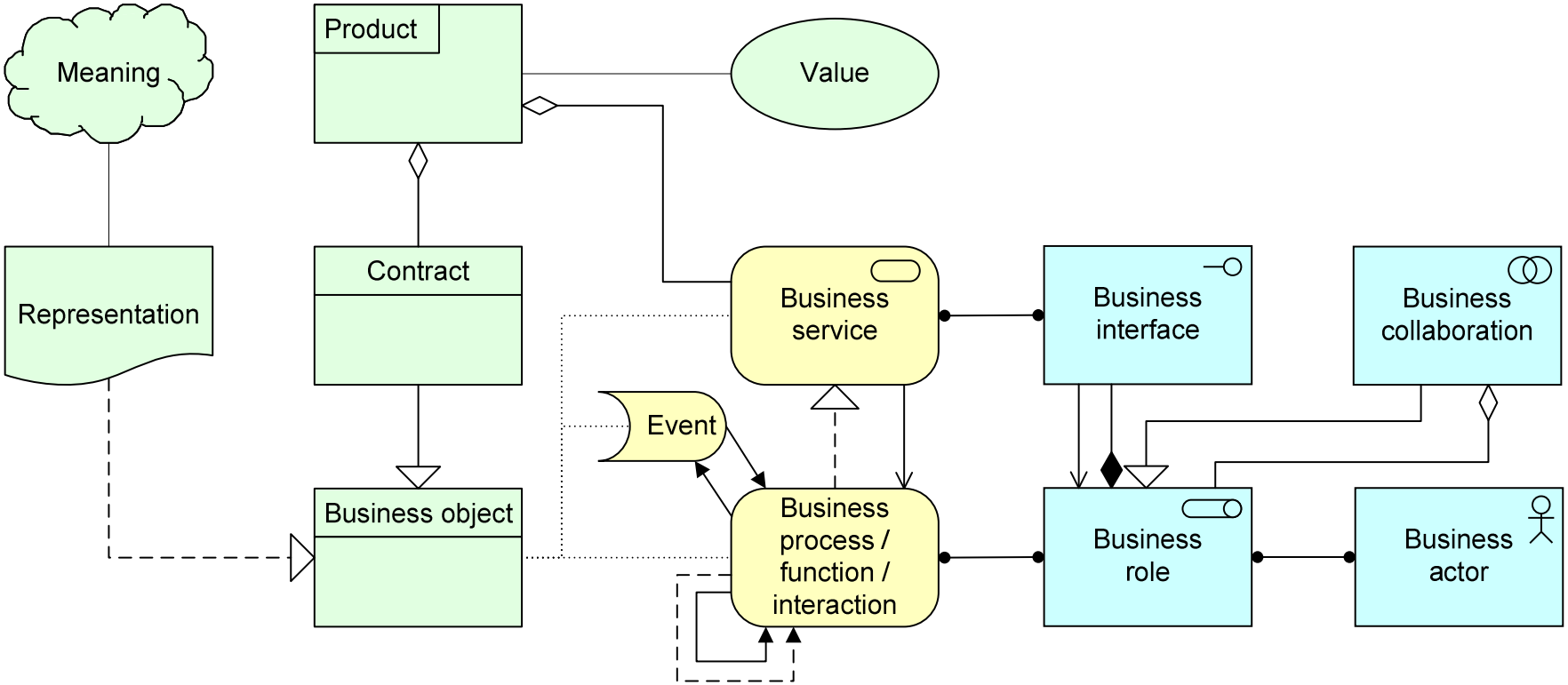




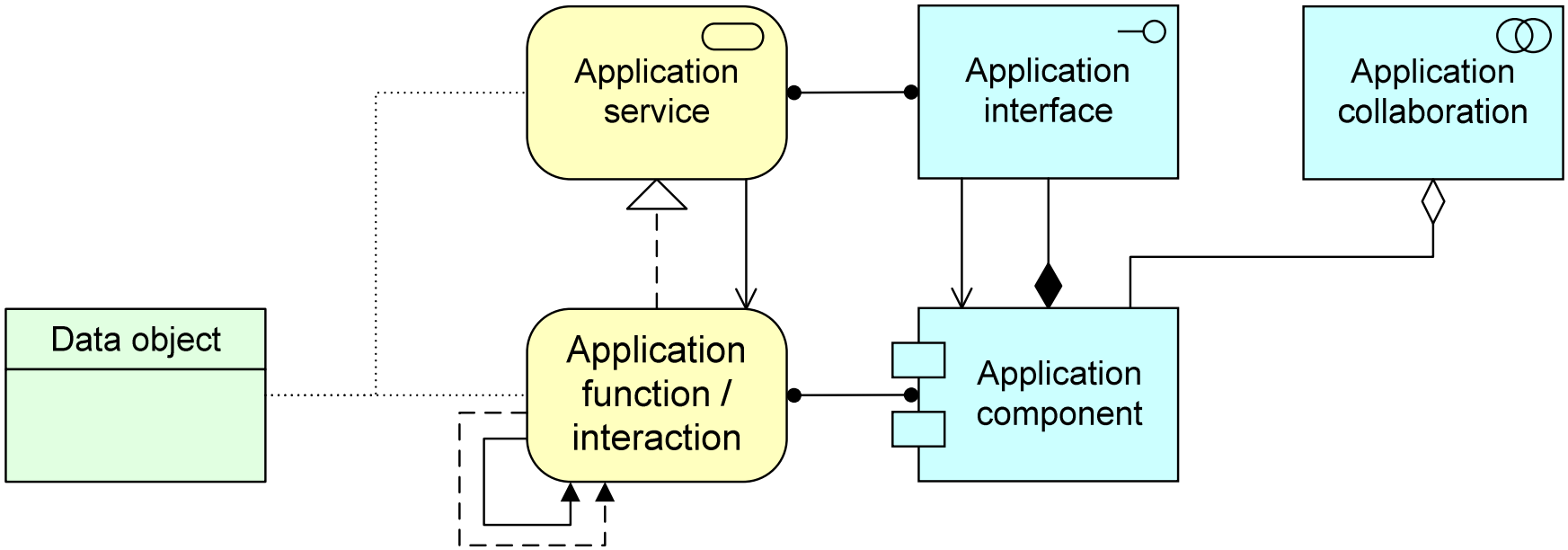
Generic meta model ArchiMate



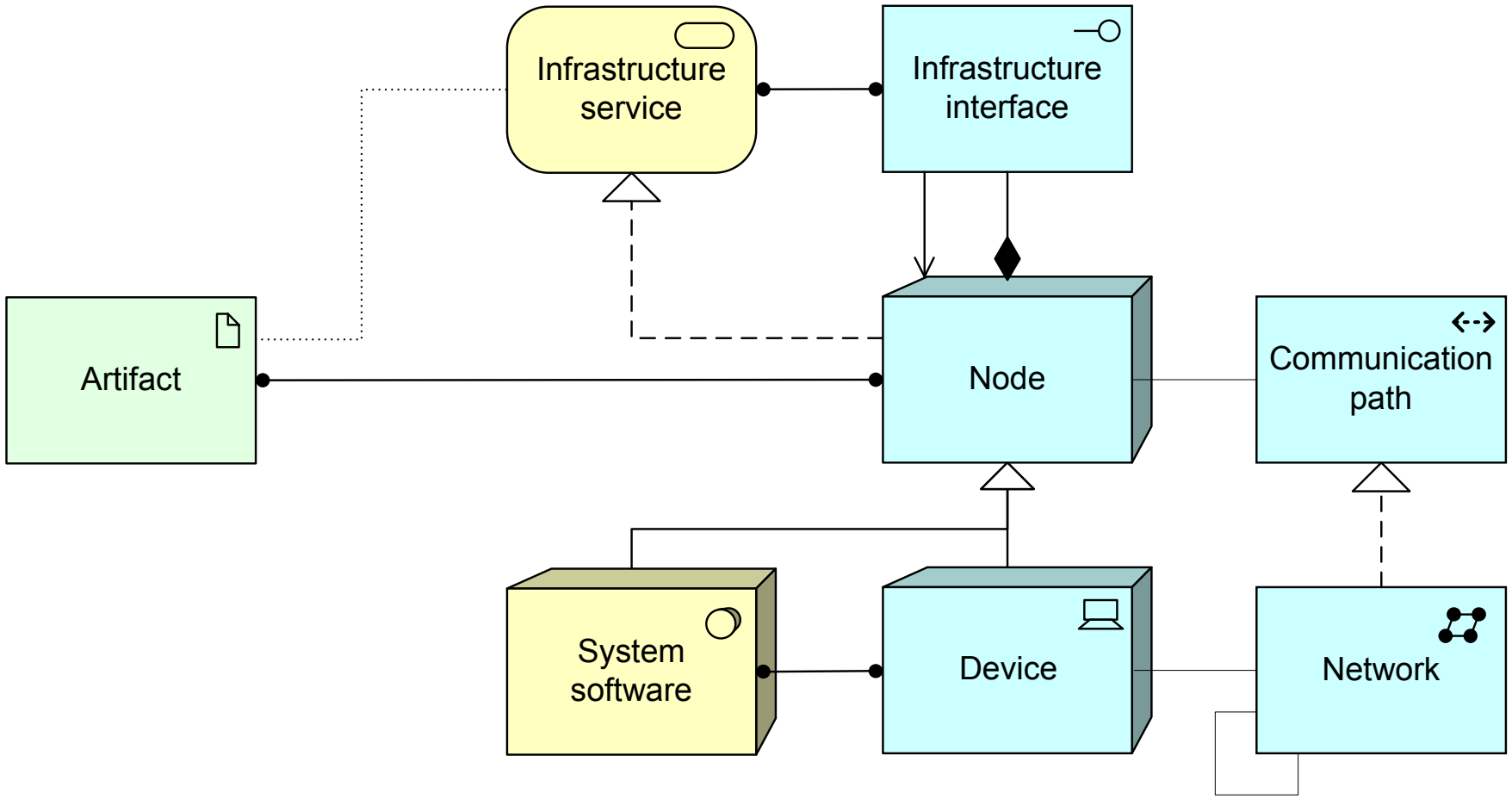
Business layer meta model



Application layer meta model

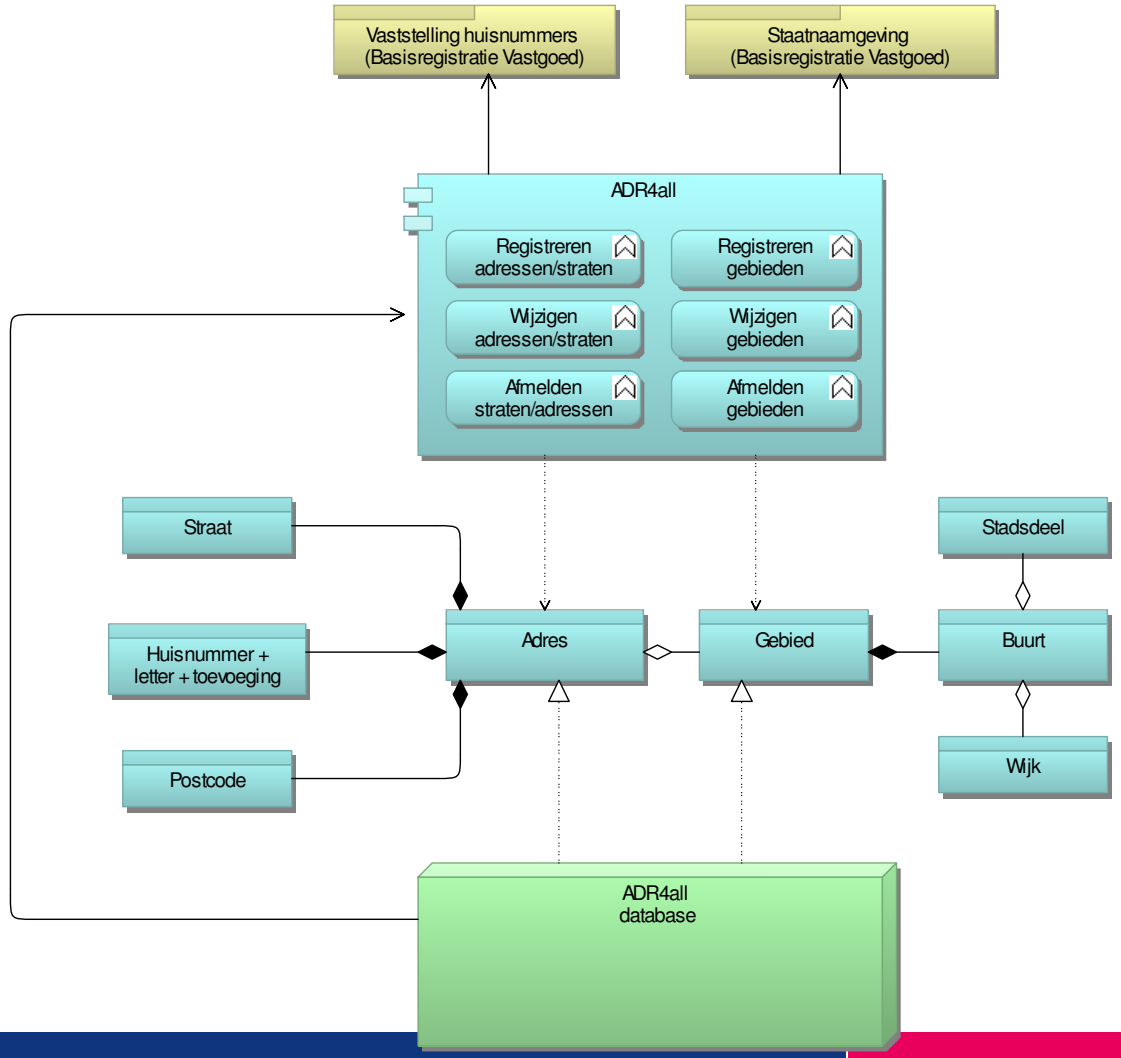


Technology layer meta model



Some examples from daily practice

Example: City of Enschede - 1



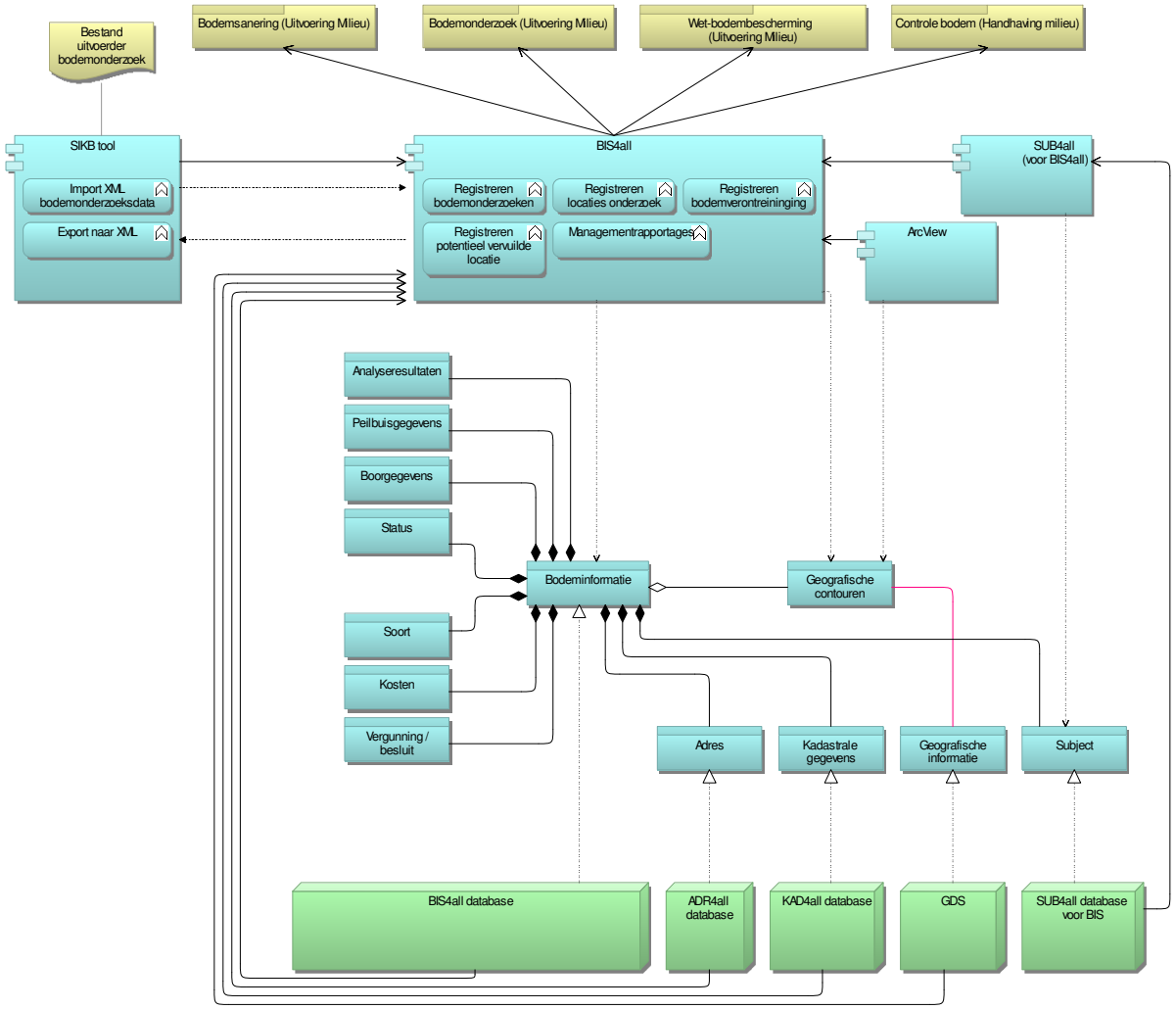
Product

Application with functions

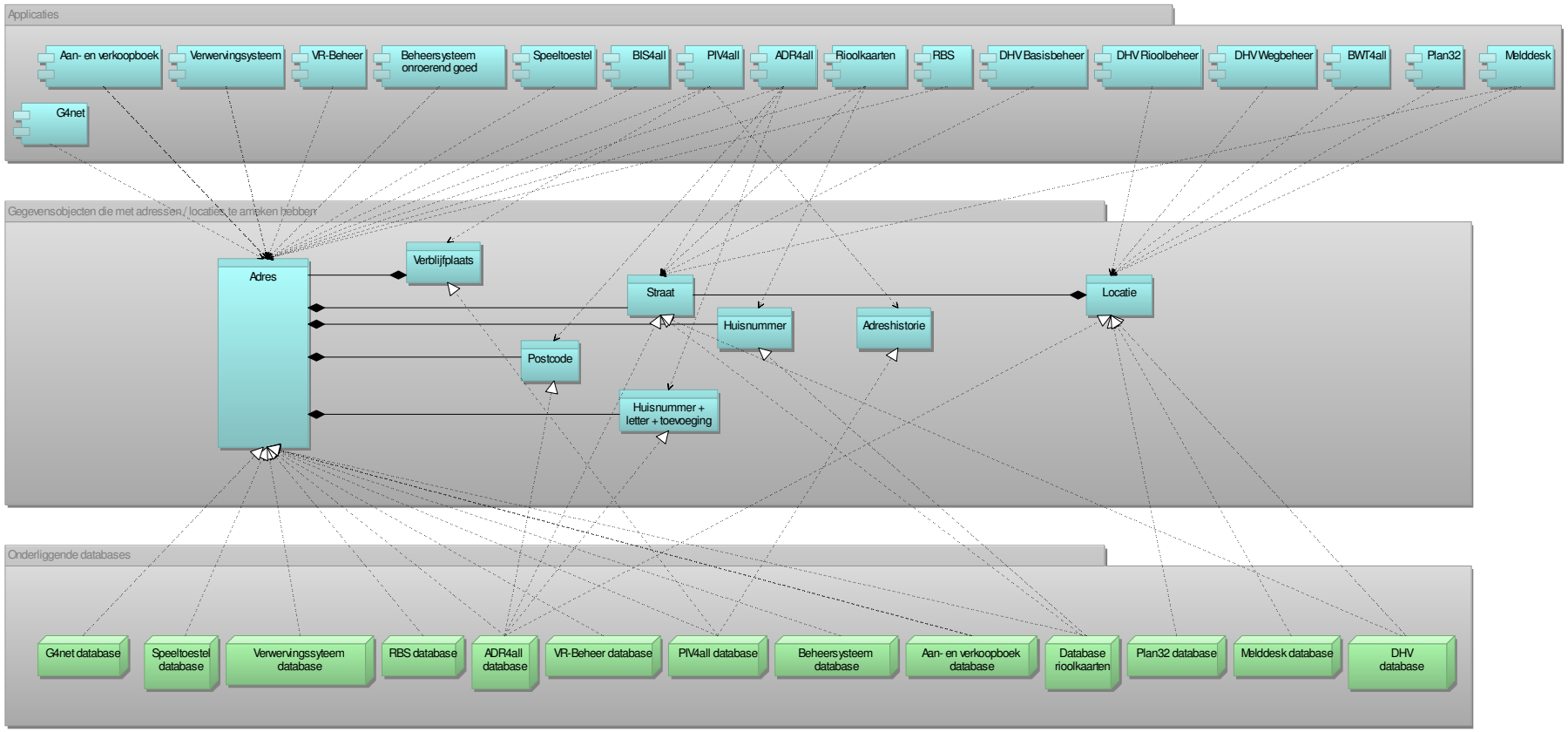
Application data objects

Database

Example: City of Enschede - 2

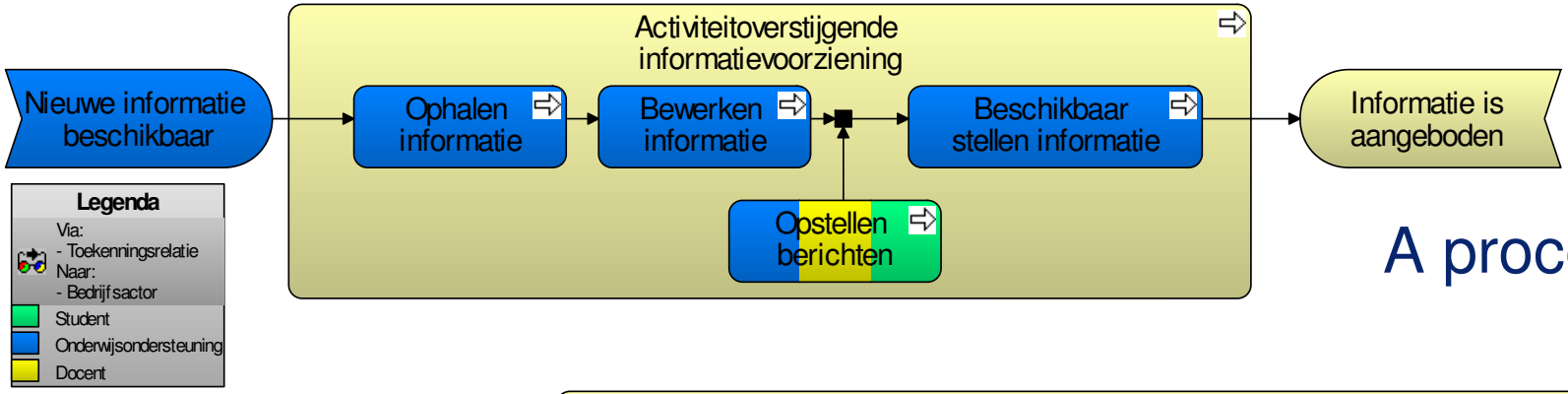


Example: City of Enschede - 3



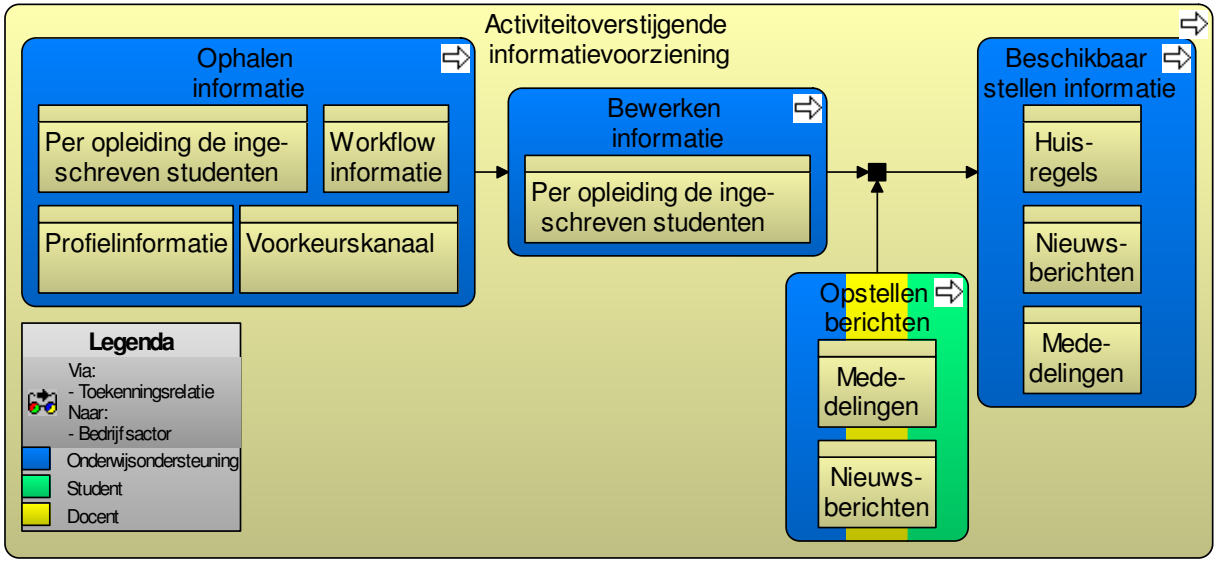
Which data is used by which application, and stored in which database

Example: 3 technical universities

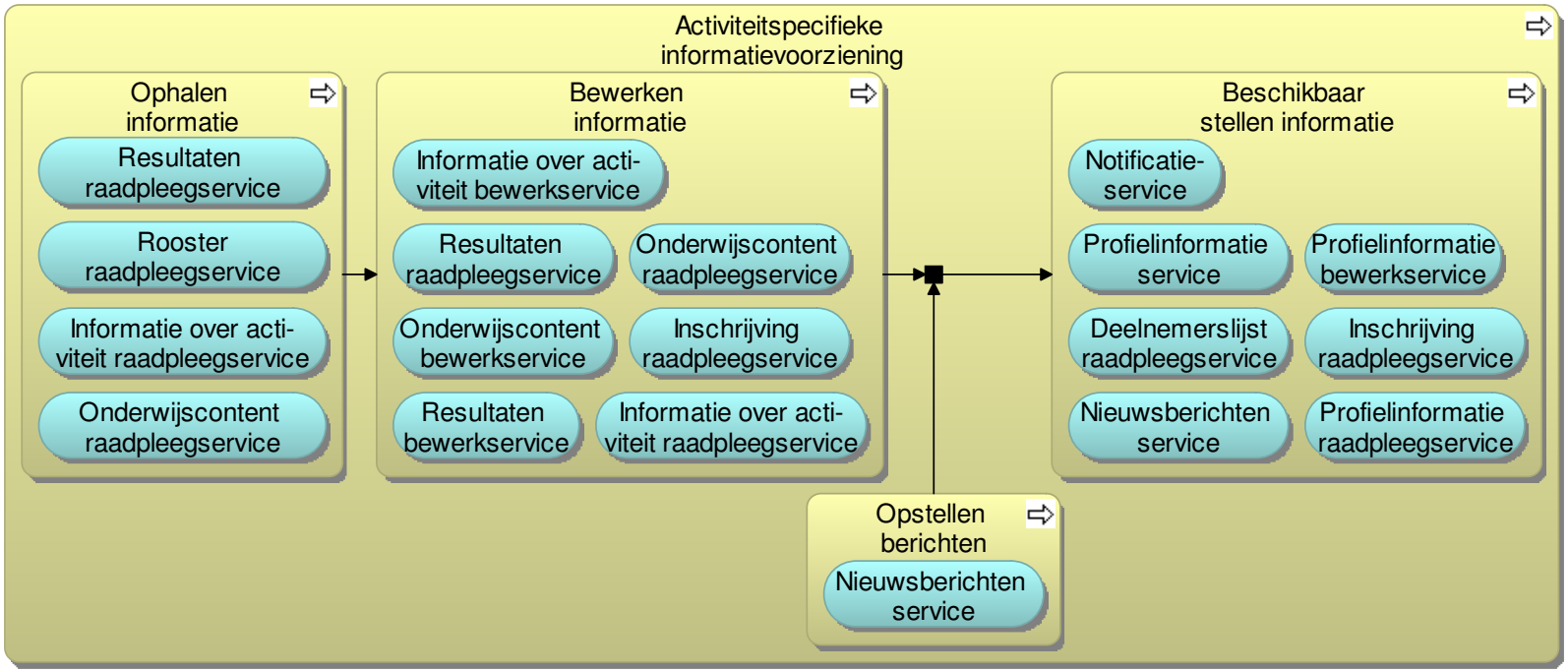


A process

Use of business objects *(access relation by nesting)*



Example: 3 technical universities

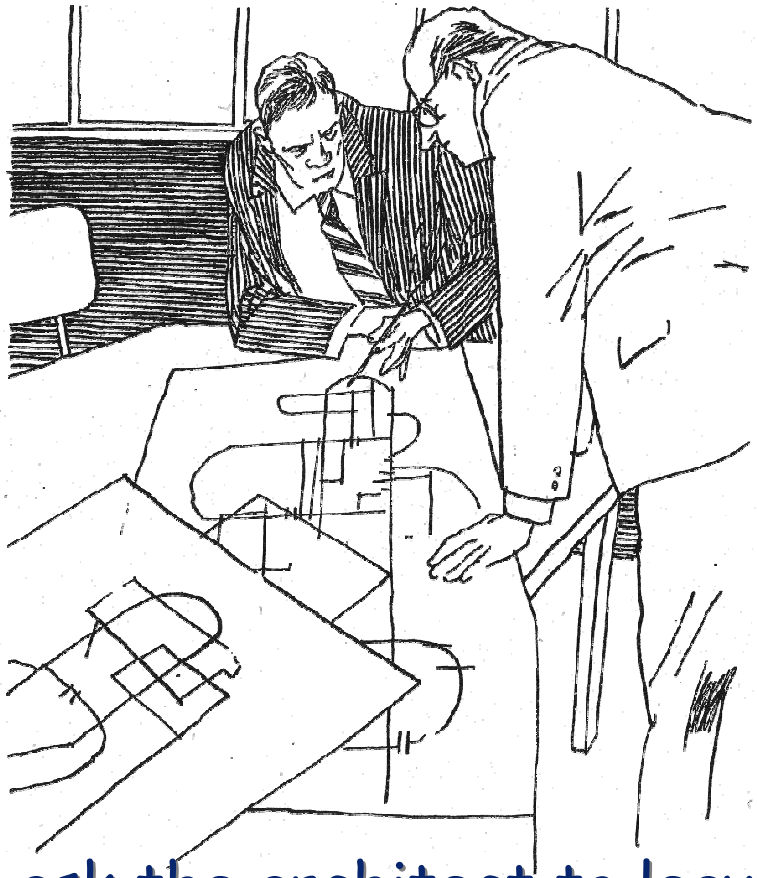


Use of application services by the process
(used by relation by nesting)

Viewpoints and views in ArchiMate

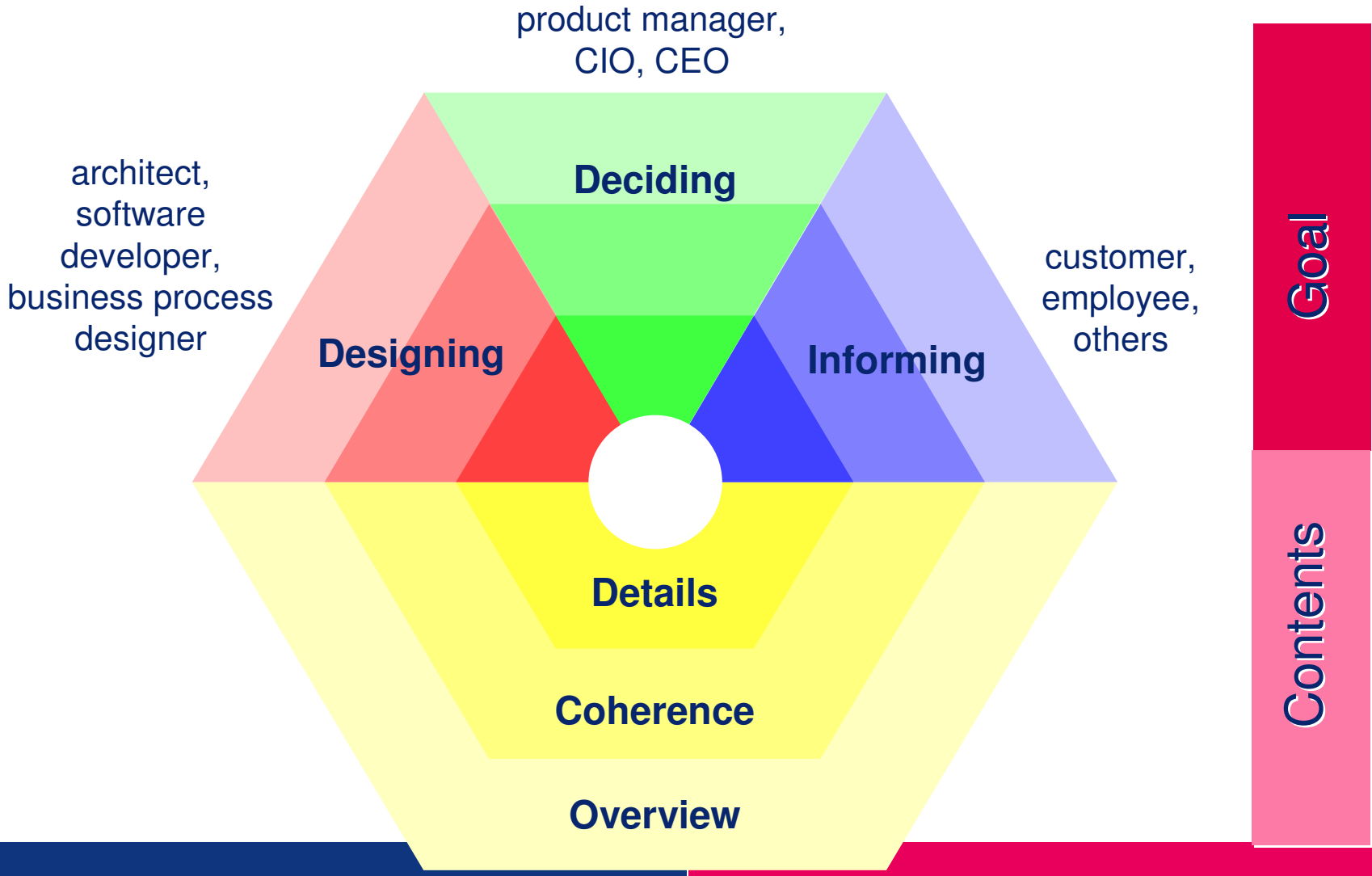
Classifications and examples

Less is more…



"let's ask the architect to leave out this rubbish, then we will get a nice result!"

Classification viewpoints ArchiMate



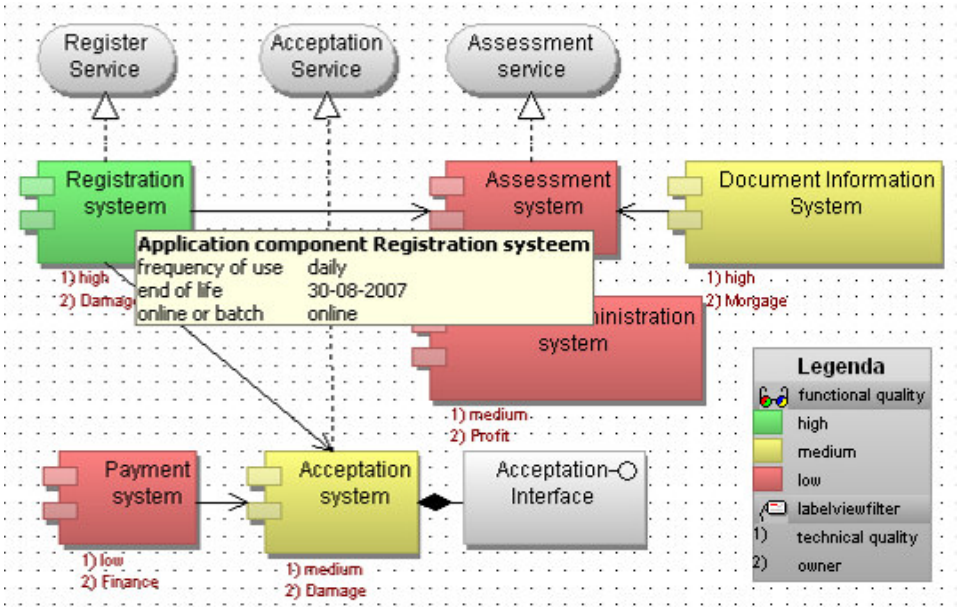
Viewpoint Types

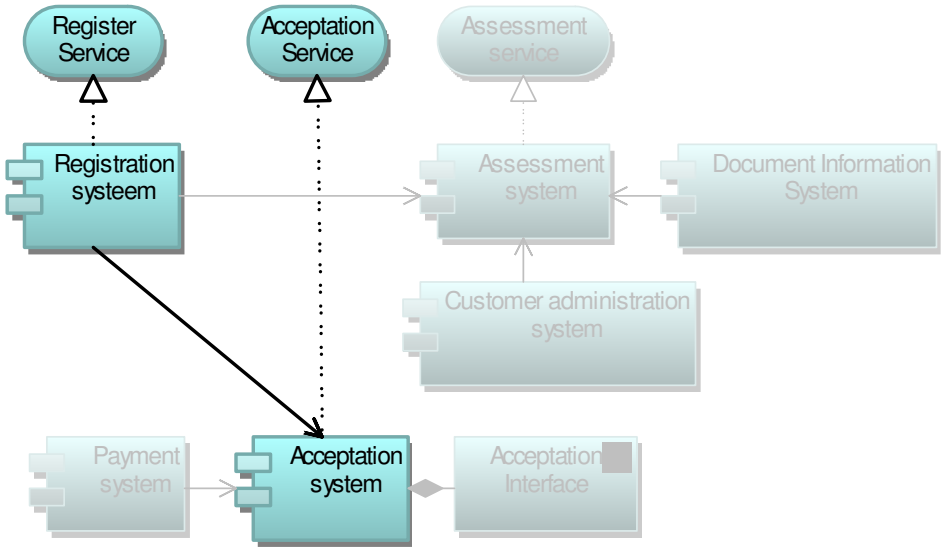
- Viewpoints for designing
  - typically used by architects in the design process
  - Examples: Application diagram, Process diagram
- Viewpoints for deciding
  - intended to support managers in making decisions
  - Examples: landscape map, cross-reference table, analysis report
- Viewpoints for informing
  - inform stakeholders about an architecture
  - Examples: process illustration, animation, cartoon

Level of Detail

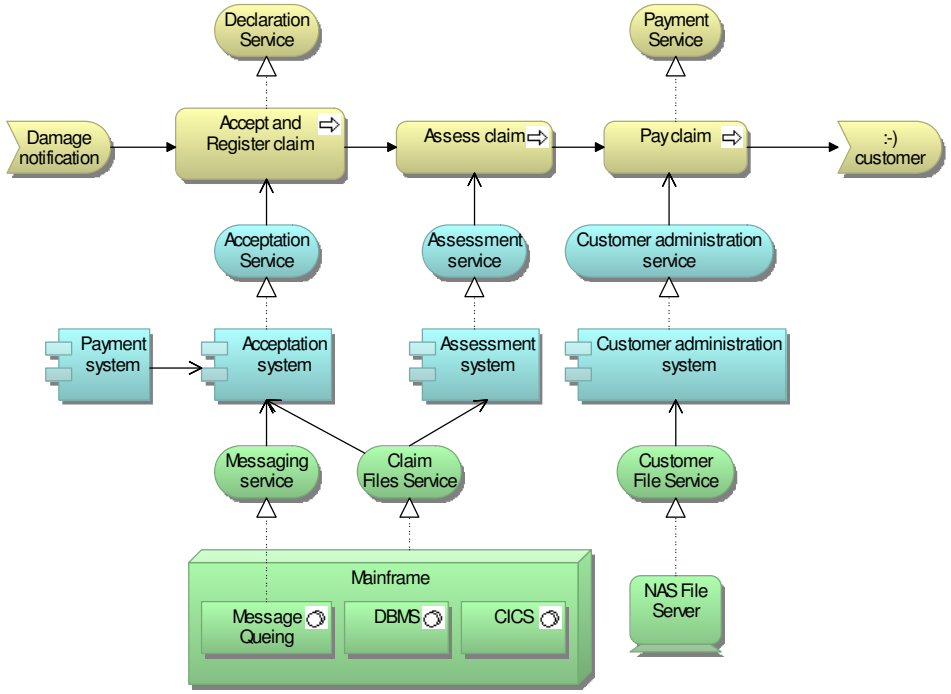
- Details
  - small part of an architecture with high level of detail
  - e.g. for a software engineer designing and implementing a component, or process owner responsible for optimizing a process
- Coherence
  - spans multiple aspects or layers and shows their relations
  - e.g. for an operational manager responsible for IT support for a number of business processes
- Overview
  - abstract, comprehensive view of multiple aspects and layers
  - for enterprise architects and upper-level managers

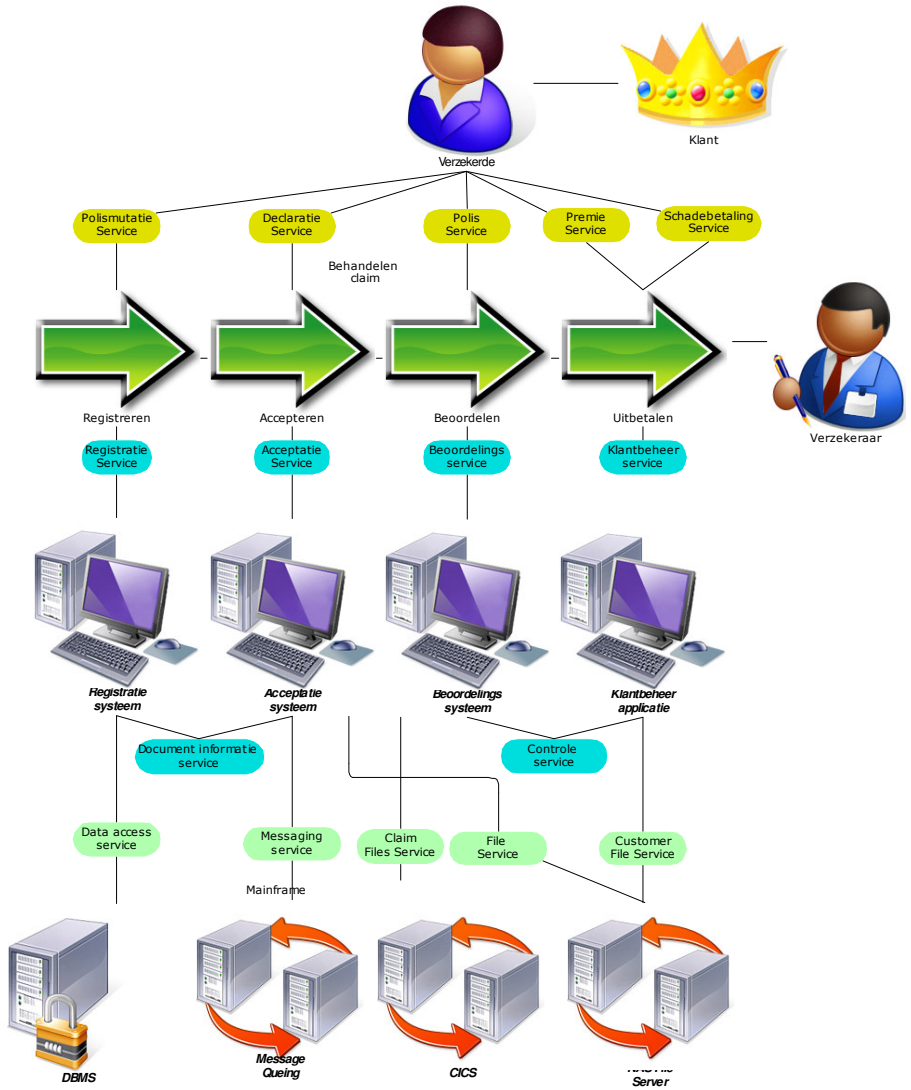
Examples views



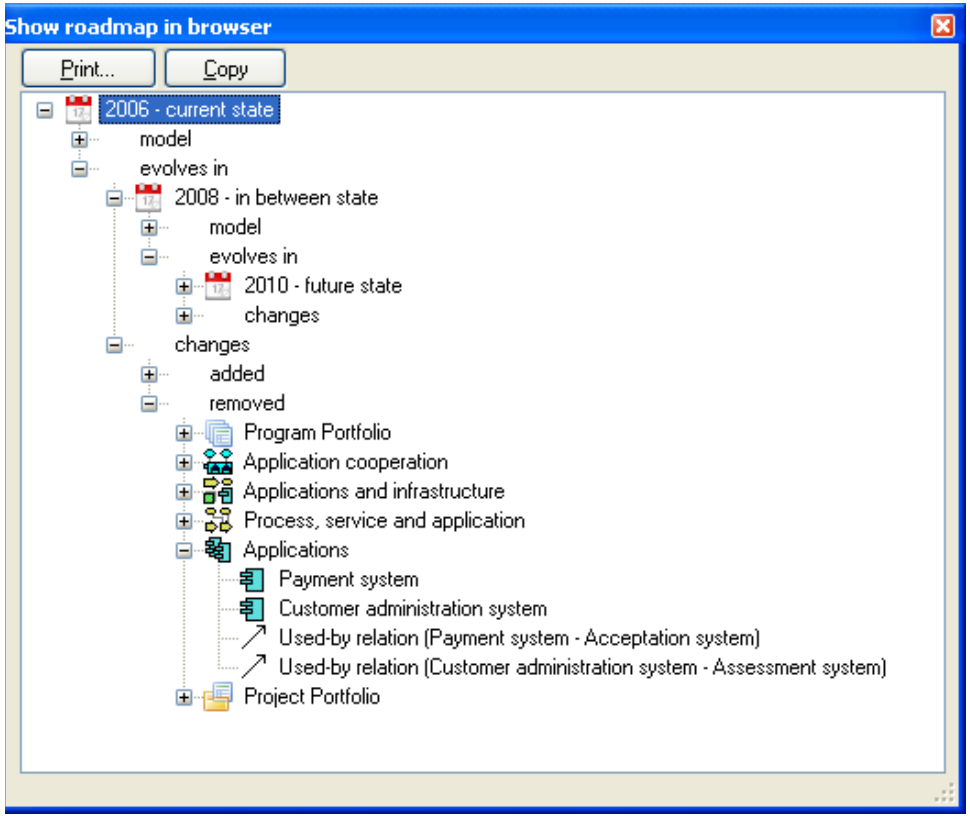


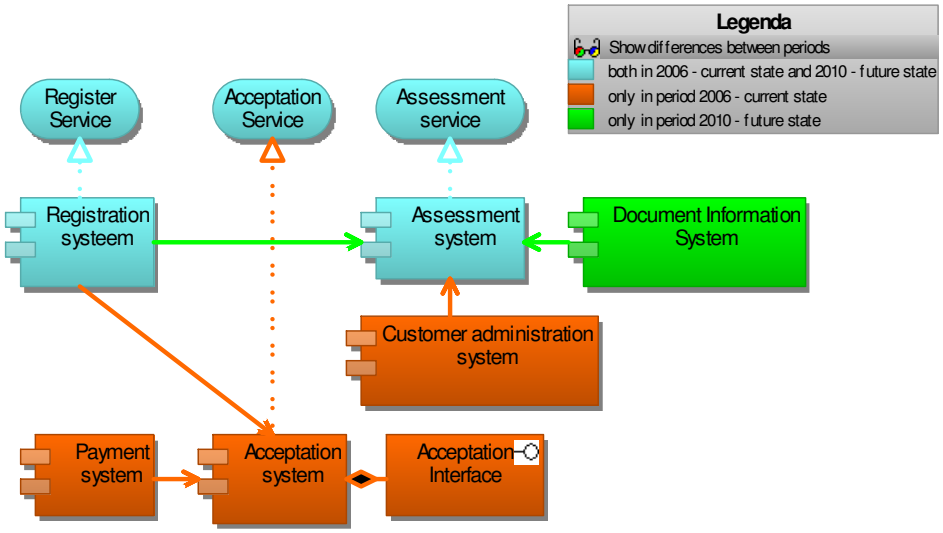
Modelling and Views





Roadmapping: differences as-is/to-be



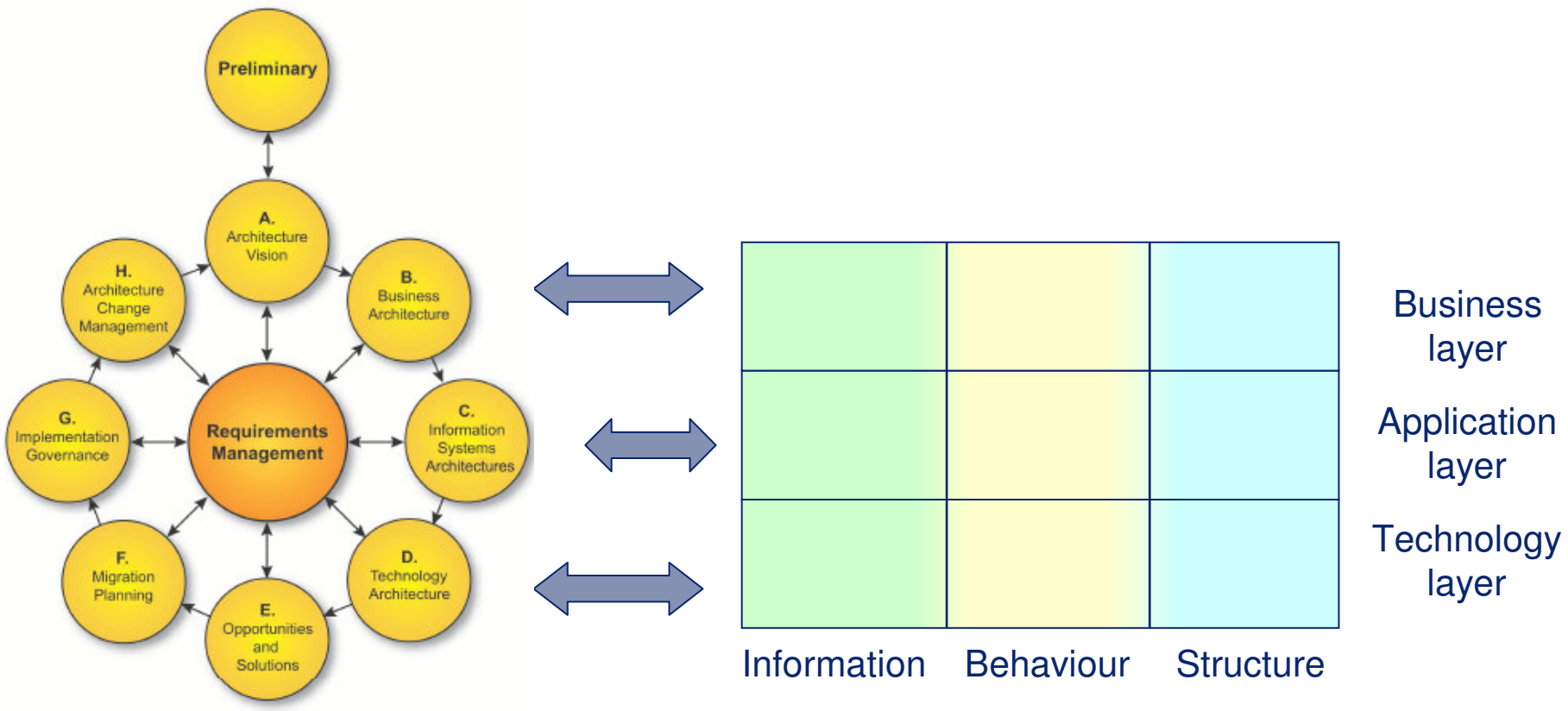


ArchiMate and …

ArchiMate and… other languages

- ArchiMate: perfect starting point for MDA and software development
  - ArchiMate incorporates the service paradigm
  - ArchiMate has implementation relationships to process modelling languages (BPNM, BPEL)
  - ArchiMate has implementation relationships to software engineering design languages (UML)
- ArchiMate connects architectural domains
  - It has a broader scope, but less detail than UML and BPMN
  - It does not replace specialized languages for different architectural domains, such as UML, BPMN and others

ArchiMate and… the ADM



ArchiMate and… support

- ArchiMate is commercially supported
  - By (certified) toolvendors
    - BiZZdesign: Architect
    - Casewise: Corporate Modeler
    - IDS Scheer: Aris ArchiMate Modeler
    - Telelogic: System Architect
    - Troux: Metis
  - By a large number of service providers like Atos Origin, BiZZdesign, Capgemini, Getronics, Logica, Ordina,…
- And used by many organisations
  - Finance, governance, transport, energy, water, education, health care, health insurance, industry, public sector, …


cvz
Koninklijke Boskalis Westminster nv
meyn
DURA VERMEER
atrium medisch centrum parkstad
Bank Mendes Gans
essent
DIMPACT
REAAL Verzekeringen
AGIS zorgverzekeringen
Zorgverzekeraar SVGZ
Detailresult
Medisch Spectrum Twente
KAS BANK COMMITTED SINCE 1806
ZwitserLeven
Duinwaterbedrijf Zuid-Holland
VROM
ABP
UWV
E CONCERN
achmea
Waterschap Rivierenland
centraal boekhuis
UNIVÉ VERZEKERINGEN
RWE stroom en gas
POLITIE
CORDARES capital care
CITO zeker weten
SVB
purmerend nl
Belastingdienst
eindhoven.nl
Ministerie van Binnenlandse Zaken en Koninkrijksrelaties
PSB informatiesystemen bv
landbouw, natuur en voedselkwaliteit
provincie groningen
Zwolle groenste stad van Europa
AEGON
Telematica Instituut
VVAA
de Rechtspraak
Enschede.nl
AFM
ING
Fortis Bank Nederland
Van Lanschot Bankiers
IGGESUND HOLMEN GROUP
Amsterdam.nl
KLUWER
Vägverket
KLM CARGO
GasTerra
Reed Business
ministerie van Financiën
Rijkswaterstaat
Strukton
corus
LOUWMAN
ACCA
ALCREDIS FINANCE
Super deBoer
IAK VERZEKERINGEN
IGS Informatik für Sozialversicherungen

ArchiMate in HE

ArchiMate and…Service providers

ArchiMate and… The Open Group

- ArchiMate is maintained by The Open Group
  - Including certification for tool support, training and individuals
- The ArchiMate Forum
  - platform and community for everyone involved with the use and evolution of ArchiMate
    - Henry Franken (chair, BiZZdesign)
    - Erik Proper (vice-chair, Capgemini)
    - Roland Ettema (Logica)
    - Garry Doherty (director Open Group)

Modelling…..YES WE CAN!

- The *language* for describing enterprise architectures
- Covers *business*, *application* and *technology* layer
  - With relations between these layers
- Graphical language with *formal semantics*, enabling analysis and tool support
- Techniques for *visualization* and *analysis*, aimed at various stakeholders
- Widely supported
- Open *standard* maintained by *The Open Group*

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Question?

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