ArchiMate

The open standard language for modeling en visualizing enterprise architecture

Harmen van den Berg, BiZZdesign

THE Open GROUP
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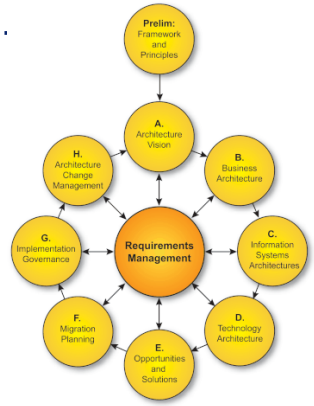
ARCHIMATE® FORUM

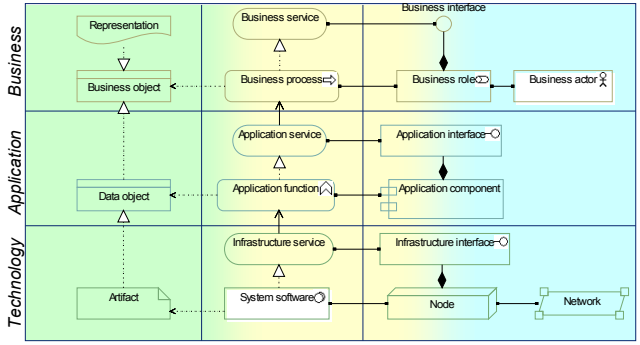
Proposed schedule

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

TOGAF and ArchiMate

- *ArchiMate is the open standard for modelling enterprise architecture, maintained by The Open Group in the ArchiMate Forum.*
- *A perfect combination:*
  - Togaf: enterprise architecture process / method
  - ArchiMate: modelling / analysis of TOGAF artefac les





Enterprise Architecture

Some basic concepts…

Enterprise Architecture

IEEE Std 1471:

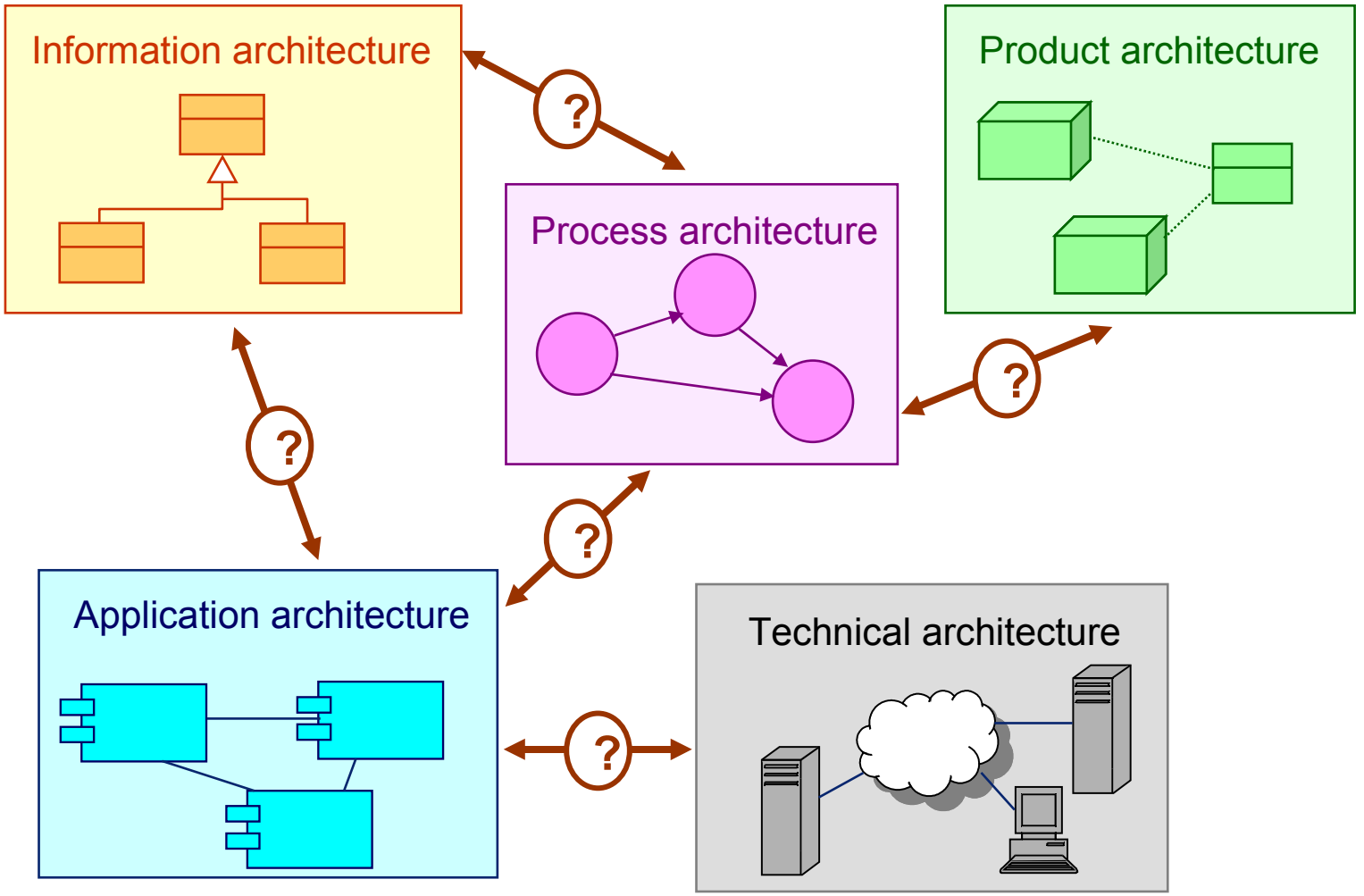
Architecture = structure(s) of a system

in terms of

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

"Structure with a vision"

EA: Describing Coherence



What is Enterprise Architecture?

- *A process*
  - For developing and using enterprise architecture in an organization
- *A product*
  - the complete and consistent set of methods, rules and models, which will guide the (re)design, migration and implementation of business processes, organizational structures, information systems and the technical infrastructure within an organization
- *For managing change and complexity*

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

Important notions (IEEE 1471)

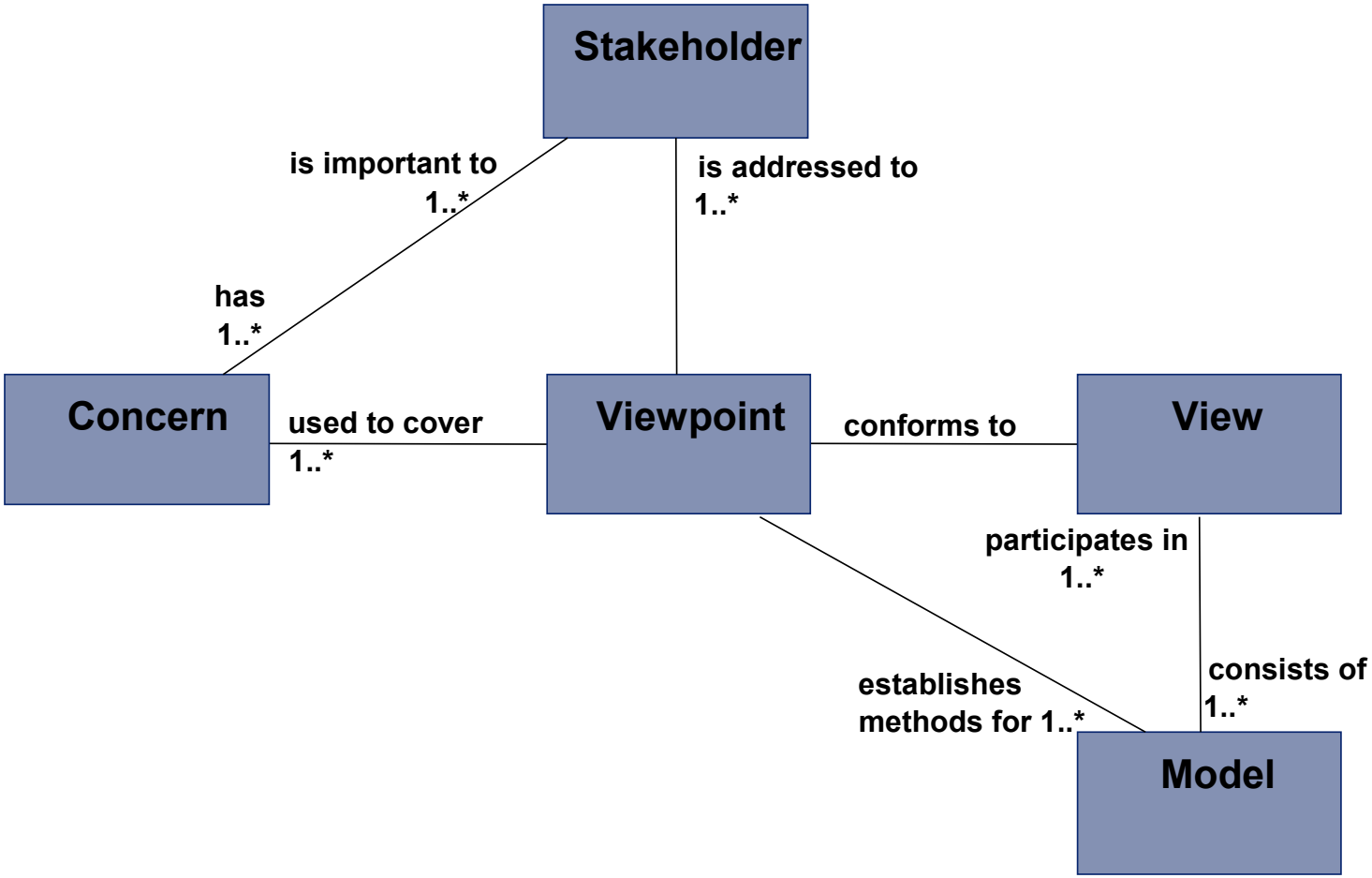
- *A stakeholder is a person or organisation with a certain interest in (part of) an architecture*
- *A view is a representation of a system from the perspective of a set of concerns of one or more stakeholders. A view is what you see.*
- *A viewpoint is where you are looking from. It defines how to 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

- *Air photo*
  - Concern: development plan
  - Stakeholder: City council

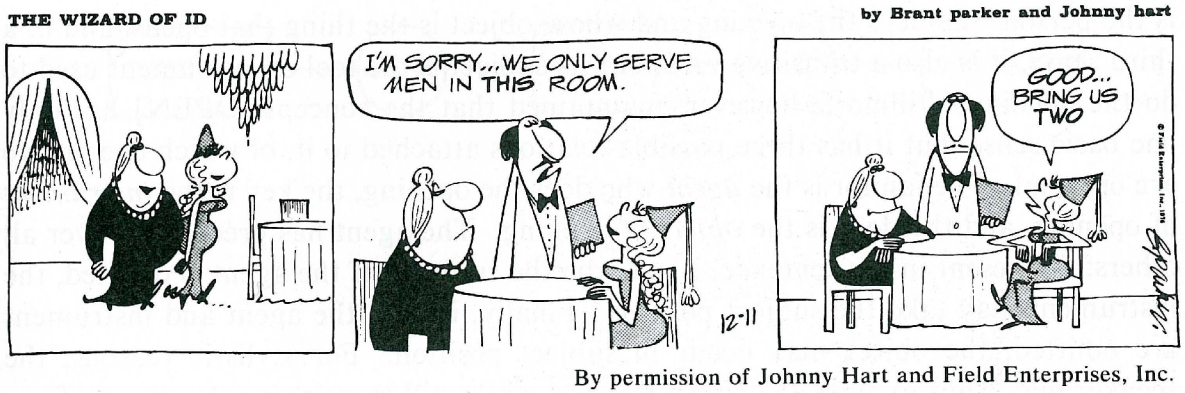
- *Ground photo*
  - Concern: building permit
  - Stakeholder: house owner

IEEE 1471 (summary)

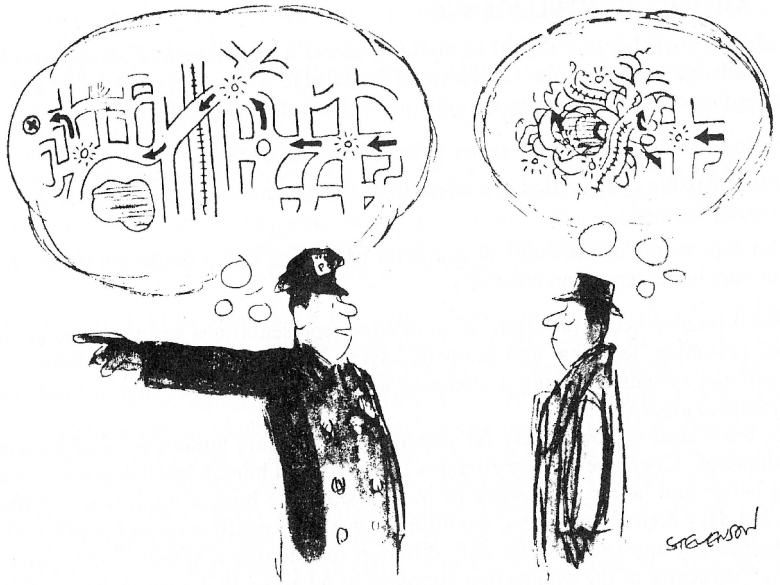


Why one language?

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

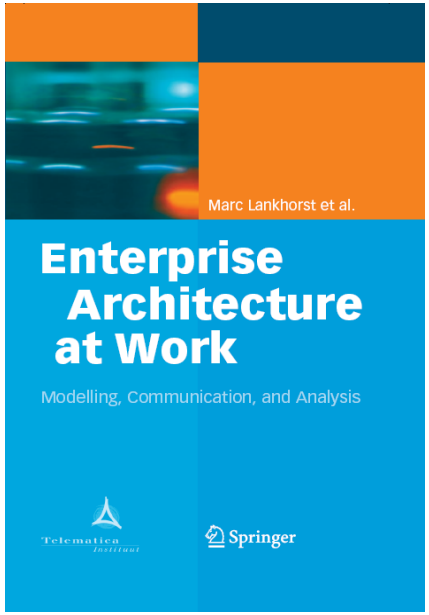


By permission of Johnny Hart and Field Enterprises, Inc.



ArchiMate

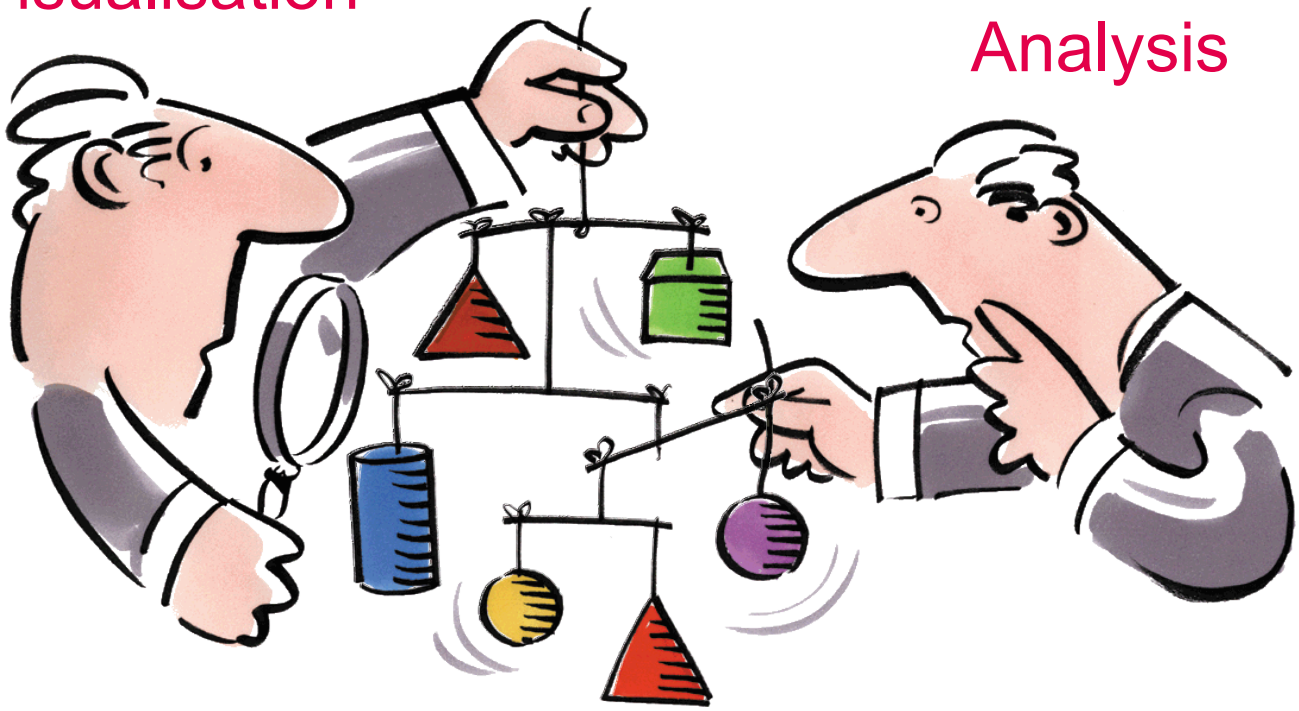
- *A language for describing architectures*
- *Covers business, application and technology layer*
  - With relations between these layers
- *Graphical language with formal semantics, enabling analysis and tool support*
- *Techniques for visualization and analysis, aimed at various stakeholders*
- *Open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



ArchiMate Focus

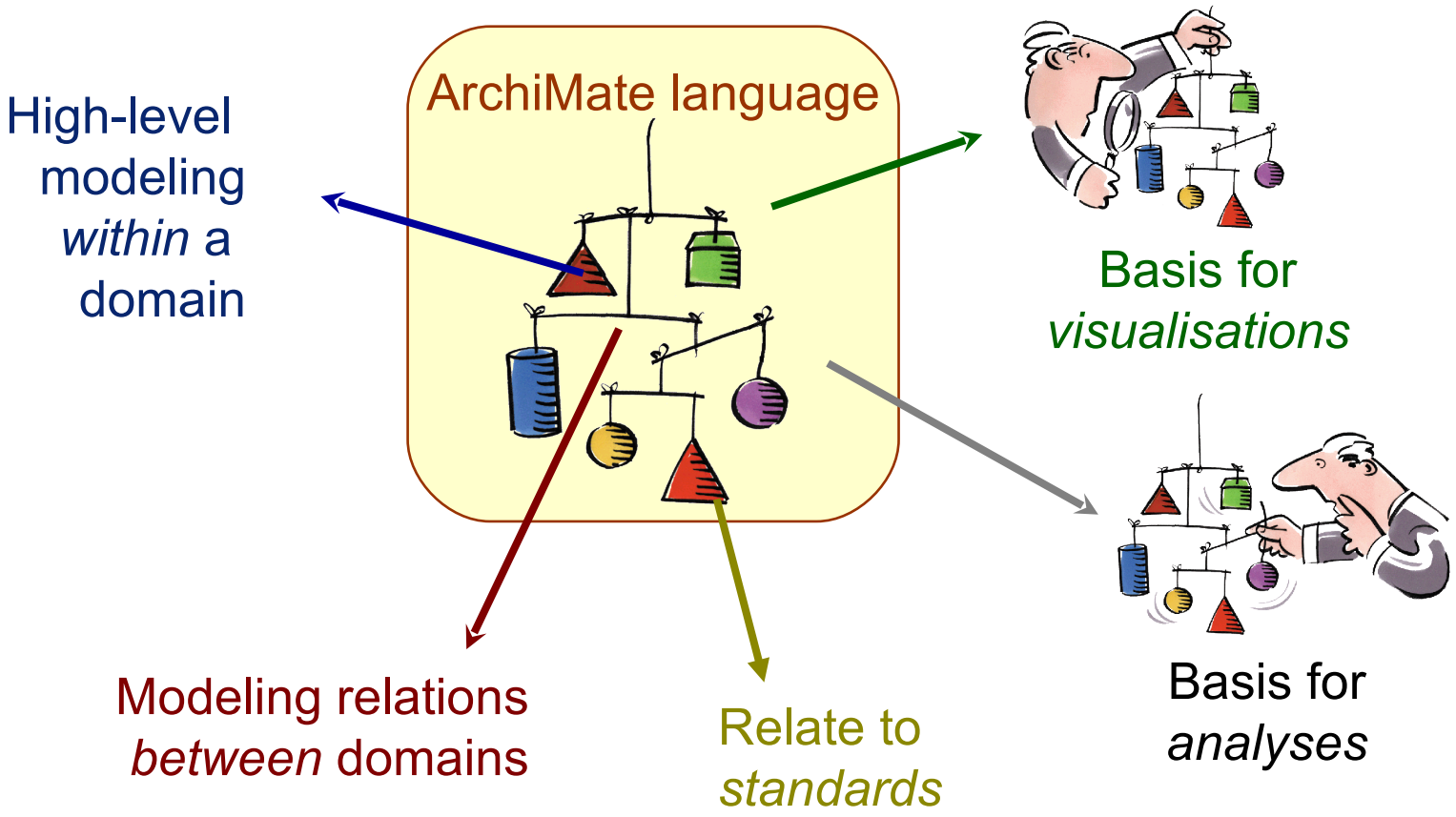
Visualisation

Analysis

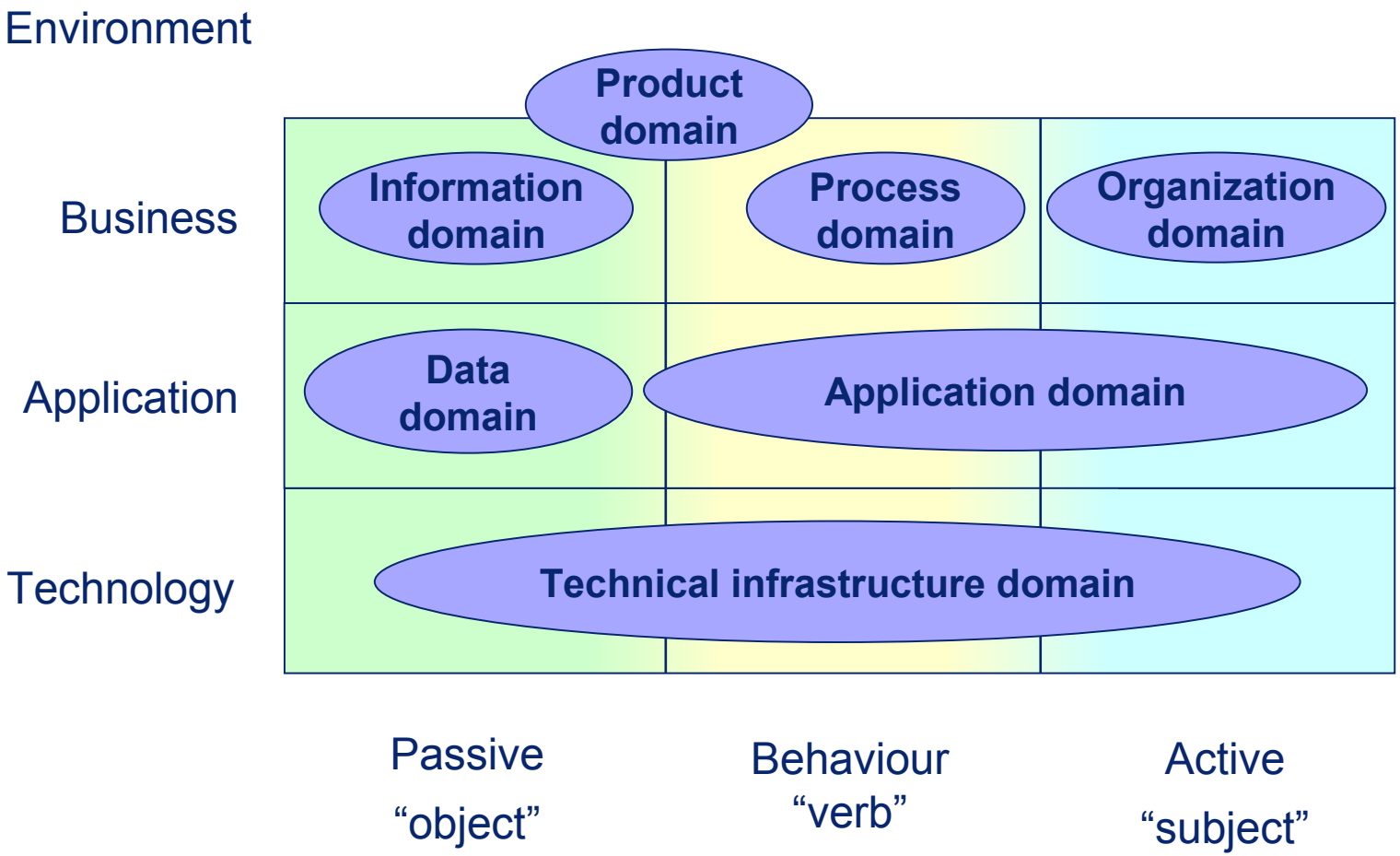


Integration

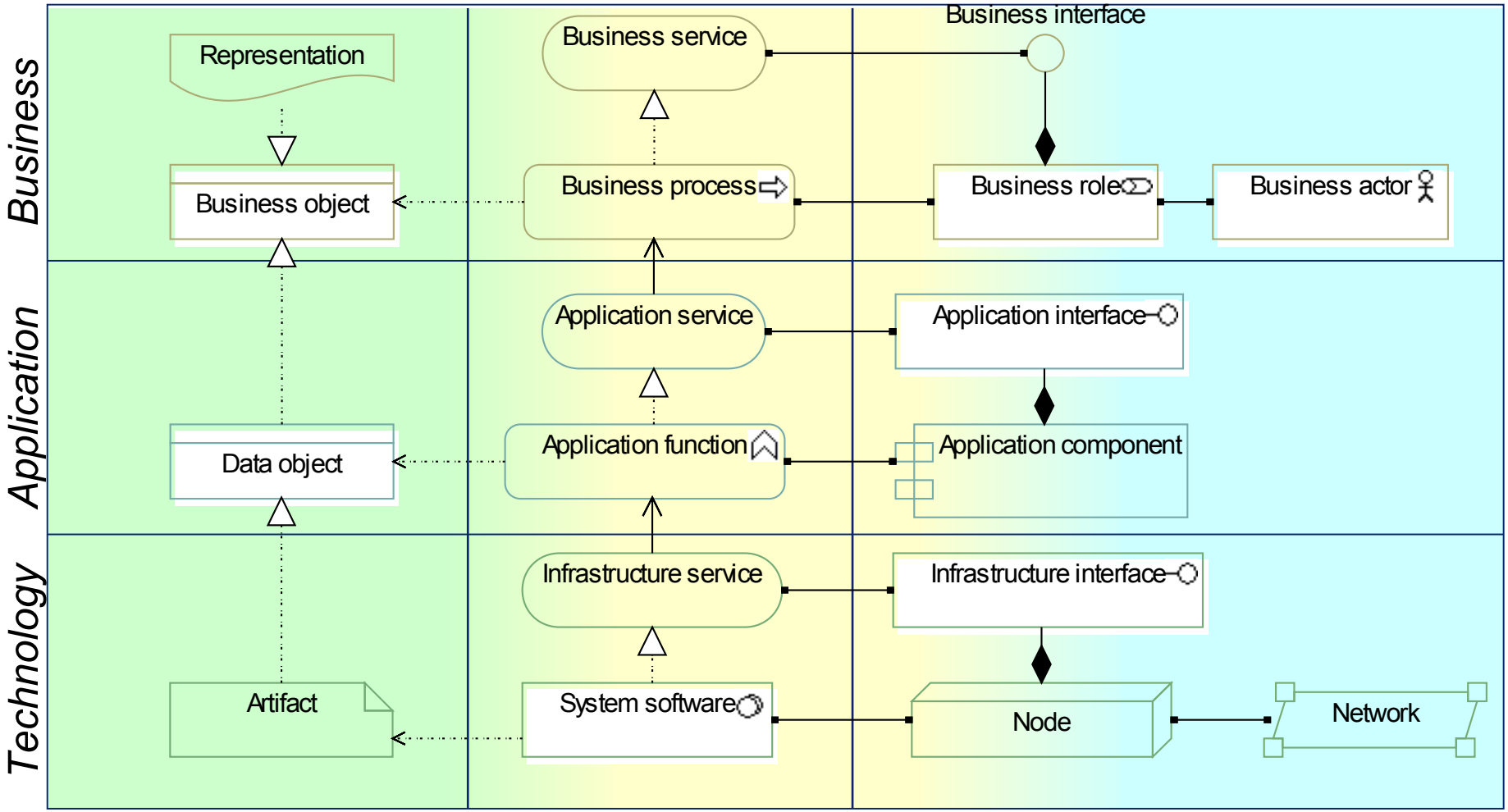
The ArchiMate Language



Layers, Aspects, and Domains



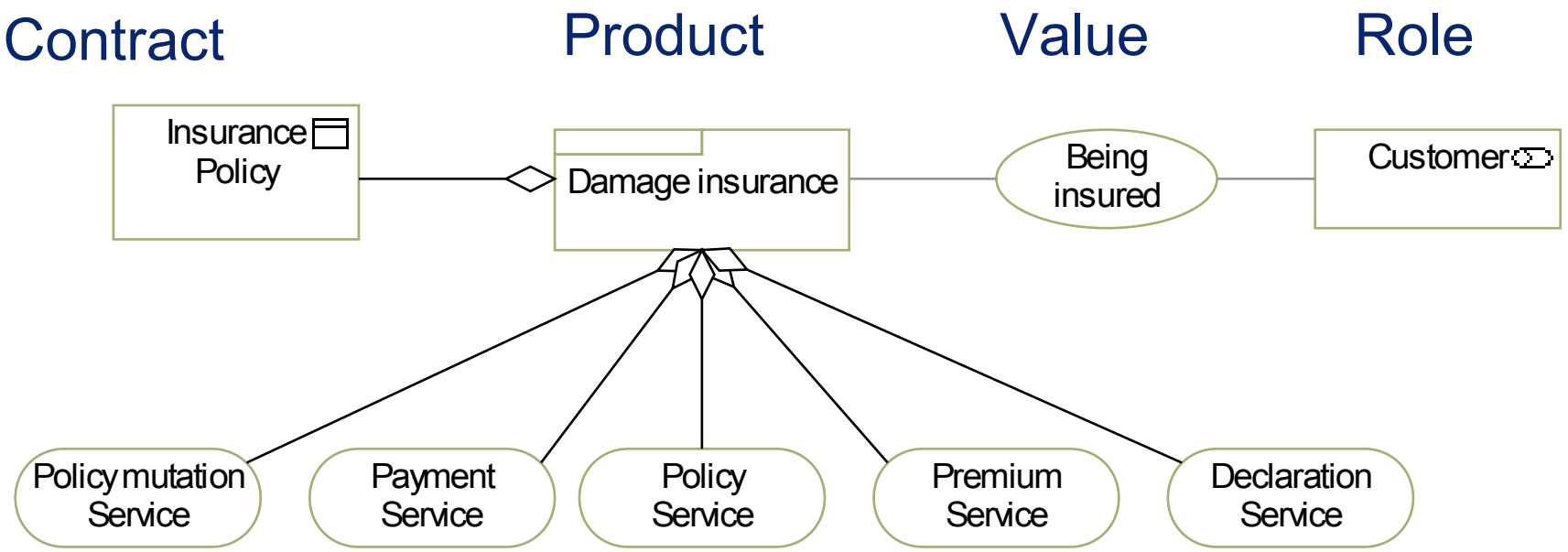
Language summary



Some examples of the ArchiMate language for "educational purposes"

Examples created using BiZZdesign Architect

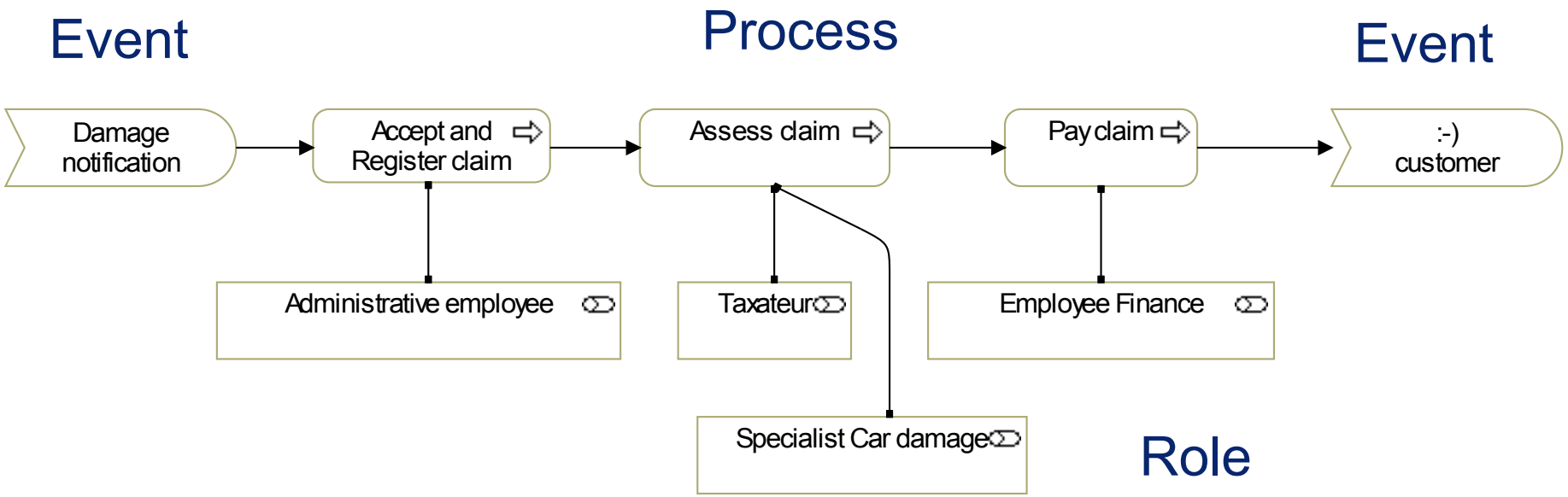
Products and services



Business services

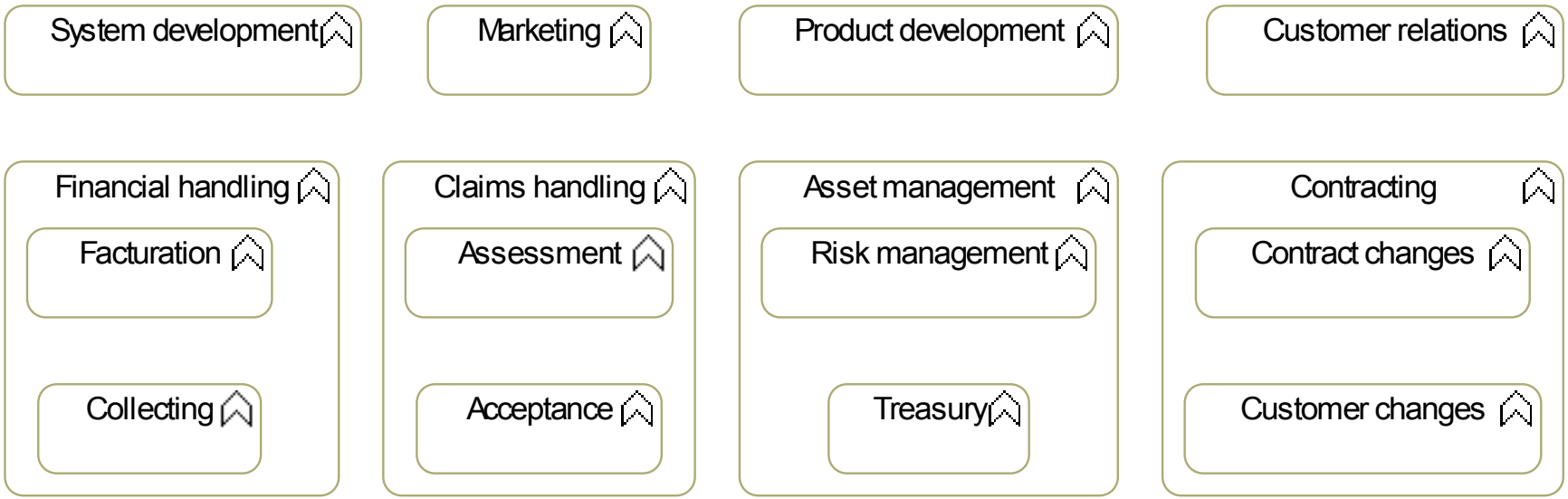
Aggregation
Association

Processes and roles



Triggering
Assignment

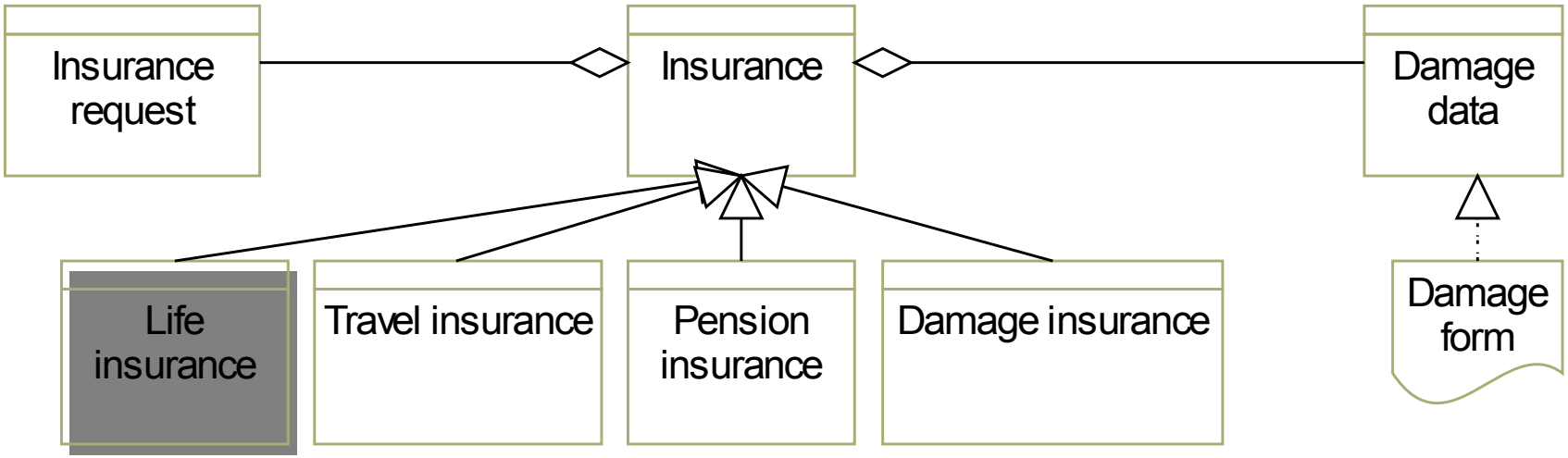
Business functions



Business Function

Composition (by nesting)

Business objects

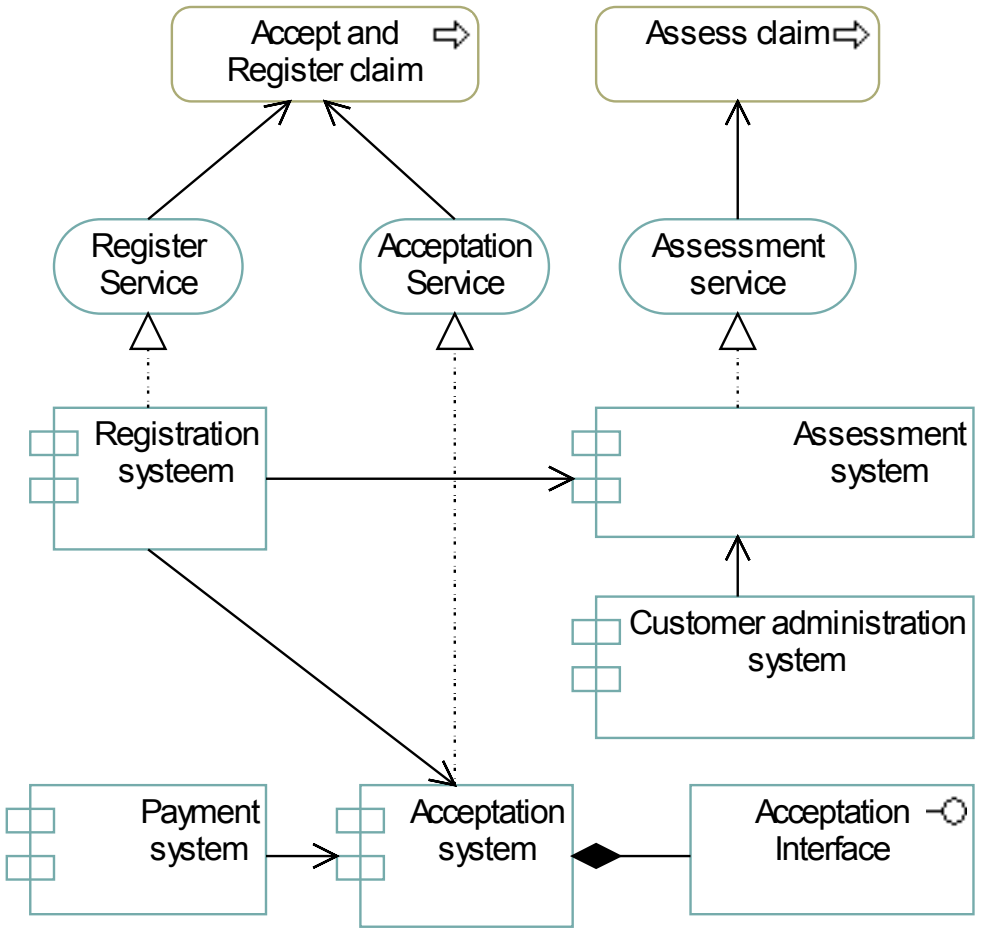


Representation

Business object

Aggregation
Specialization
Realization

Applications and application services



Business process

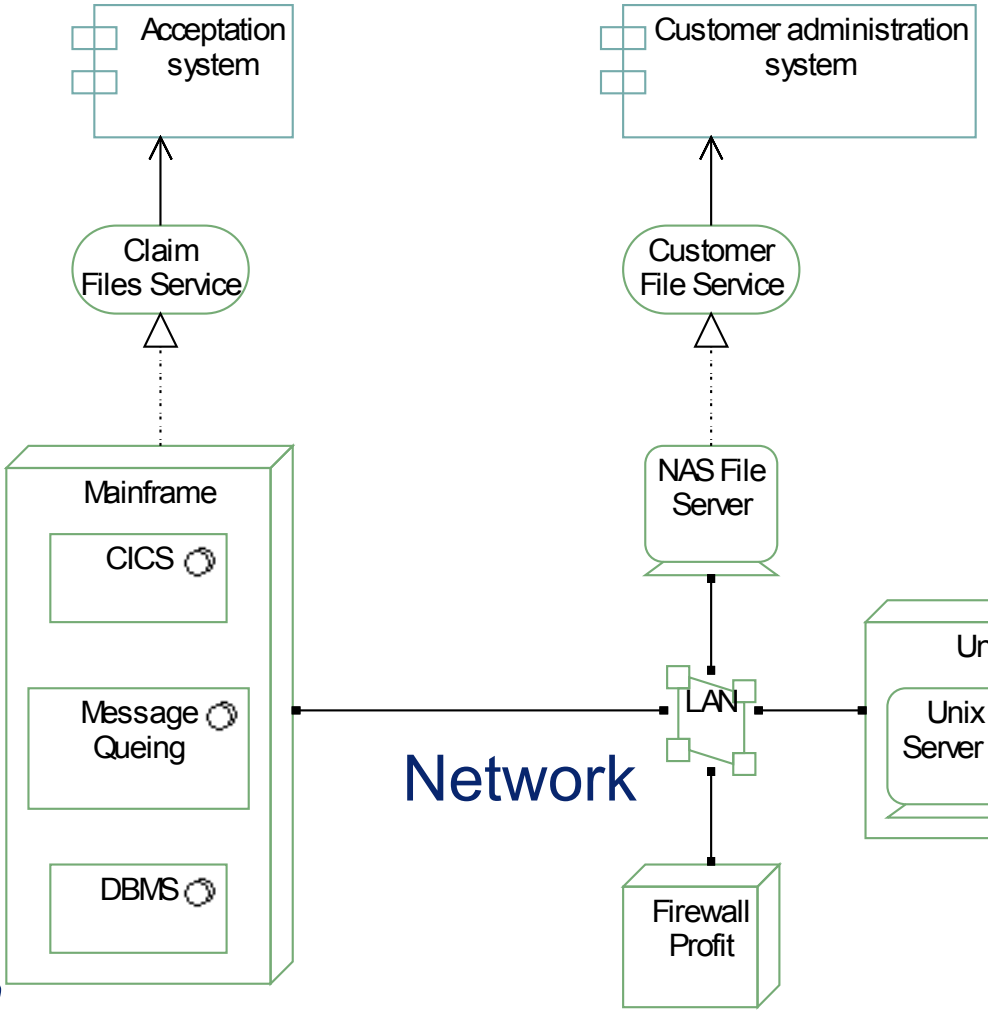
Application service

Application component

Application interface

Used-by
Realization
Composition

Infrastructure



Application component

Infrastructure service

System software

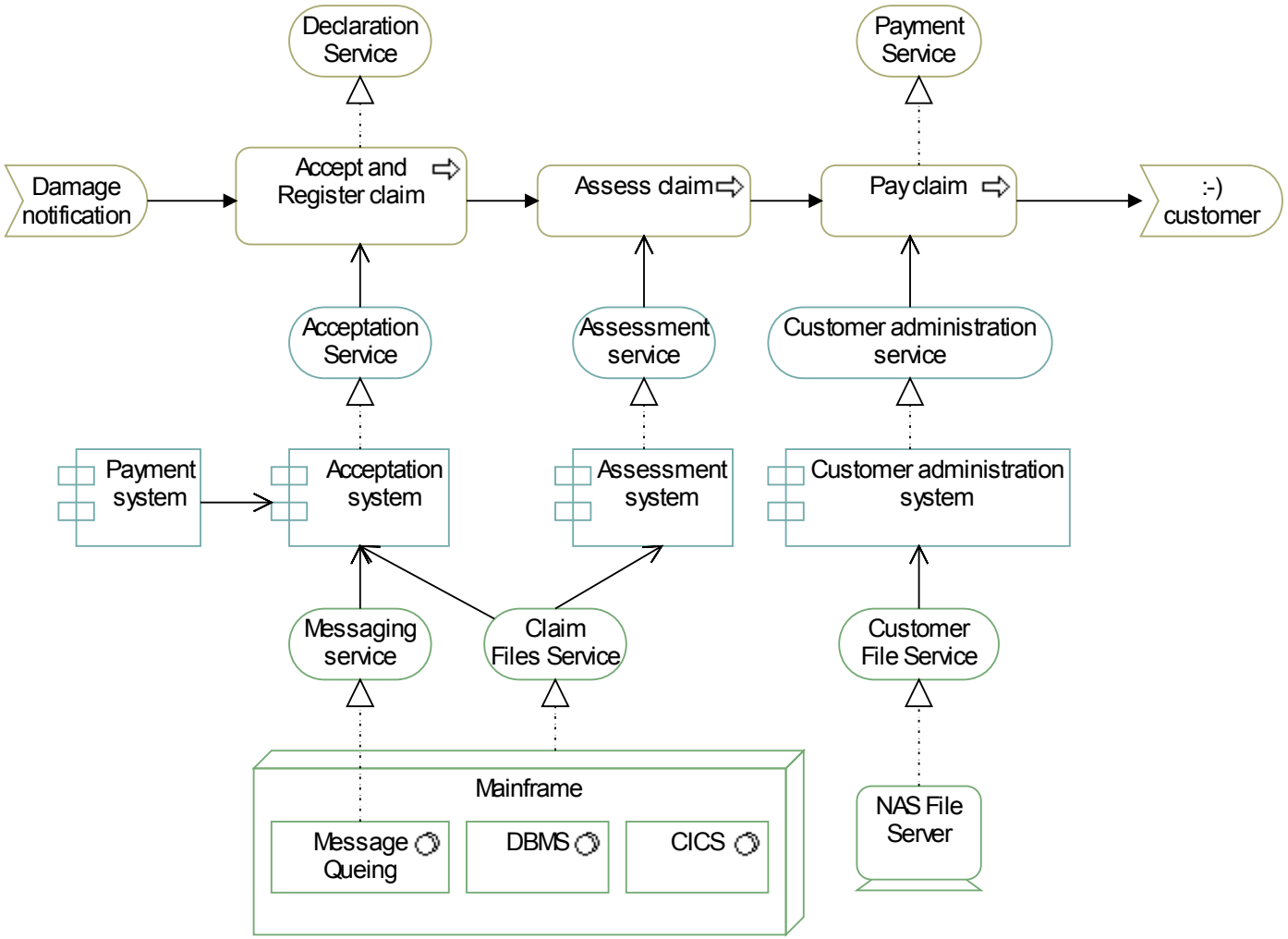
Node

Device

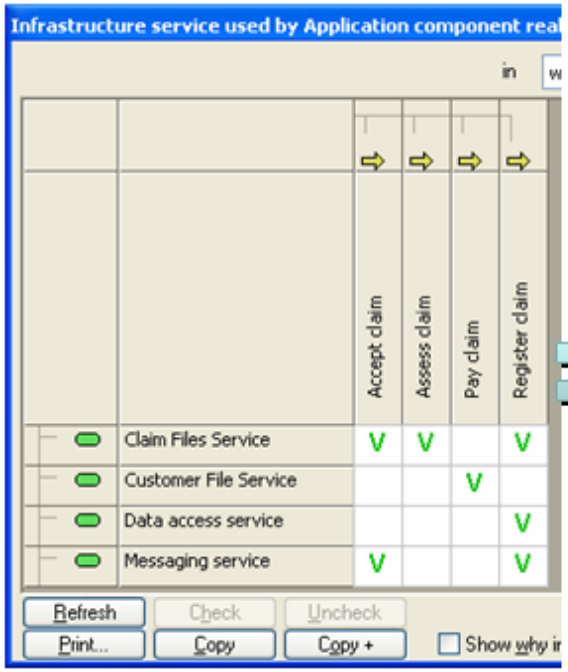
Network

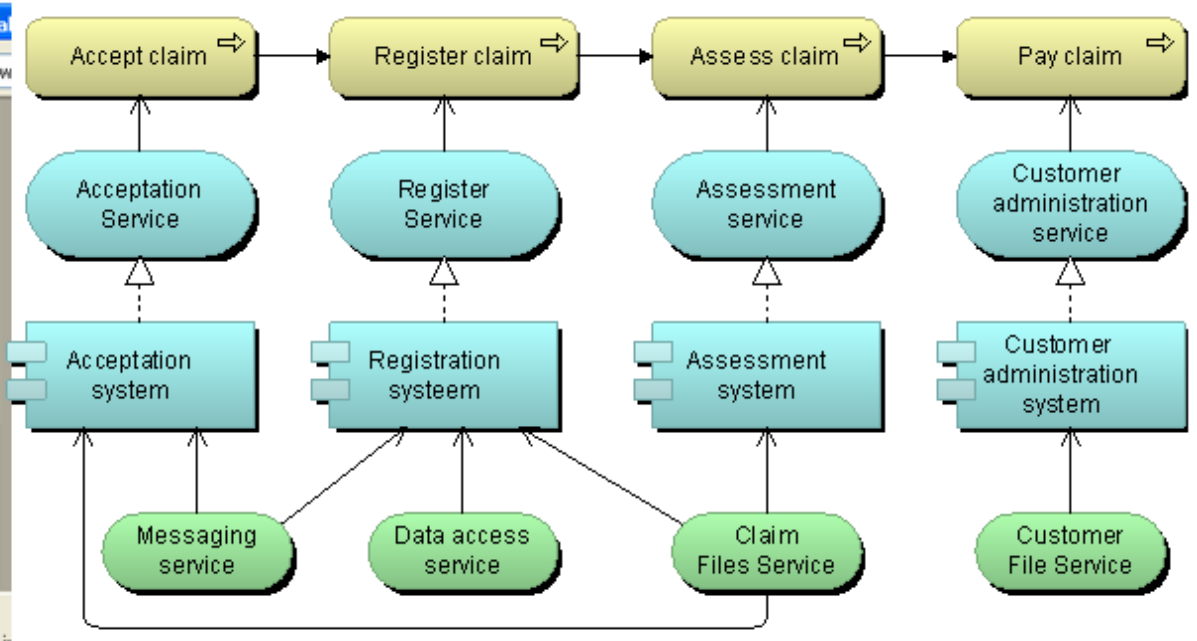
Used-by
Realization
Assignment
Composition

Layered view

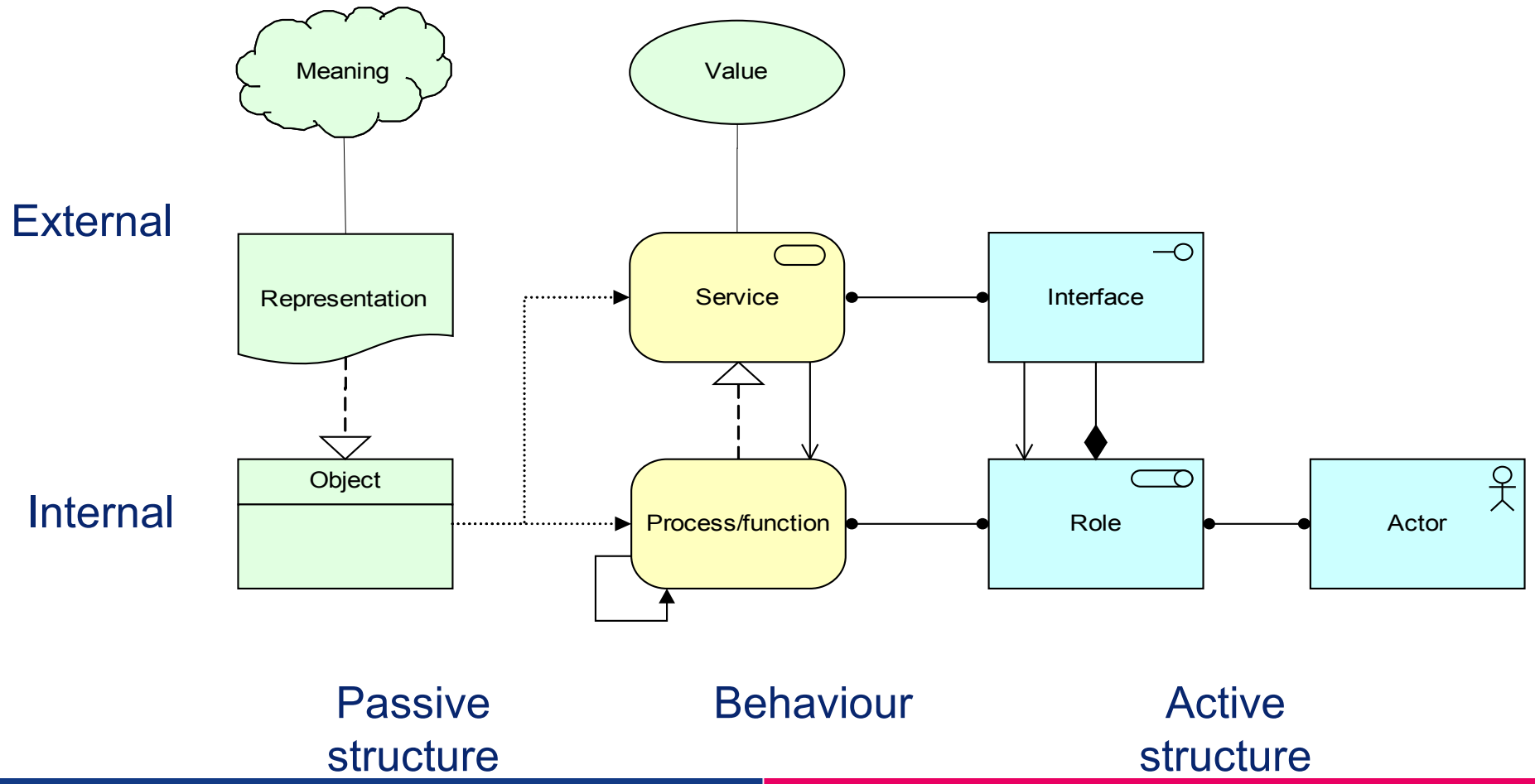


Derived relations

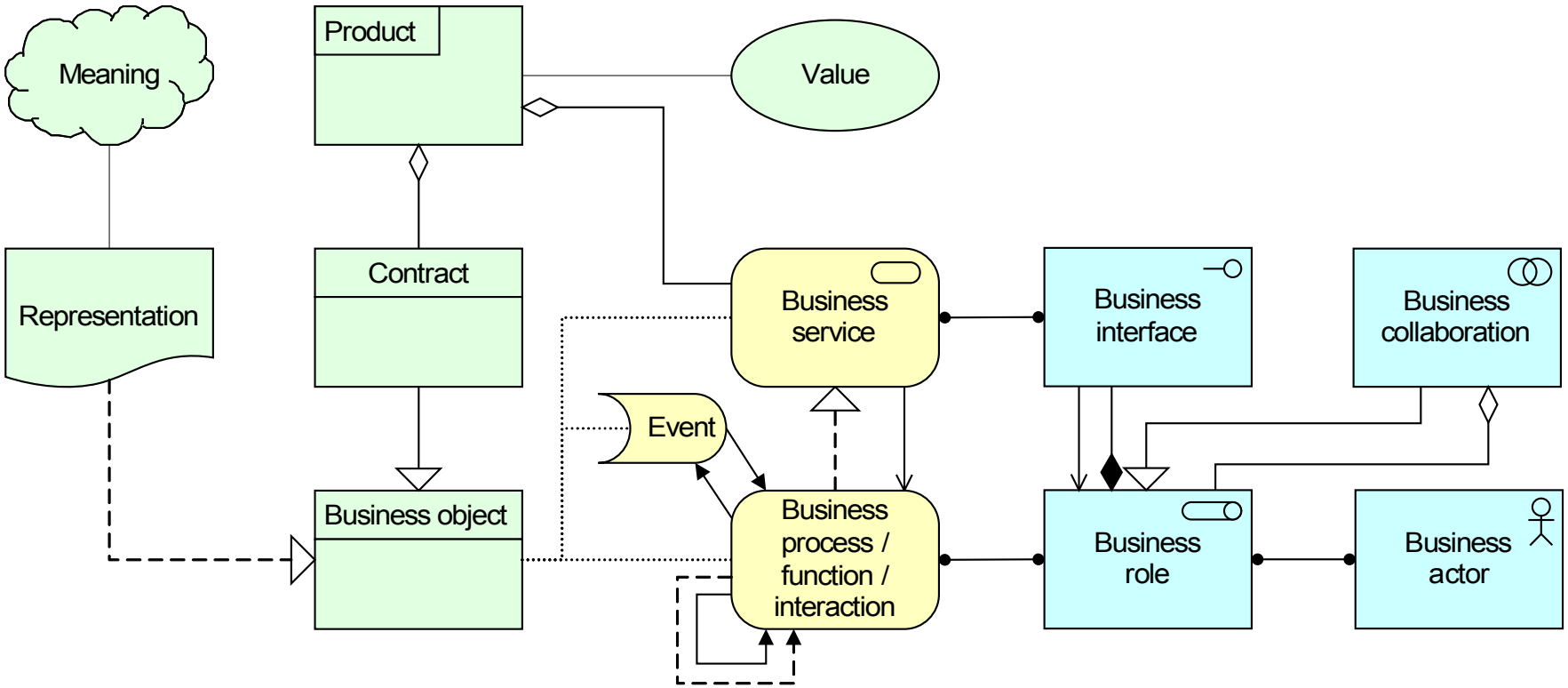




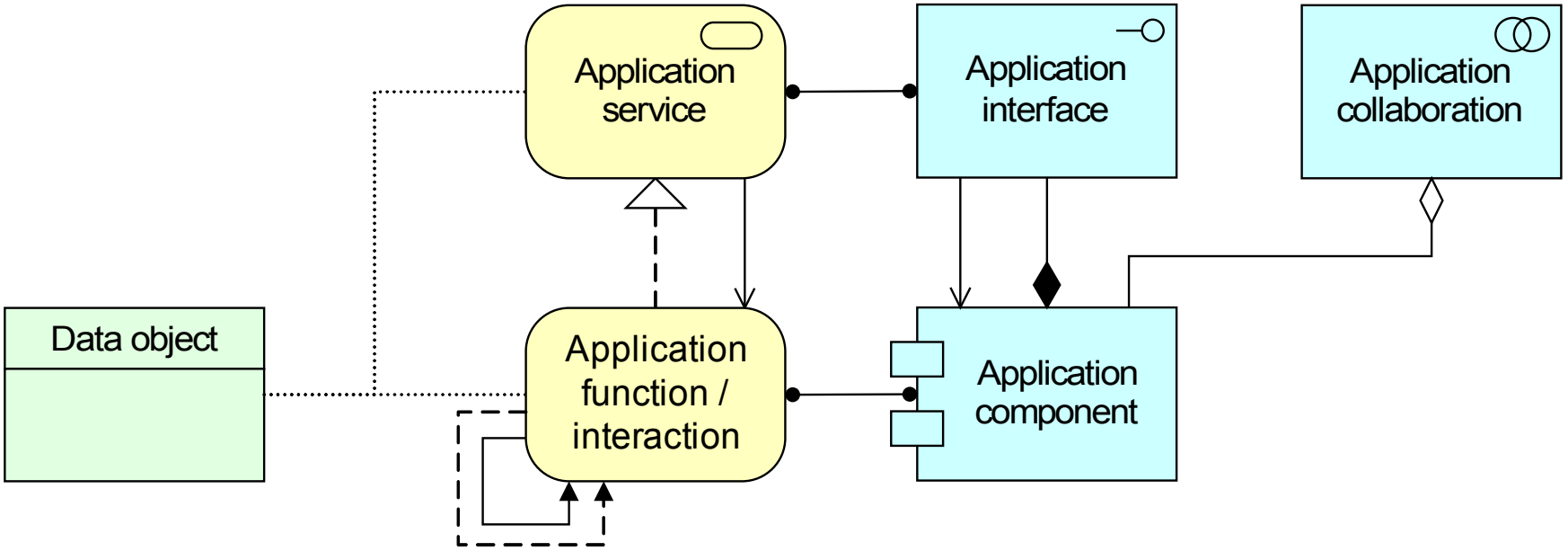
Generic meta model ArchiMate



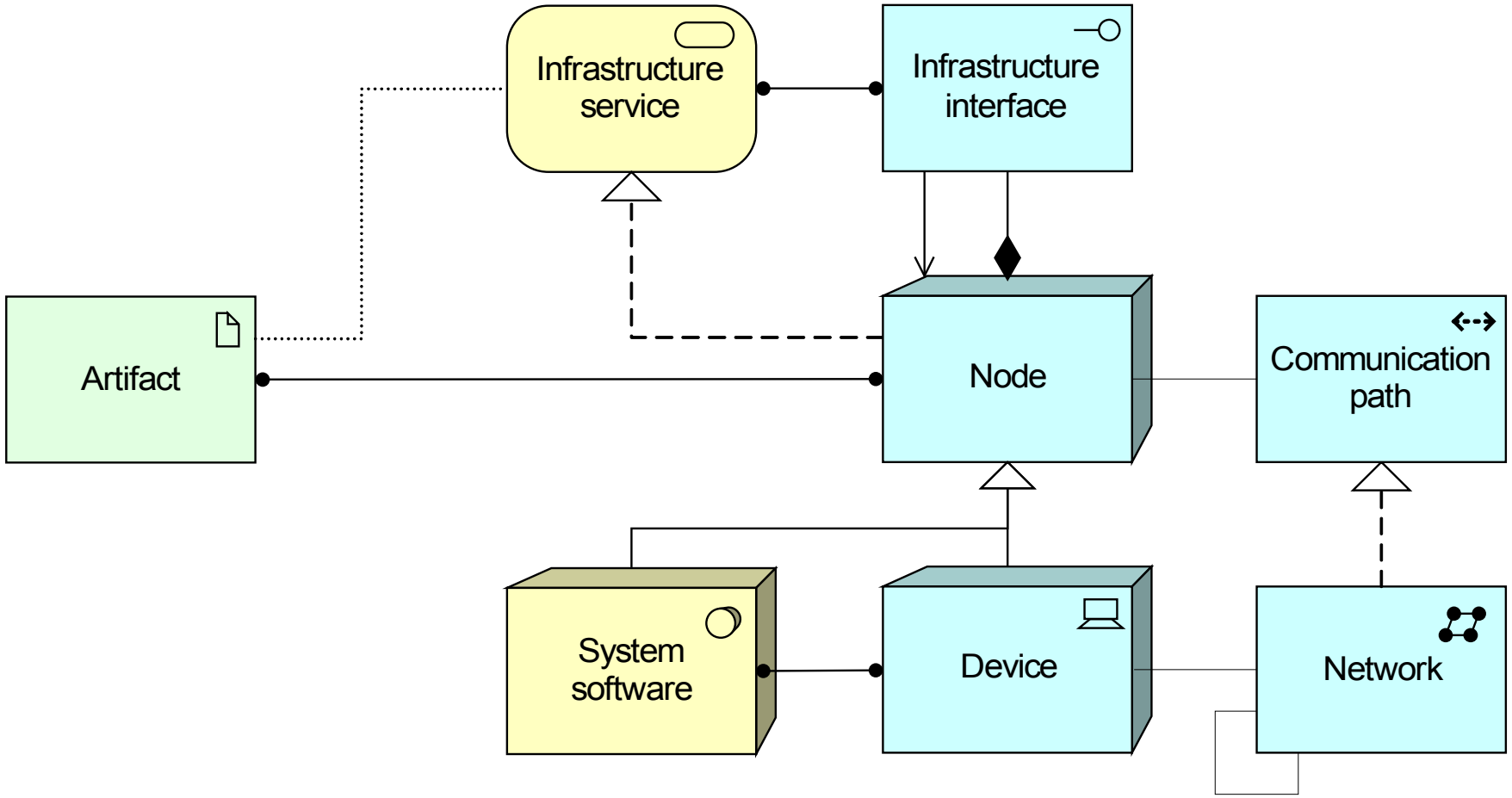
Business layer meta model



Application layer meta model

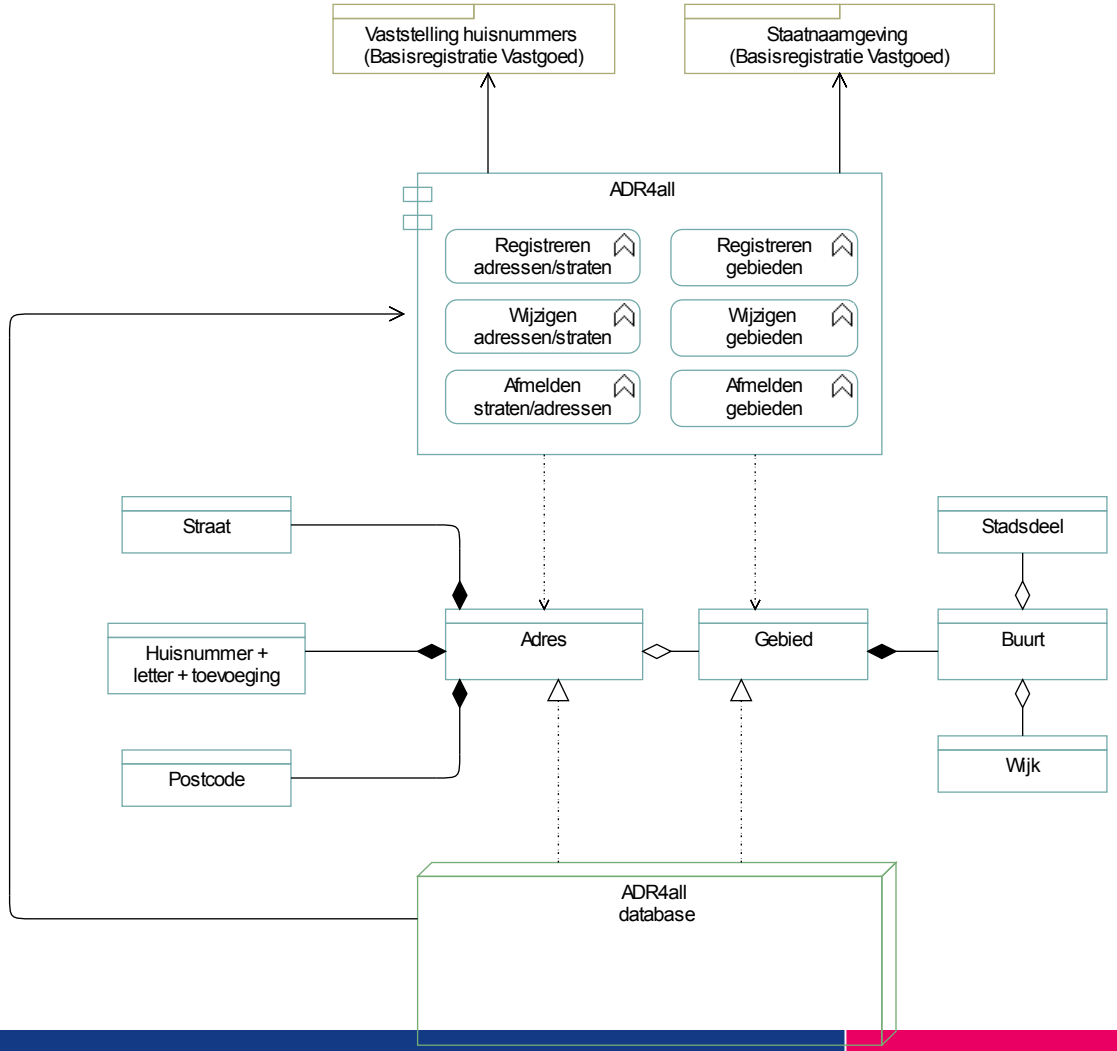


Technology layer meta model



Some examples from daily practice

Example: City of Enschede - 1



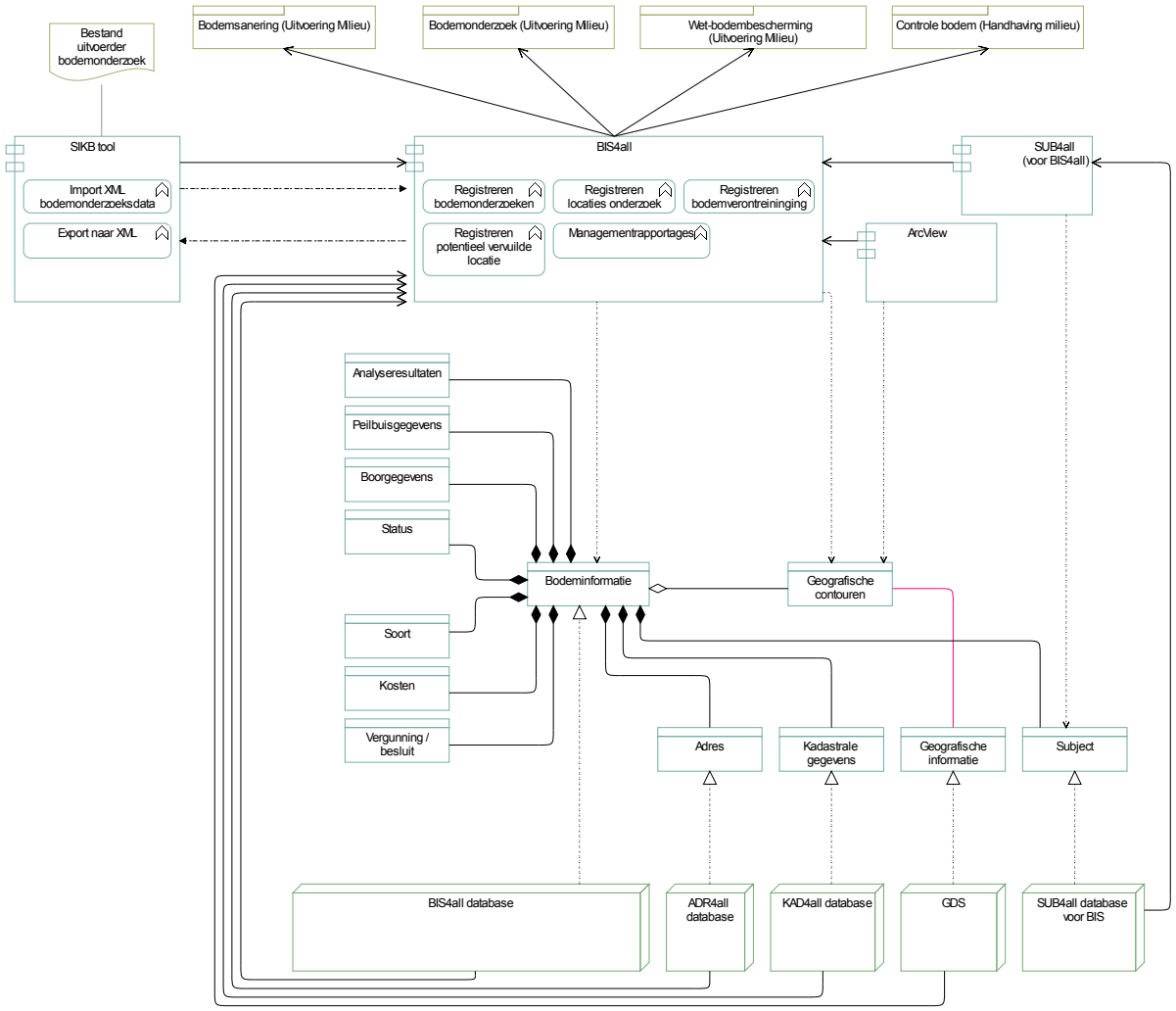
Product

Application with functions

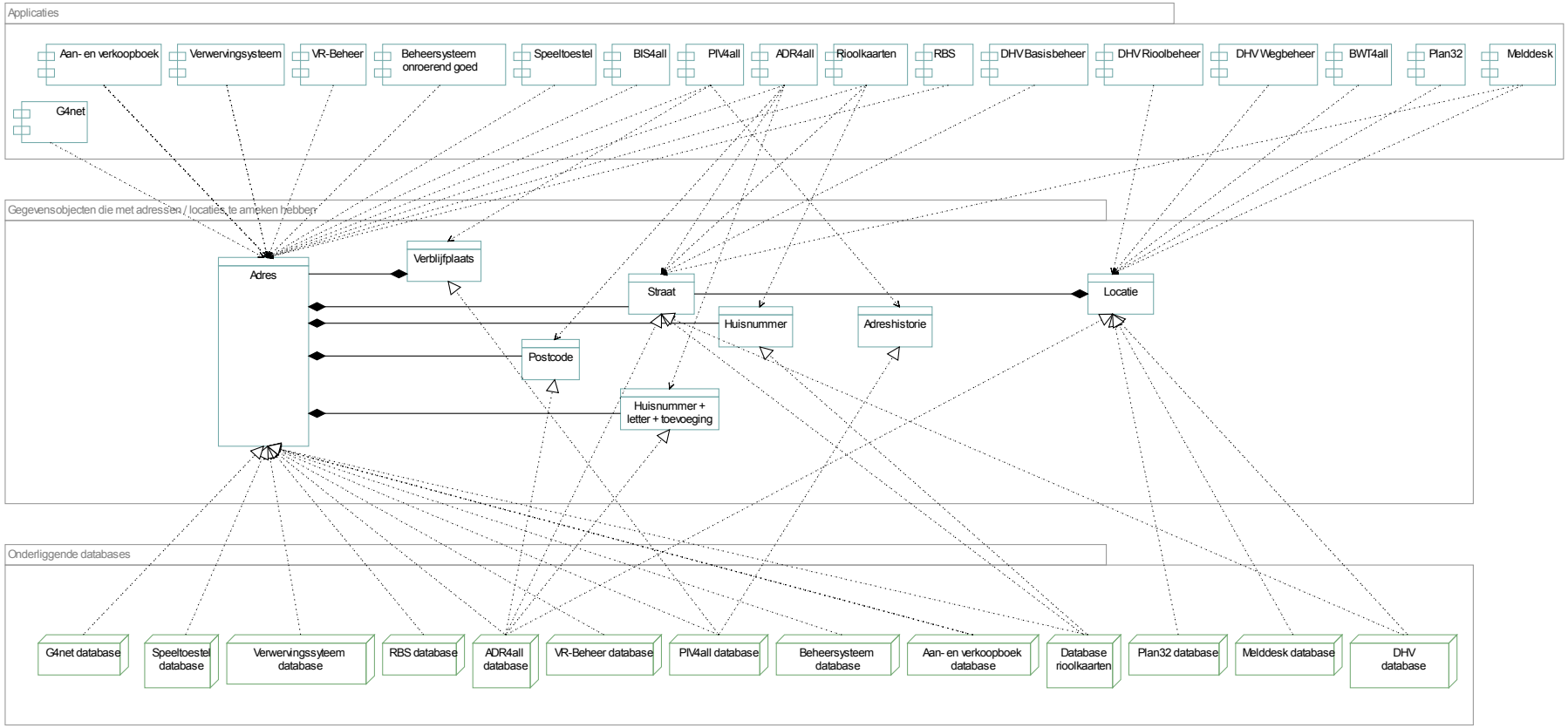
Application data objects

Database

Example: City of Enschede - 2

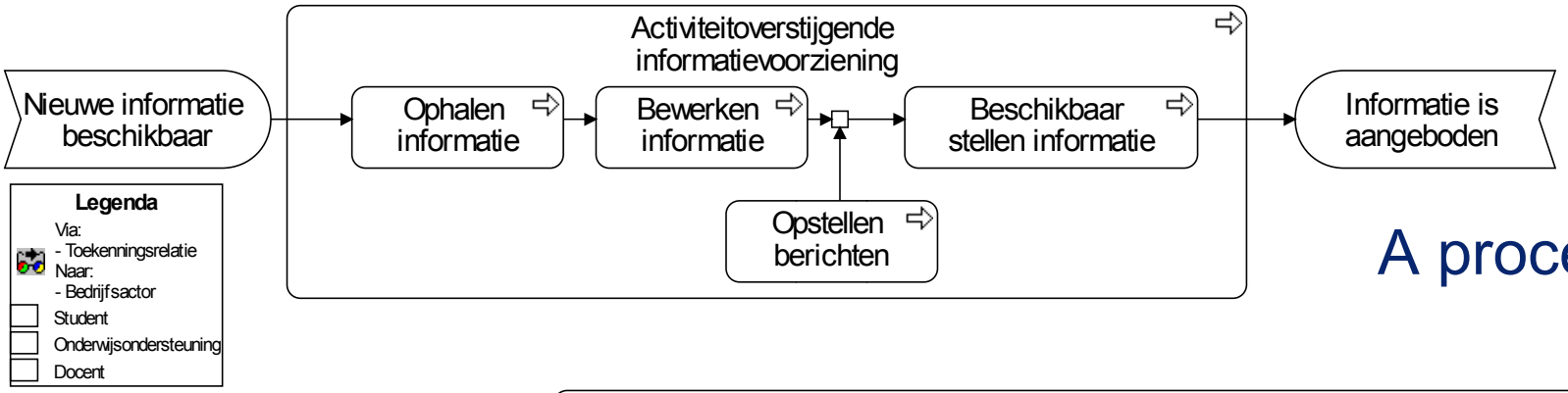


Example: City of Enschede - 3



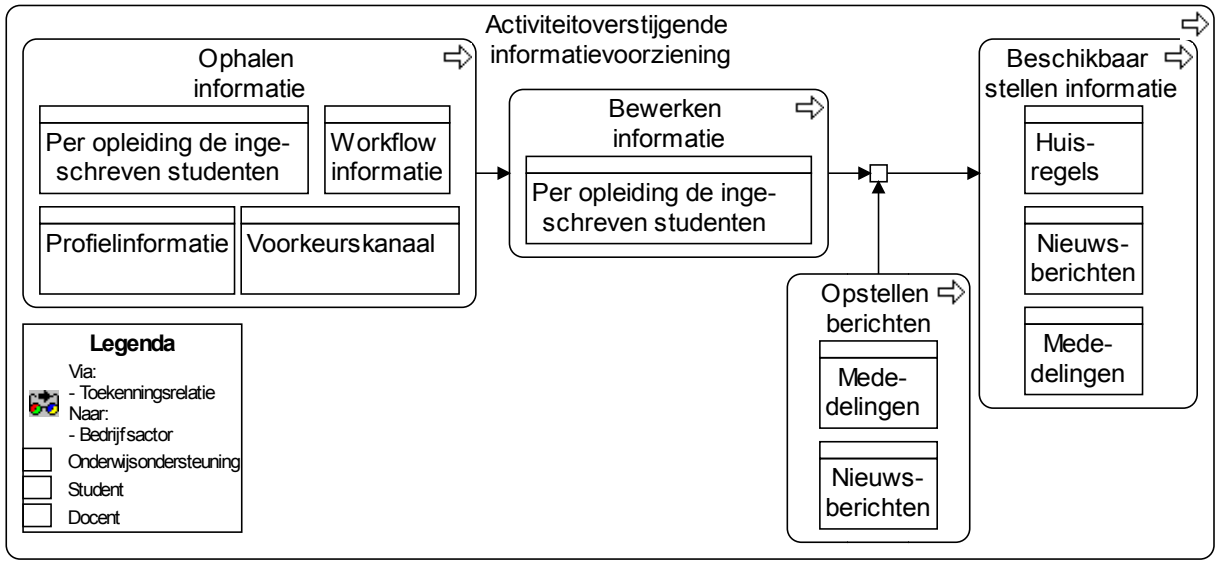
Which data is used by which application, and stored in which database

Example: 3 technical universities

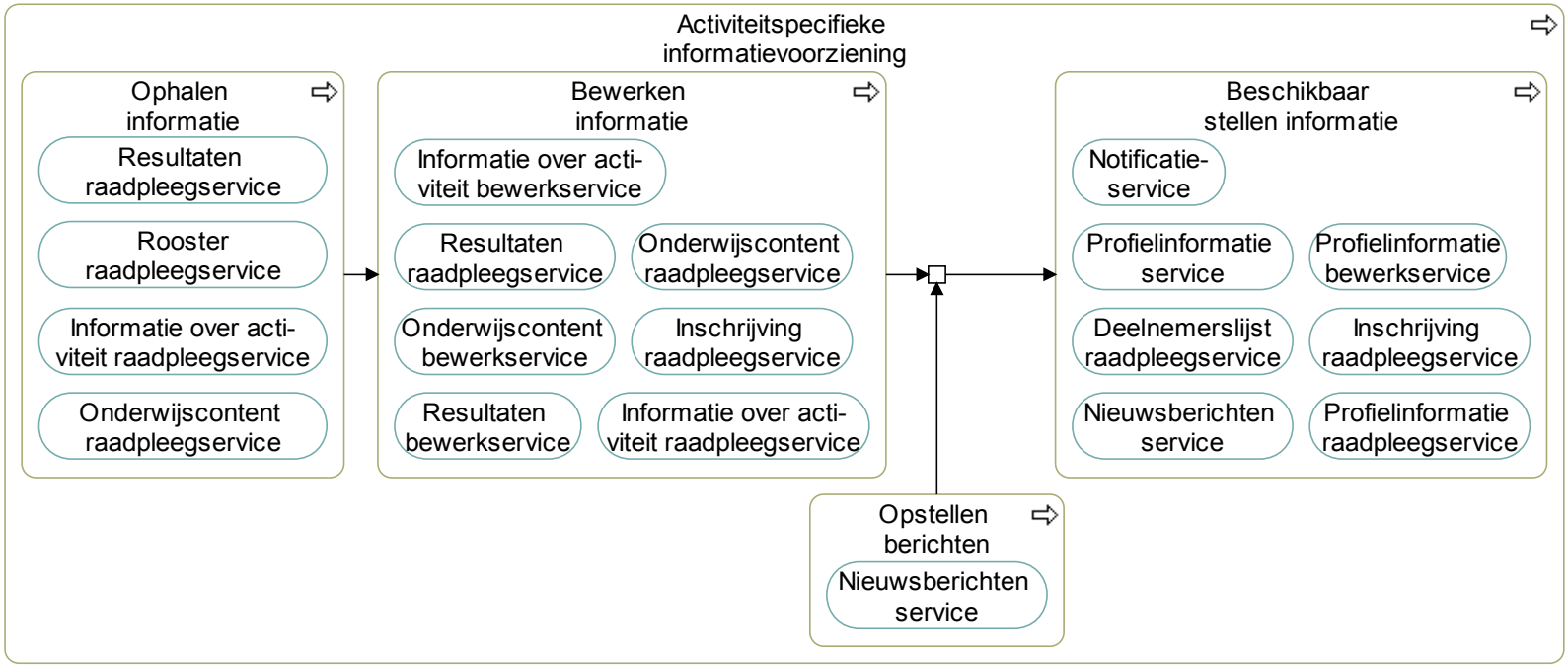


A process

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



Example: 3 technical universities

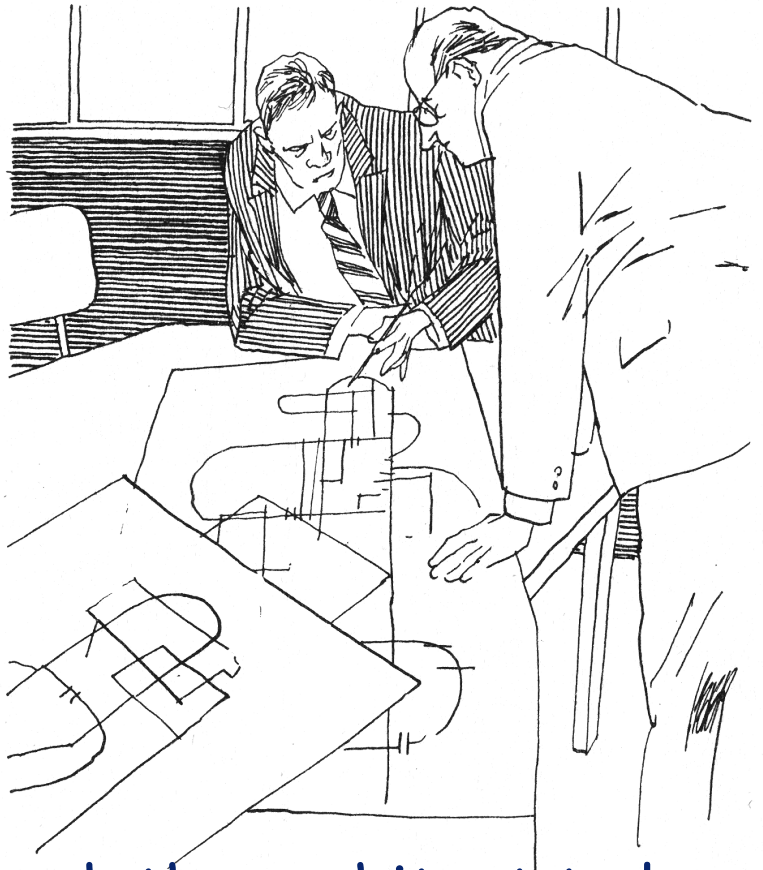


Use of application services by the process
(used by relation by nesting)

Viewpoints and views in ArchiMate

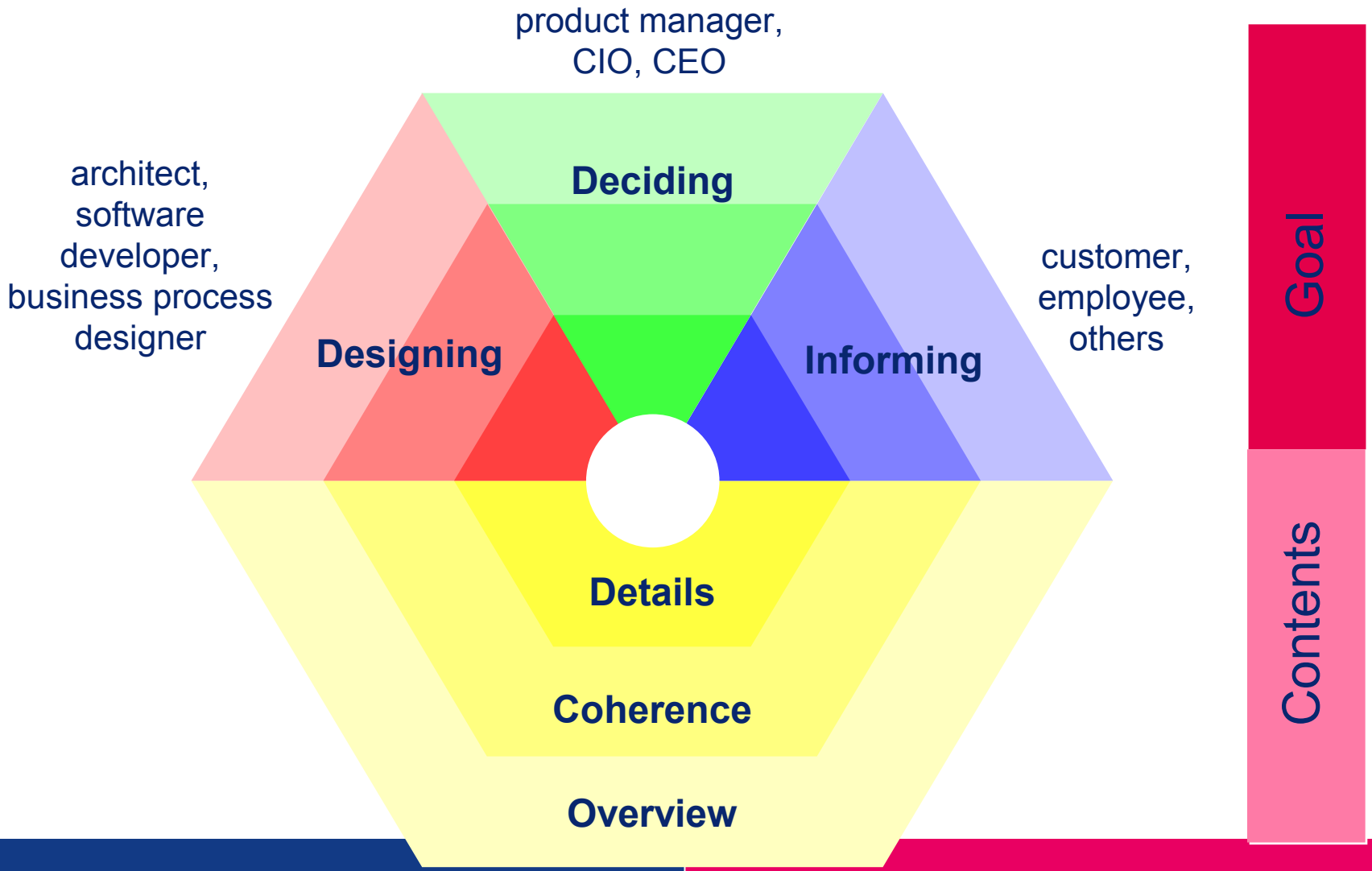
Classifications and examples

Less is more…



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

Classification viewpoints ArchiMate



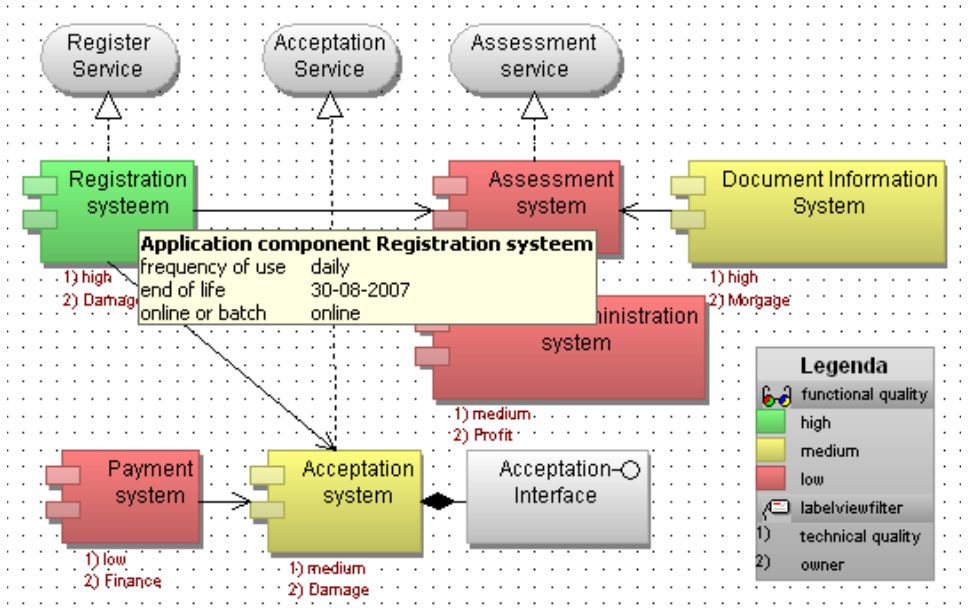
Viewpoint Types

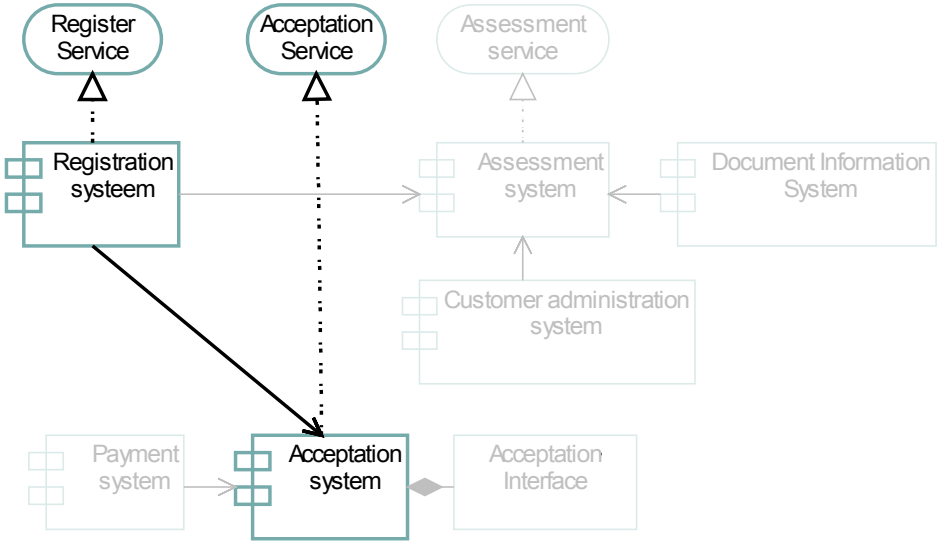
- *Viewpoints for designing*
  - typically used by architects in the design process
  - Examples: Application diagram, Process diagram
- *Viewpoints for deciding*
  - intended to support managers in making decisions
  - Examples: landscape map, cross-reference table, analysis report
- *Viewpoints for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

Level of Detail

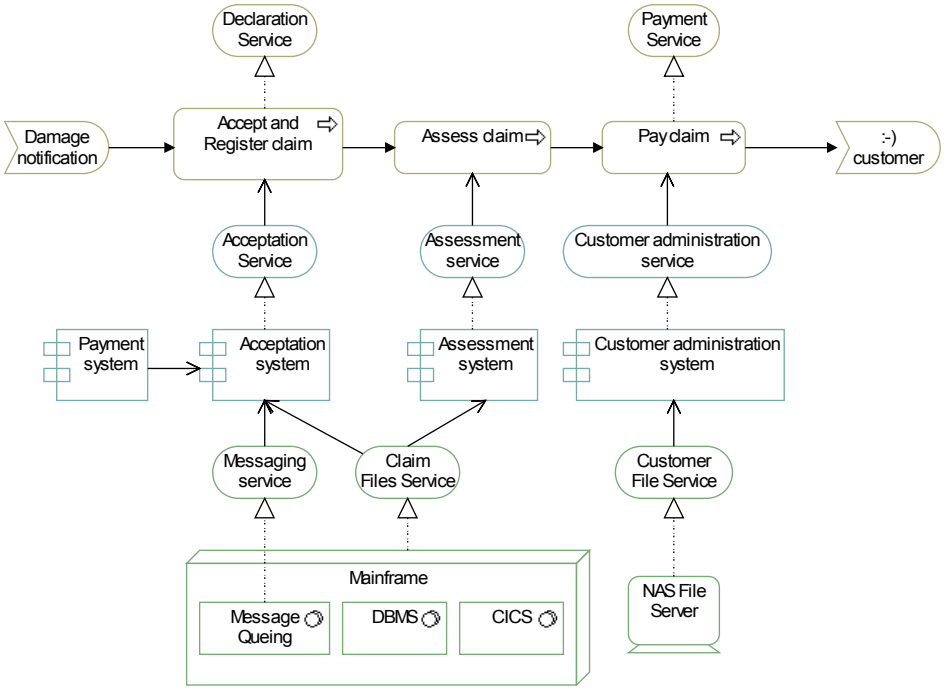
- *Details*
  - small part of an architecture with high level of detail
  - e.g. for a software engineer designing and implementing a component, or process owner responsible for optimizing a process
- *Coherence*
  - spans multiple aspects or layers and shows their relations
  - e.g. for an operational 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

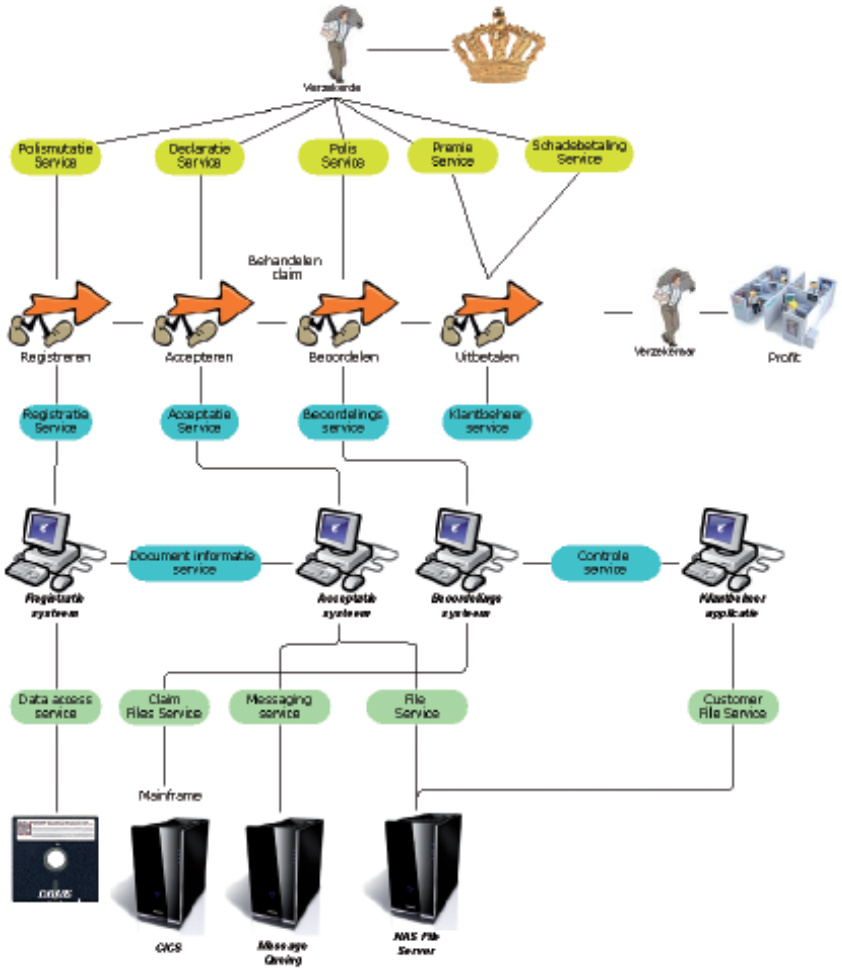
Examples views



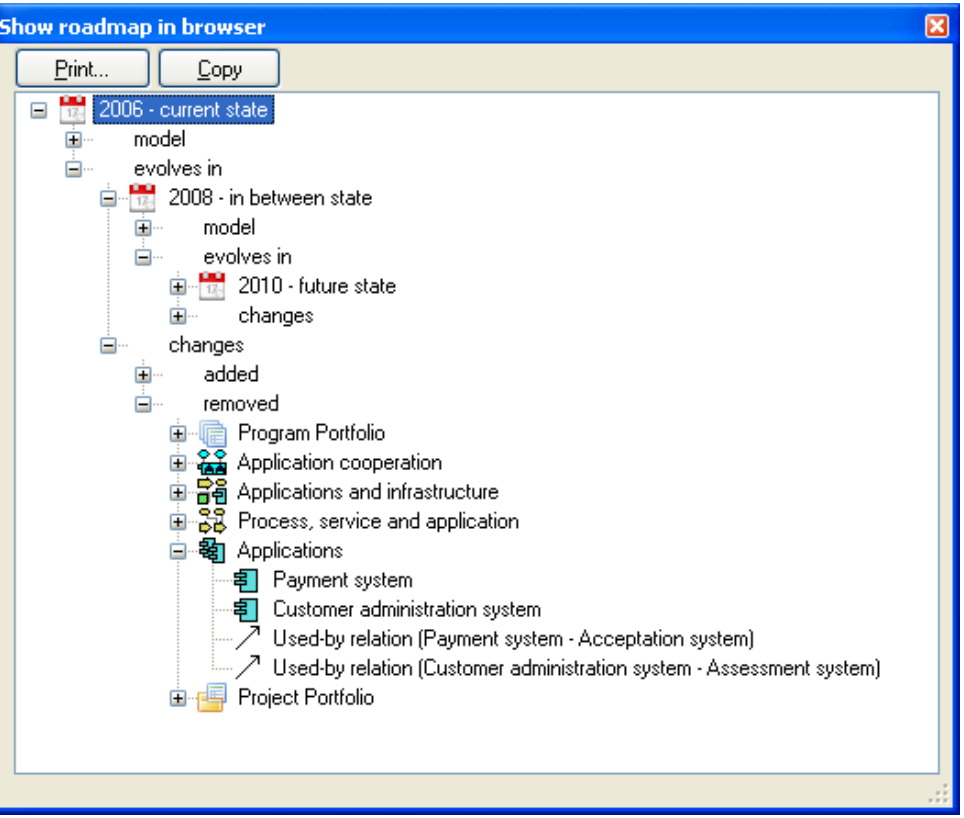


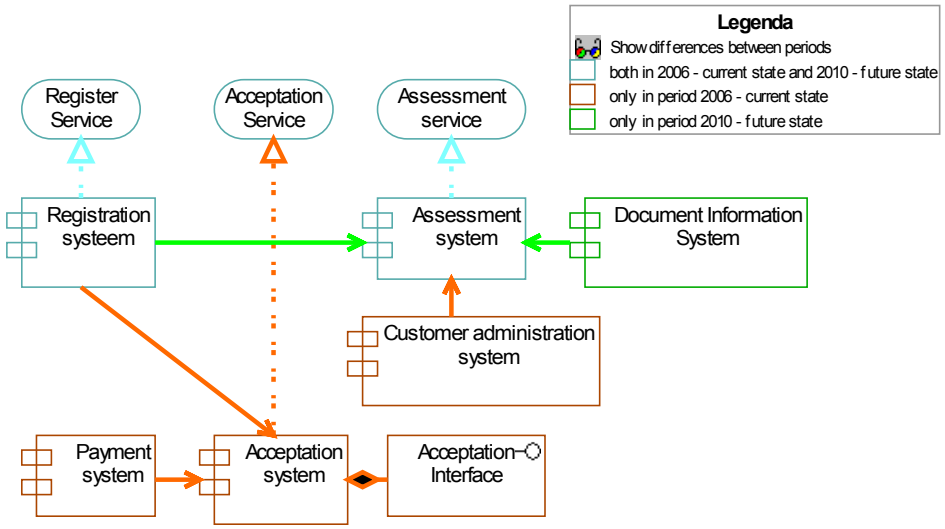
Modelling and Views





Roadmapping: differences as-is/to-be



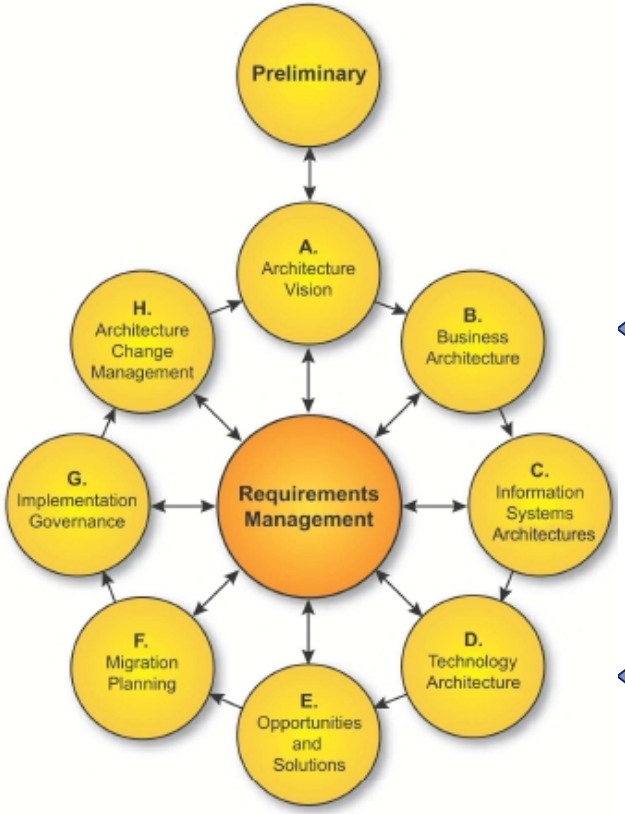


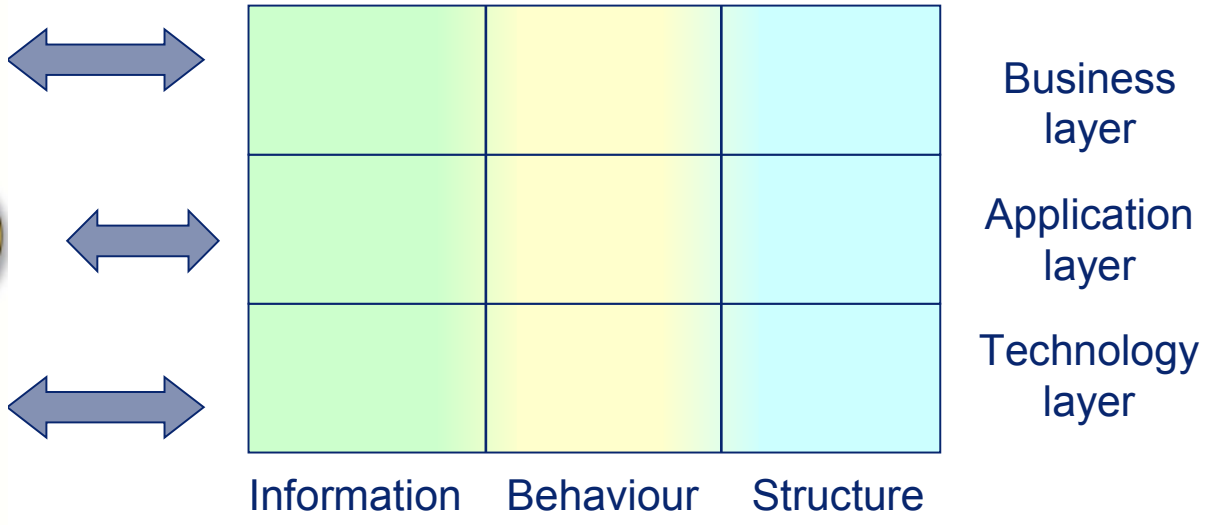
ArchiMate and …

ArchiMate and other languages

- *ArchiMate: perfect starting point for MDA and software development*
  - ArchiMate incorporates the service paradigm
  - ArchiMate has implementation relationships to process modeling 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

ADM and the ArchiMate framework





Support for ArchiMate

- *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
EECONCERN
achmea
Waterschap Rivierenland
centraal boekhuis
UNIVÉ VERZEKERINGEN
RWE stroom en gas
POLITIE
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PSB informatiesystemen bv
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VVAA
de Rechtspraak
Enschede.nl
AFM
Sint Maartenskliniek
ING
Fortis Bank Nederland
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GasTerra
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Strukton
corus
LOUWMAN
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ALCREDIS FINANCE
Super deBoer
IAK VERZEKERINGEN
IGS Informatik für Sozialversicherungen

Education

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groningen

INHOLLAND

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Universiteit Twente
de ondernemende universiteit

avans
hogeschool

SURF

TU/e

SAXION
Hogescholen

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HOGESCHOOL

Hogeschool van Amsterdam

Roehampton
University
London

Universiteit Leiden

liverpool
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香港城市大學
City University of Hong Kong

STAFFORDSHIRE
UNIVERSITY

KING'S
College
LONDON

TU Delft
Delft
University of
Technology

Service providers

BiZZdesign

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)

Summary ArchiMate

- *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*
- *Open standard maintained by The Open Group*

THE Open GROUP
Making standards work®

ARCHIMATE® FORUM