

INF5120 and INF9120

”Modelbased System development”

Lecture 6-1: 20.02.2016

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Course parts (16 lectures) - 2017

- January (1-3) (Introduction to Modeling, Business Architecture and the Smart Building project):
- 1-16/1: Introduction to INF5120
- 2-23/1: Modeling structure and behaviour (UML and UML 2.0 and metamodeling) - (establish Oblig groups)
- 3-30/1: WebRatio for Web Apps/Portals and Mobile Apps – and Entity/Class modeling – (Getting started with WebRatio)

- February (4-7) (Modeling of User Interfaces, Flows and Data model diagrams, Apps/Web Portals - IFML/Client-Side):
- 4-6/2: Business Model Canvas, Value Proposition, Lean Canvas and Essence
- 5-13/2: IFML – Interaction Flow Modeling Language, WebRatio advanced – for Web and Apps
- 6-20/2: BPMN process, UML Activ.Diagrams, Workflow and Orchestration modelling value networks
- 7-27/2: Modeling principles – Quality in Models
- 27/2: Oblig 1: Smart Building – Business Architecture and App/Portal with IFML WebRatio UI for Smart Building

- March (8-11) (Modeling of IoT/CPS/Cloud, Services and Big Data – UML SM/SD/Collab, ThingML Server-Side):
- 8-6/3: DSL and ThingML, UML State Machines and Sequence Diagrams
- 9-13/3: UML Composite structures, State Machines and Sequence Diagrams II
- 10-20/3: Architectural models, Role modeling and UML Collaboration diagrams
- 11-27/3: UML Service Modeling, ServiceML, SoaML, REST, UML 2.0 Composition, MagicDraw
- 27/3: Oblig 2: Smart Building – Internet of Things control with ThingML – Raspberry Pi, Wireless sensors (temperature, humidity), actuators (power control)

- April/May (12-14) (MDE – Creating Your own Domain Specific Language):
- 12-3/4: Model driven engineering – Metamodels, DSL, UML Profiles, EMF, Sirius Editors
- EASTER – 10/4 og 17/4
- 13-24/4: MDE transformations, Non Functional requirements
- 1. Mai – Official holiday
- 14-8/5: Enterprise Architecture, TOGAF, UPDM, SysML – DSLs etc.
- 8/5: Oblig 3 - Your own Domain Specific Language

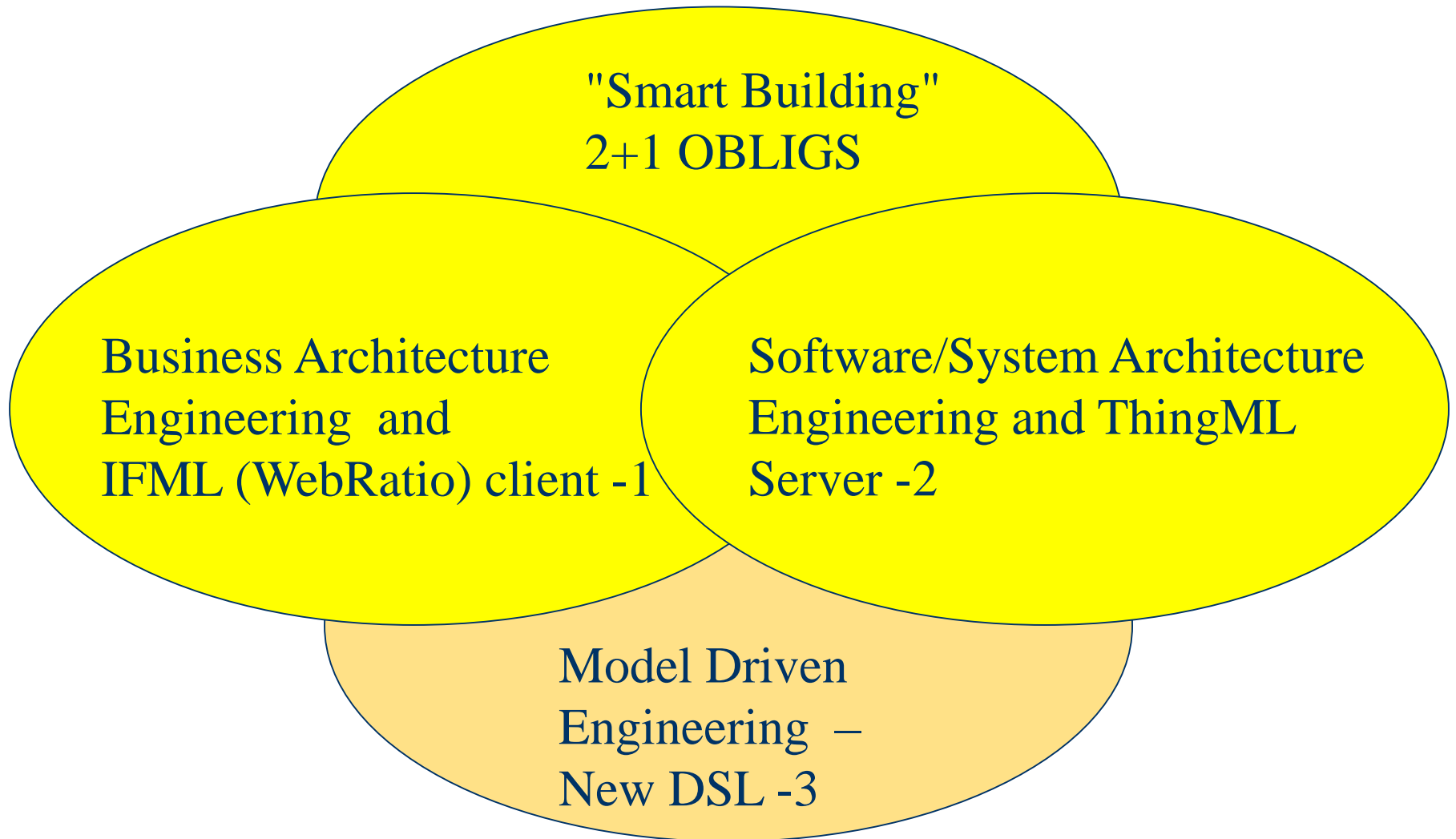
- May (15-17): (Bringing it together)
- 15-15/5: Summary of the course – Final demonstrations
- 16-22/5: Previous exams – group collaborations (No lecture)
- 17-29/5: Conclusions, Preparations for the Exam by old exams
- June (Exam)
- 13/6: Exam (4 hours), (June 13th, 0900)-1300

This lecture, February 20, 2017

BPMN and Process modeling

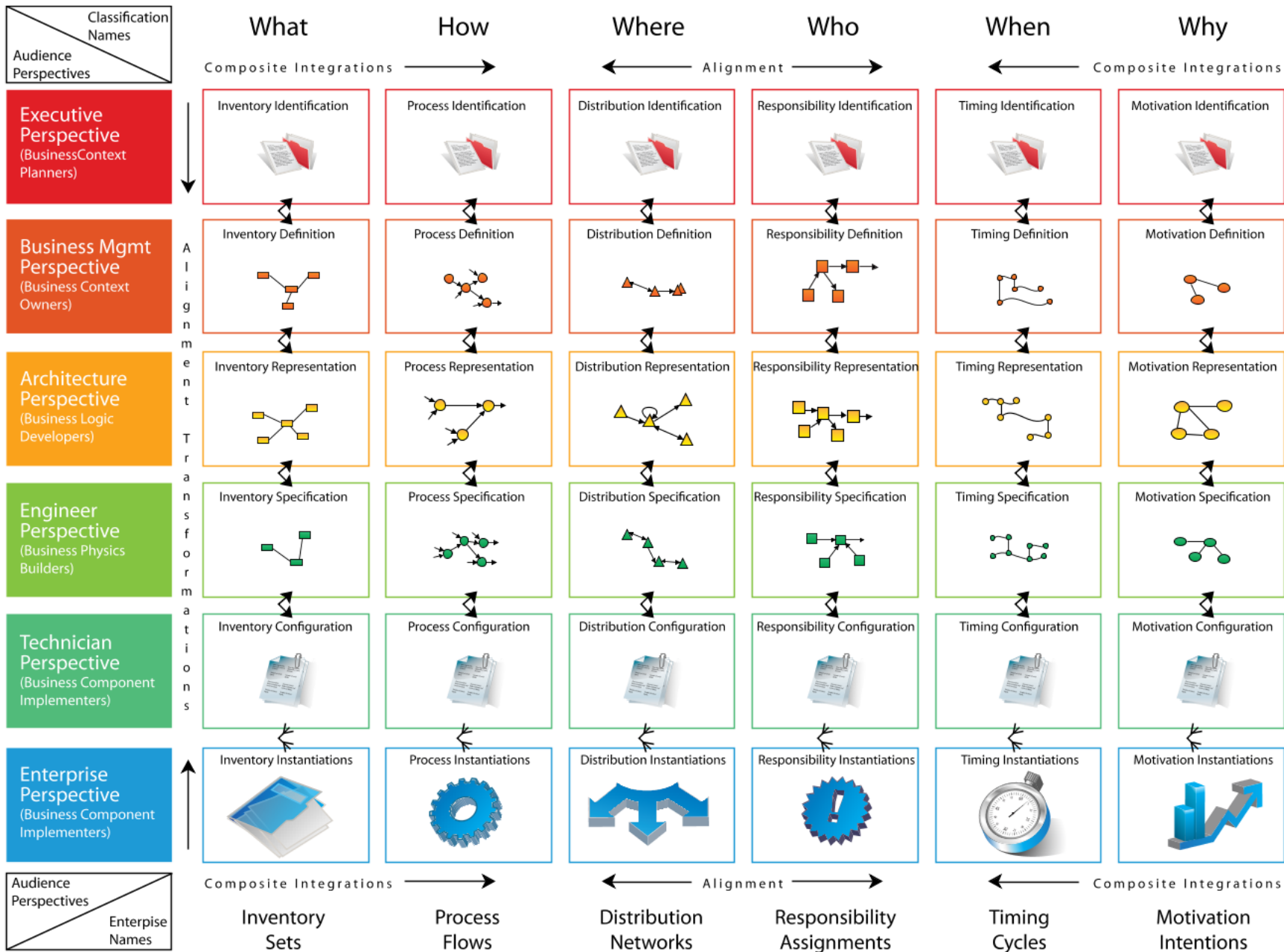
- Enterprise Architecture
- TOGAF
- ArchiMate
- Modelio Archimate, BPMN and UML modelling tool
- ArchiMate Business Process
- BPMN process modelling notation – part 1

Course components



Content

- Enterprise Architecture
- TOGAF
- ArchiMate og Archi and Modelio
- BPMN – part 1



Zachman Framework

- **Row 1 – Scope**

External Requirements and Drivers
Business Function Modeling

- **Row 2 – Enterprise Model**

Business Process Models

- **Row 3 – System Model**

Logical Models
Requirements Definition

- **Row 4 – Technology Model**

Physical Models
Solution Definition and Development

- **Row 5 – As Built**

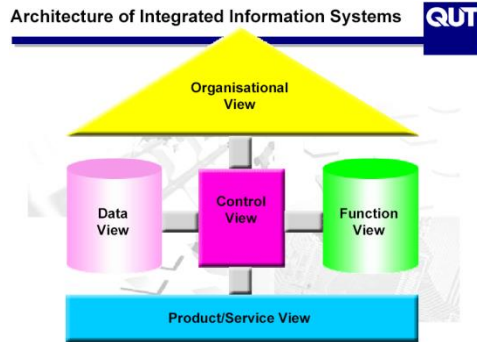
As Built
Deployment

- **Row 6 – Functioning Enterprise**

Functioning Enterprise
Evaluation

		What	How	Where	Who	When	Why	
1	Contextual							Contextual
2	Conceptual							Conceptual
3	Logical							Logical
4	Physical							Physical
5	As Built							As Built
6	Functioning							Functioning
		What	How	Where	Who	When	Why	

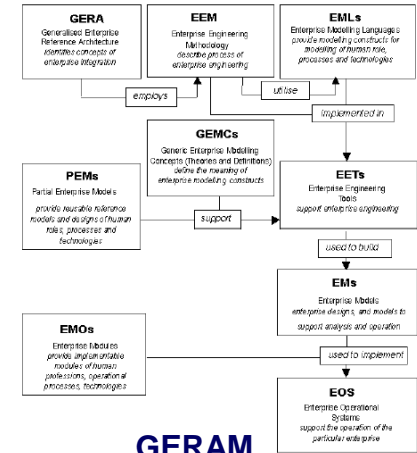
Many Architectural Frameworks



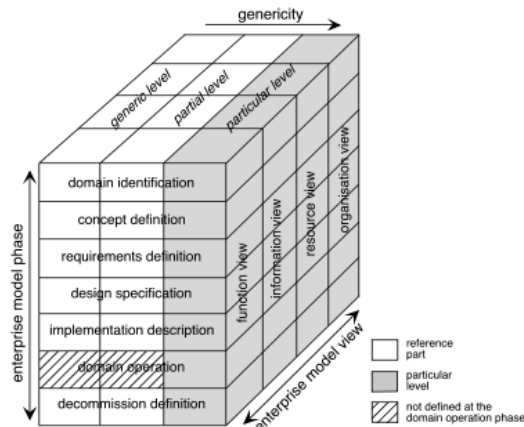
ARIS

	DATA	FUNCTION	NETWORK	PEOPLE	TIME	MOTIVATION	
SCORE (CONTEXTUAL)	#Data	#Func	#Netw	#Peop	#Time	#Motiv	SCORE (CONTEXTUAL)
Planner	Entity + Class of Business Entity Use of Properties in the Business	Function + Class of Business Process Use of Properties in the Business	Node + Major Business Location Use of Locations in the Business	Role + Major Organization Use of Organizations in the Business	Time + Major Business Event Use of Events Significant in the Business	Enabler/Motivator/Goal Use of Business Objectives	Planner
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model	e.g. Business Process Model		e.g. Role-Play Model	e.g. Master Schedule	e.g. Business Plan	ENTERPRISE MODEL (CONCEPTUAL)
Owner	Use + Business Data Plan + Business Response	Plan + Business Process Plan + Business Response	Node + Business Location Link + Business Linkage	People + Organizational Link Link + Work Product	Time + Business Event Cycle + Business Cycle	Goal + Business Objective Means + Business Strategy	Owner
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model	e.g. Business Process Architecture	e.g. Business System Architecture	e.g. Organizational Architecture	e.g. Production Schedule	e.g. Business Plan Model	SYSTEM MODEL (LOGICAL)
Designer	Use + Data Entity Plan + Data Relationship	Plan + Application Function Plan + User Usage	Node + Logical Location Link + Logical Linkage	People + Logical Role Link + Logical Linkage	Time + Logical Event Cycle + Logical Cycle	Goal + Logical Objective Means + Logical Strategy	Designer
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model	e.g. Information Storage	e.g. Information Architecture	e.g. Information Architecture	e.g. Control Schedule	e.g. Business Plan Model	TECHNOLOGY MODEL (PHYSICAL)
Builder	Use + Logical Entity Plan + Physical Location	Plan + Computer Function Plan + Data Element Data	Node + Logical Location Link + Logical Linkage	People + Logical Role Link + Logical Linkage	Time + Logical Event Cycle + Logical Cycle	Goal + Logical Objective Means + Logical Strategy	Builder
DETAILED REPRESENTATION (OUT-OF-CONTEXT)	e.g. Data Dictionary	e.g. Data Dictionary	e.g. Network Architecture	e.g. Security Architecture	e.g. Timing Diagram	e.g. Risk Register	DETAILED REPRESENTATION (OUT-OF-CONTEXT)
Sub-Constructor	Use + Physical Entity Plan + Physical Location	Plan + Language Rule Plan + Control Block	Node + Addressed Link + Protocol	People + Logical Role Link + Logical Linkage	Time + Logical Event Cycle + Logical Cycle	Goal + Logical Objective Means + Logical Strategy	Sub-Constructor
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

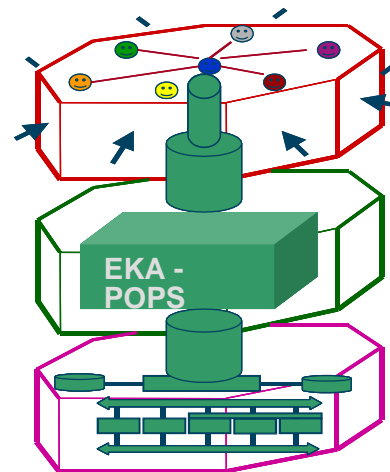
ZACHMAN



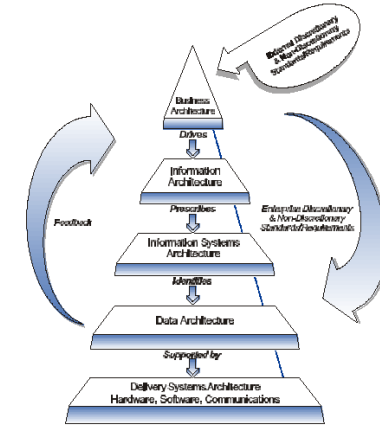
GERAM



EN/ISO 19433

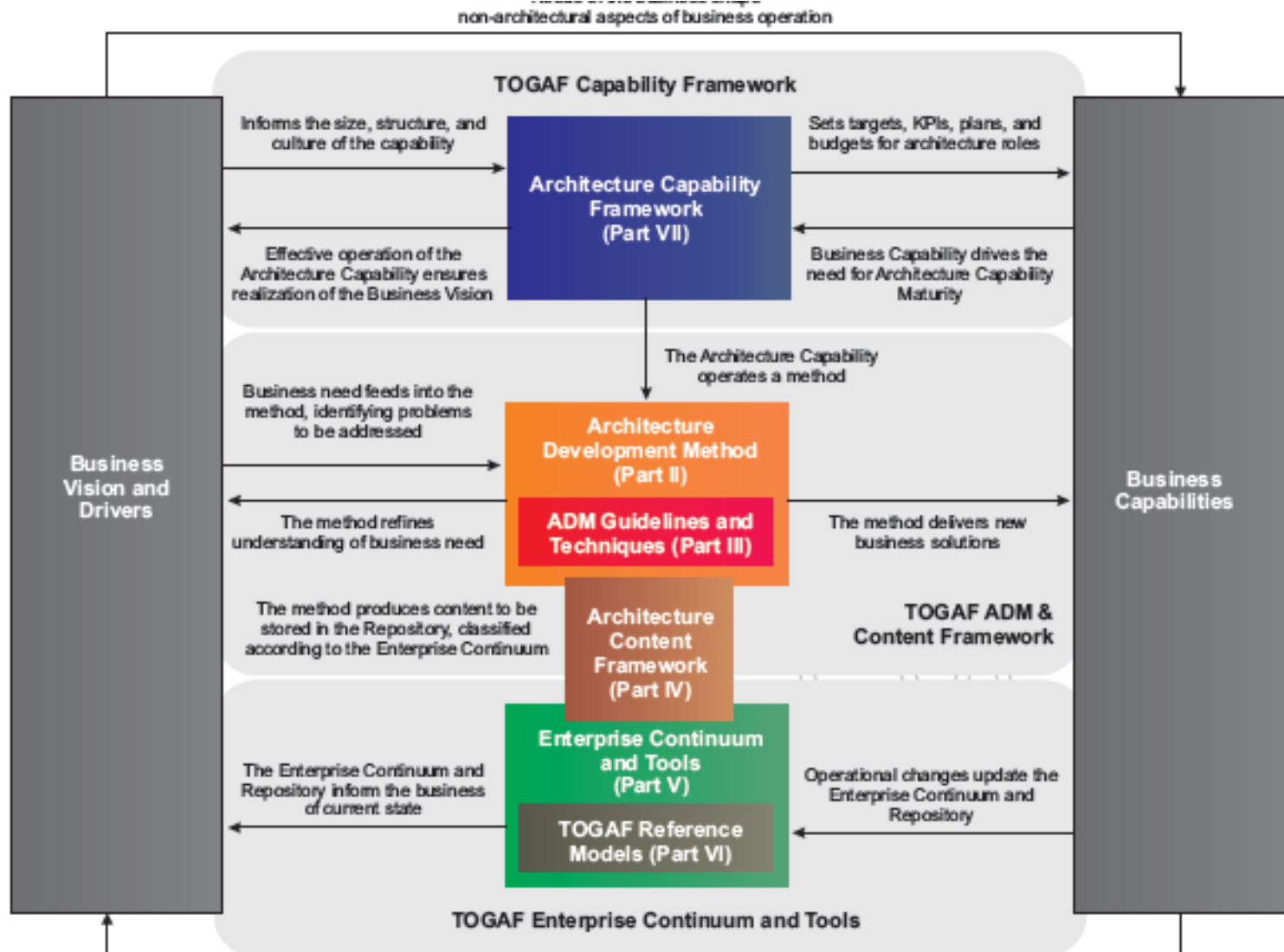


Athena OEA

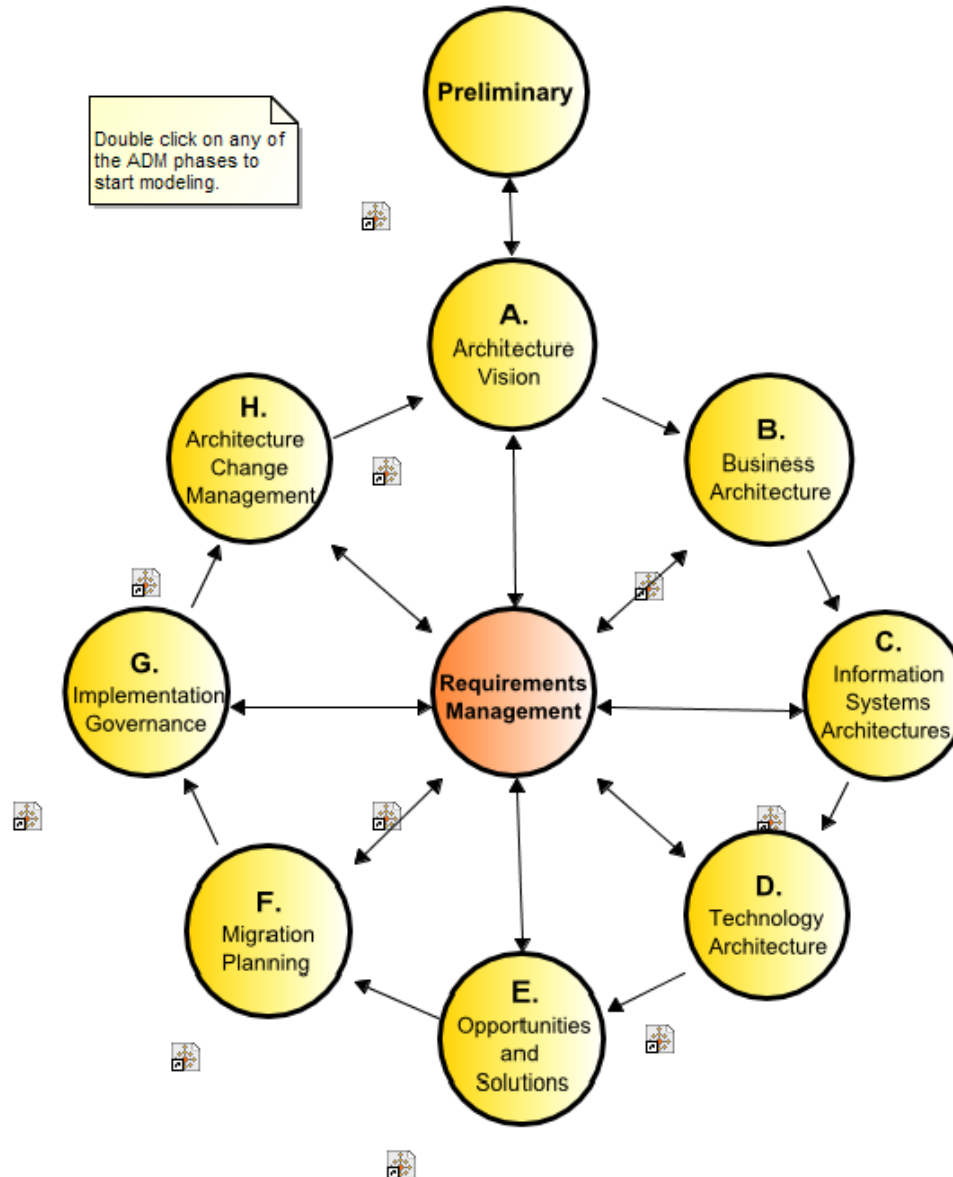


NIST

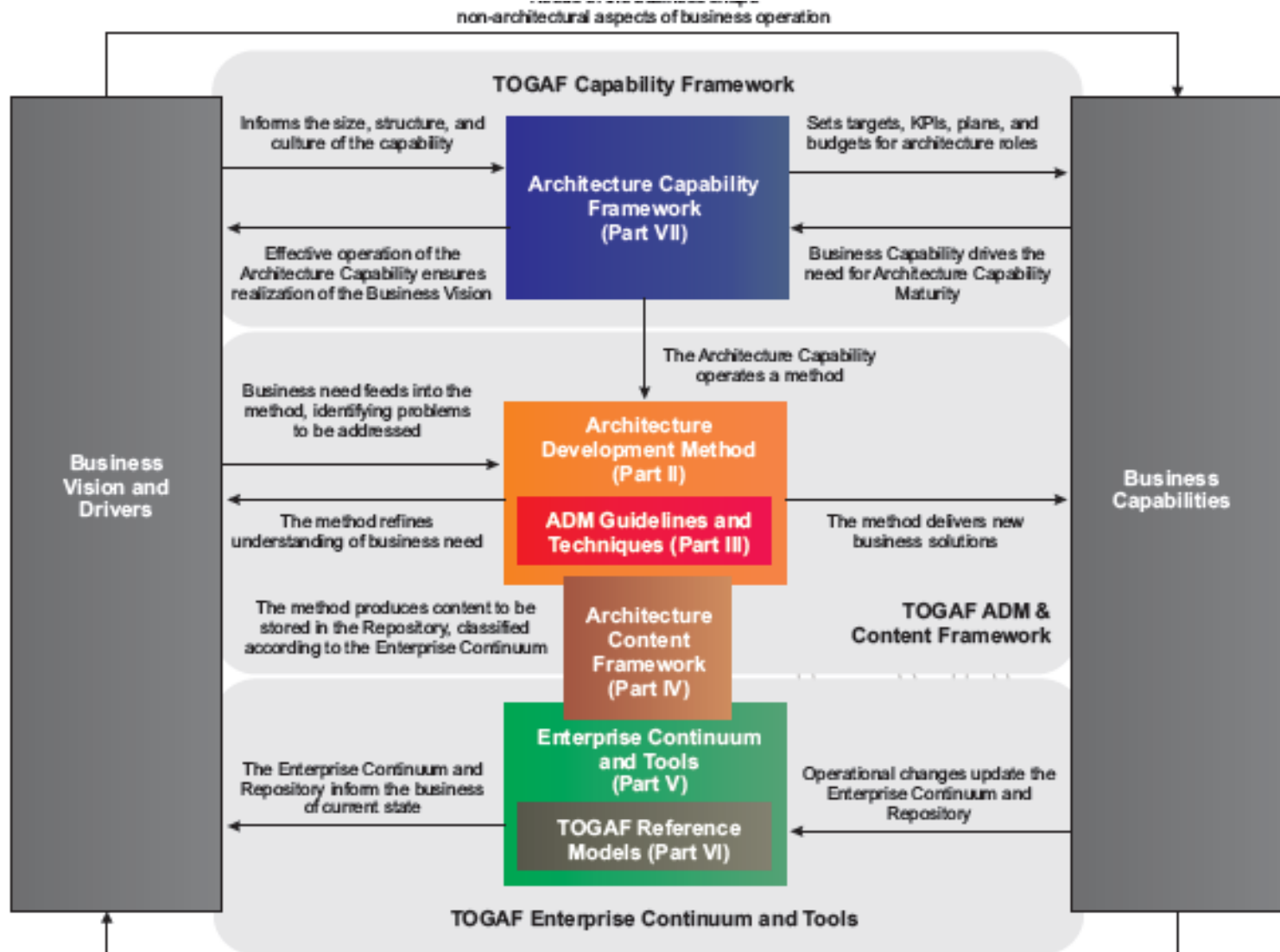
TOGAF 9 (The Open Group)



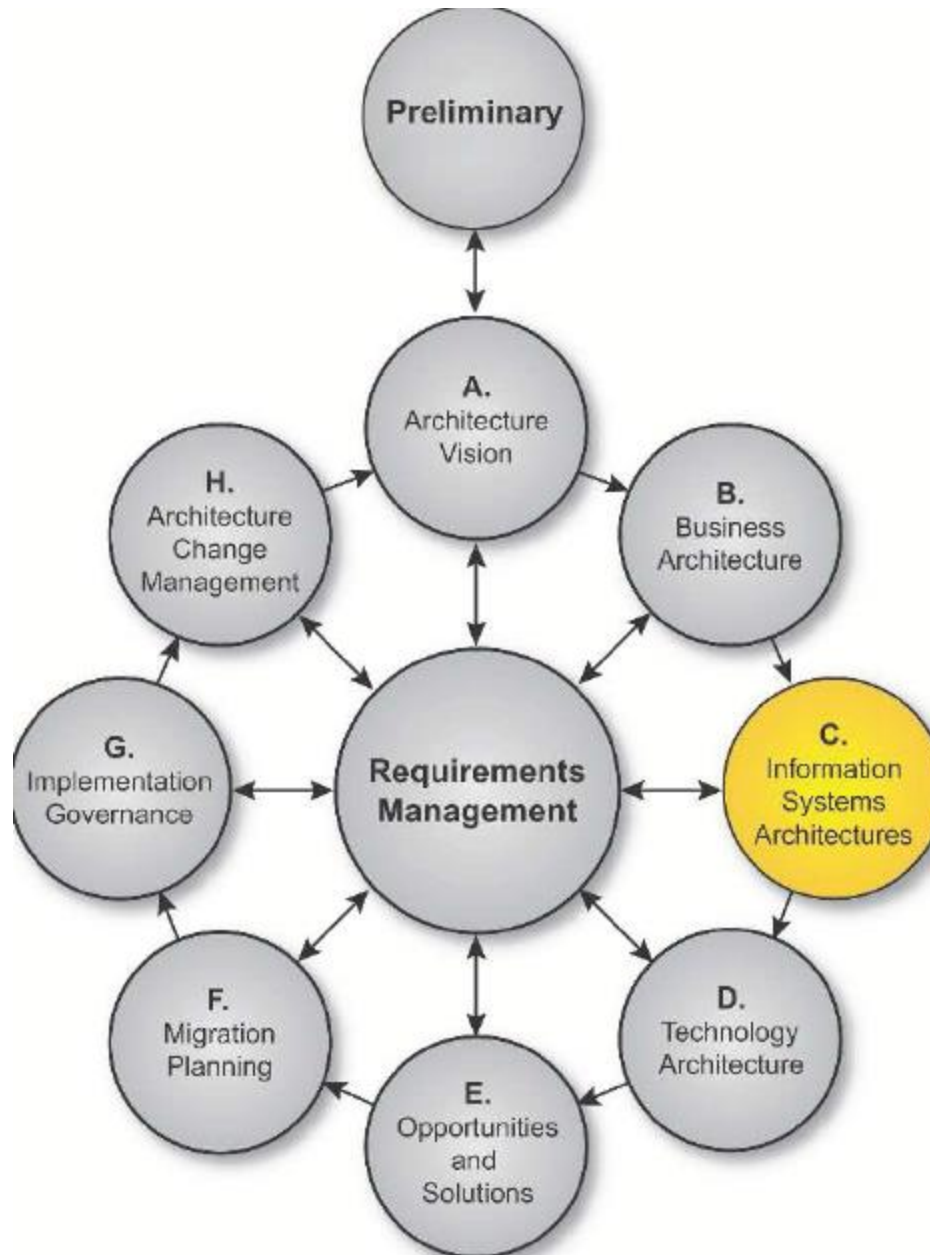
The TOGAF Architecture Development Method (ADM)

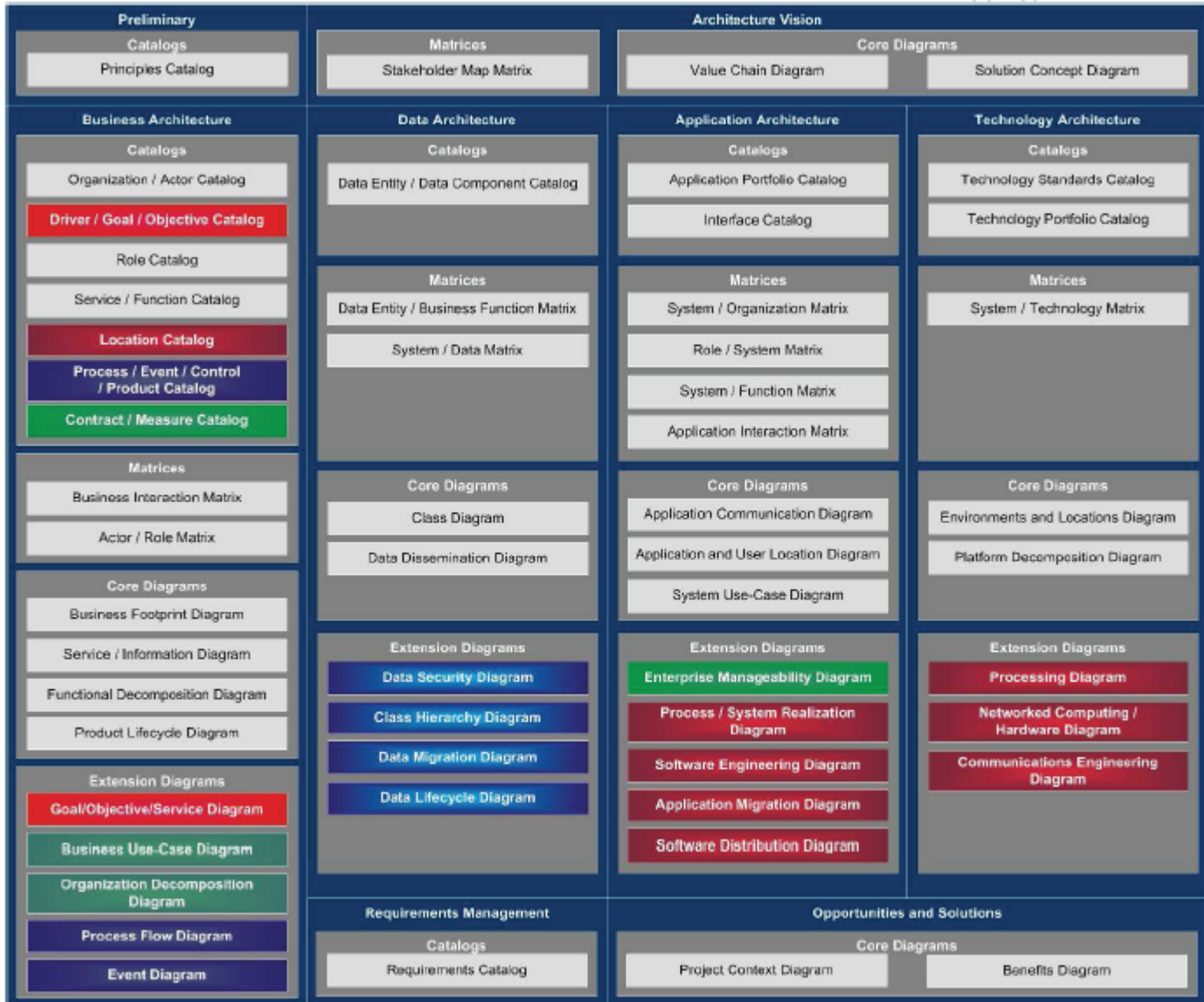


TOGAF 9 (The Open Group)

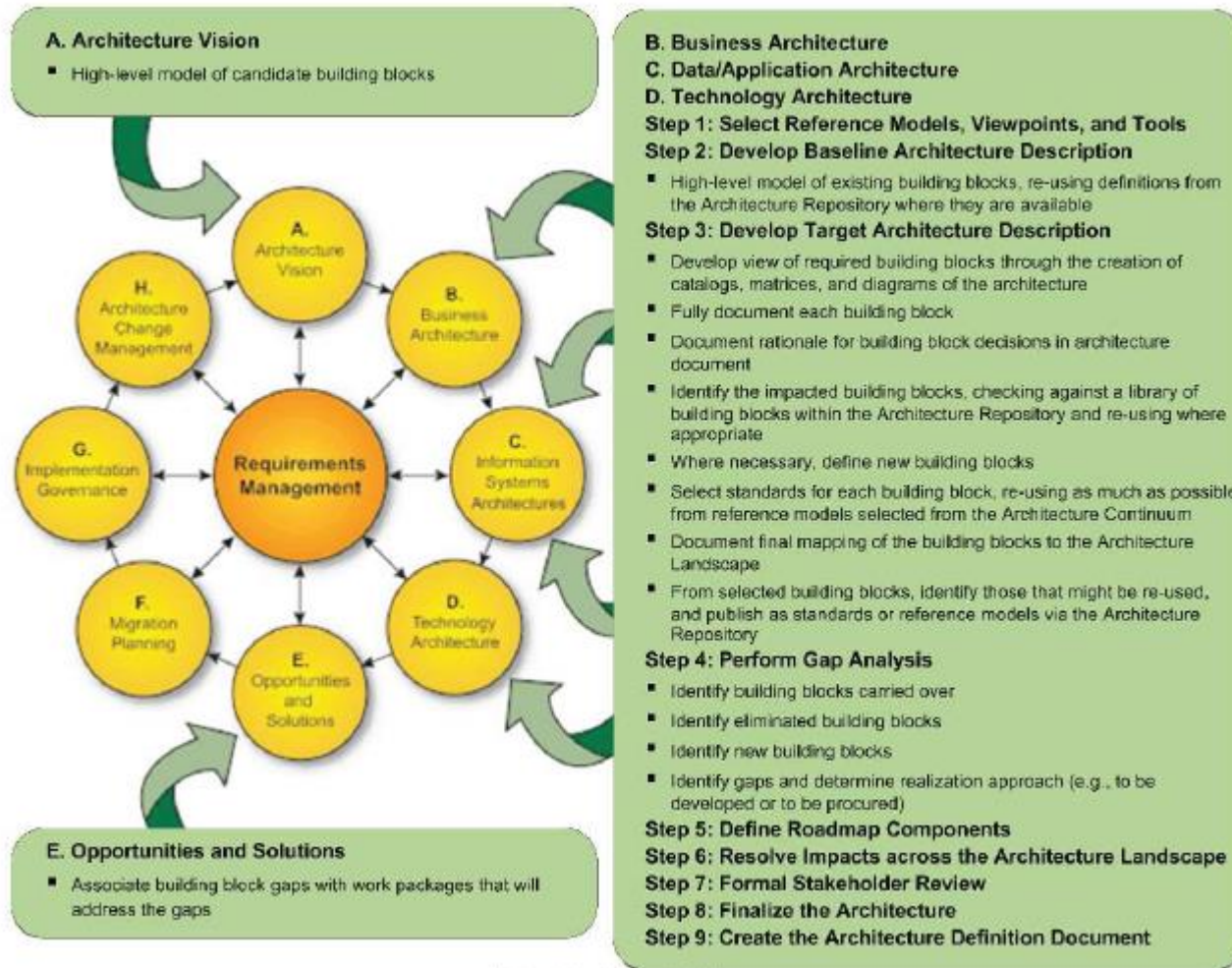


Open Group ADM

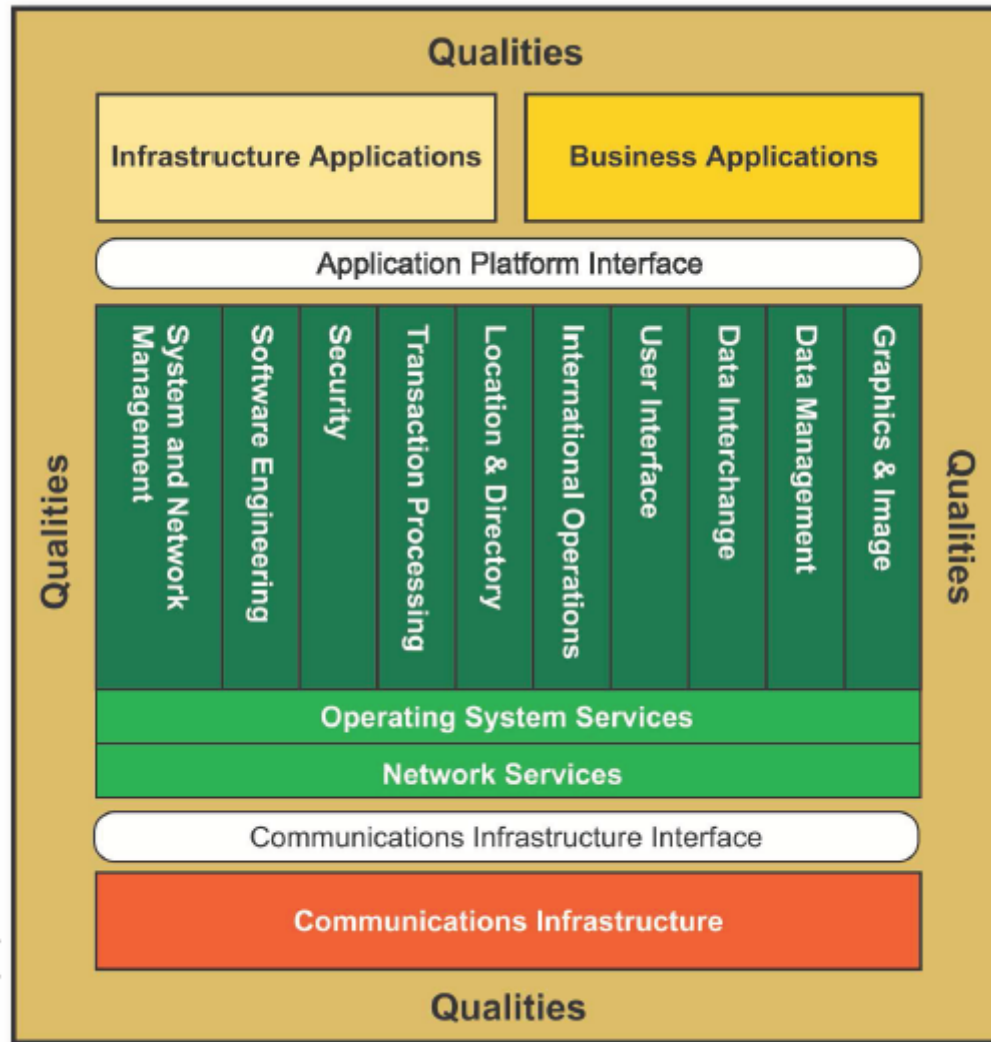




Building block evolution



Service categories





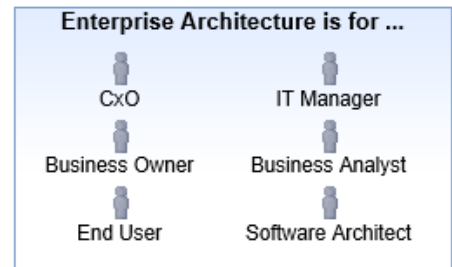
TOGAF

TOGAF is a framework for EA which provides a comprehensive approach to the design, planning, implementation, and governance of an enterprise information architecture. TOGAF is a registered trademark of The Open Group. TOGAF is a high level and holistic approach to design, which is typically modeled at four levels: Business, Application, Data, and Technology. As an open standard, TOGAF is widely adopted to support EA.

[READ MORE](#)

Togaf Modeling

"Togaf Modeling" is a collaborative site designed to provide a guide and practical modeling solutions, by selecting different standards that provide an off-the-shelf solution. There is no universal solution, but our aim is to identify a practical solution, through your contributions.



Enterprise Architecture addresses ...

Information System Enterprise

"Togaf Modeling" recommends one or several toolled solutions, using one or several modeling tools which have a complete and an open version, and by providing open-source extensions (**EAP extensions**, in the form of **UML profiles**).

<http://www.togaf-modeling.org/>

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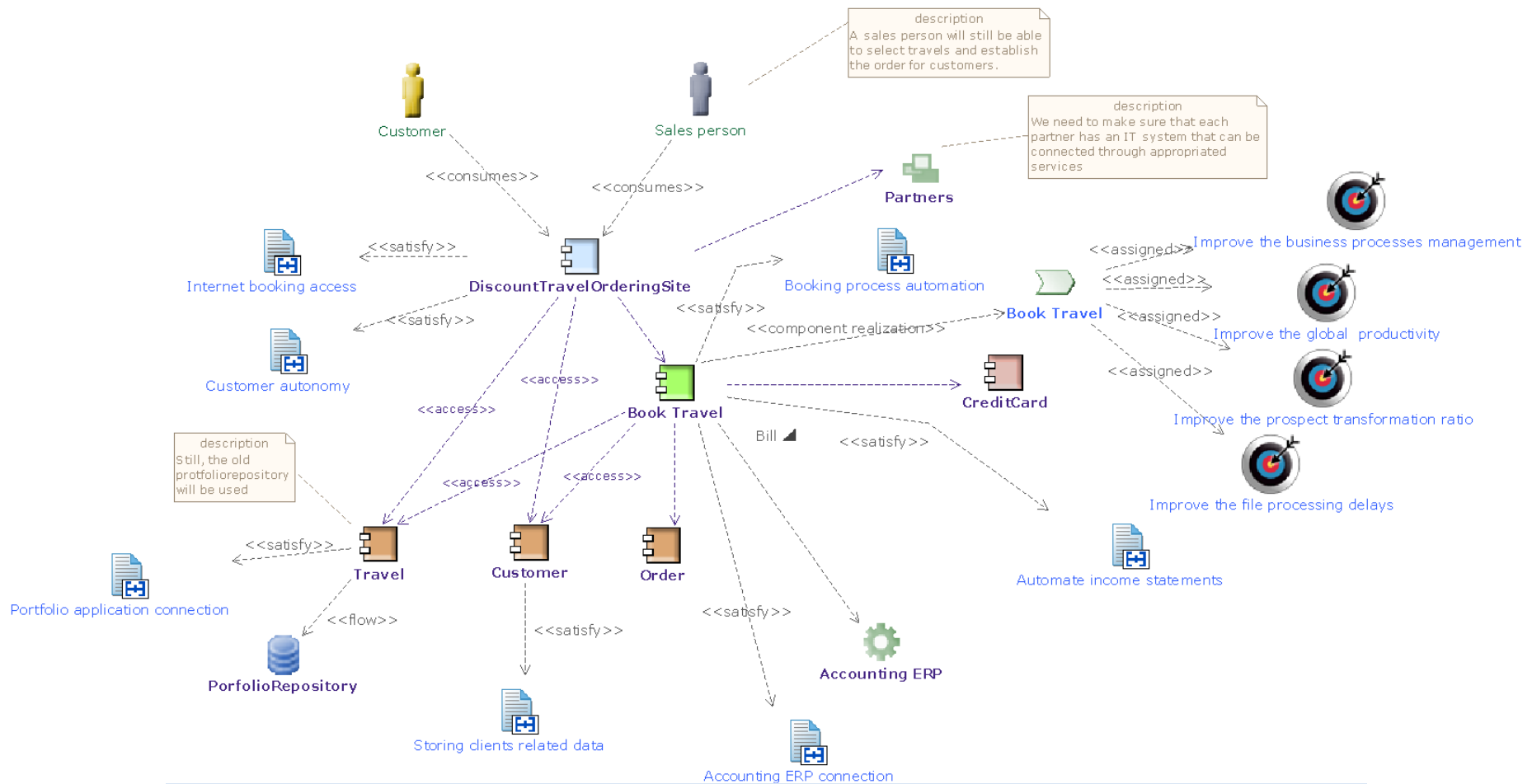
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[Functional decomposition](#)





Solution concept diagrams

A **solution concept diagram** provides a high-level orientation of the solution that is envisaged in order to meet the objectives of the architecture engagement. In contrast to the more formal and detailed architecture diagrams developed in the following phases, the **solution concept** represents a pencil sketch of the expected solution at the outset of the engagement. This diagram may embody **key objectives**, **requirements** and **constraints** for the engagement, and also highlight work areas to be investigated in more detail with formal architecture modeling. The purpose of this diagram is to quickly on-board and align stakeholders for a particular change initiative, so that all participants understand what the architecture engagement is seeking to achieve and how it is expected that a particular solution approach will meet the needs of the enterprise.

ArchiMate

ArchiMate®



About ArchiMate

ArchiMate®, an Open Group Standard, is an open and independent modelling language for enterprise architecture that is supported by different tool vendors and consulting firms. ArchiMate provides instruments to enable enterprise architects to describe, analyze and visualize the relationships among business domains in an unambiguous way.

Just as an architectural drawing in classical building architecture describes the various aspects of the construction and use of a building, ArchiMate offers a common language for describing the construction and operation of business processes, organizational structures, information flows, IT systems, and technical infrastructure. This insight helps stakeholders to design, assess, and communicate the consequences of decisions and changes within and between these business domains.

The ArchiMate 2.1 Specification

The ArchiMate 2.1 Specification is a maintenance update to ArchiMate 2.0, addressing comments raised since the introduction of ArchiMate 2.0 in 2012. The ArchiMate Specification is based on many years of practical experience of modeling and analysis of Enterprise Architecture (EA) by a world-wide user base. It enables the creation of fully integrated models of the organization's enterprise architecture, the motivation for it, and the programs, projects and migration paths to implement it.

The detailed changes between version 2.0 and 2.1 are available as [Document U132: ArchiMate 2.0 Specification Technical Corrigendum Number 1](#)

The ArchiMate modeling language has evolved to be fully aligned with the TOGAF® standard:

- By providing a vendor-independent set of concepts, that helps to create a consistent, integrated model “below the waterline”, which can be depicted in the form of TOGAF views
- The ArchiMate® language enables modeling throughout the TOGAF® Architecture Development Method
- The language structure of the ArchiMate Core corresponds with the three main architectures as addressed in phases B, C & D in the TOGAF® ADM
- The extensions to the Core closely correspond with the main aspects to be addressed in the Preliminary phase, Phase A and the Central Requirements management repository, as well as Phases E, F, G and H

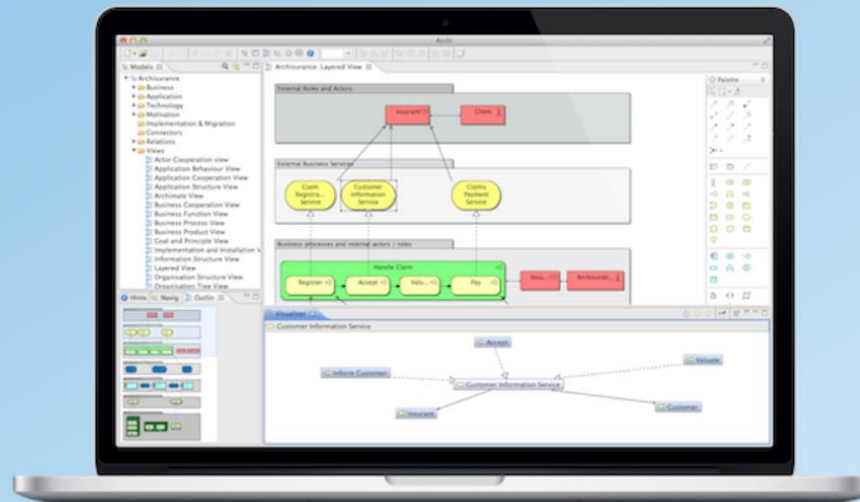




Archi

The Free ArchiMate Modelling Tool

A free and open source modelling tool to create ArchiMate models and sketches. Used by hundreds of Enterprise Architects throughout the world.



MODELIO – to be used in the course!

The screenshot shows the Modelio 3.6 application window. The title bar reads "Modelio 3.6". The menu bar includes "File", "Edit", "Configuration", "Views", and "Help". Below the menu bar is a toolbar with various icons. The main content area features a "Welcome" message with the Modelio logo and the text "MODELIO™ by Modeliosoft". A large banner reads "Welcome to Modelio The Open Source Modeling Environment". Below this, there is a promotional banner for "Add ArchiMate 3.0 support for free" with a "Download ArchiMate" button. At the bottom, there are three quick links: "Getting started" (Quick tour of Modelio features... Worth a try!), "UML practical guides" (A set of practical and pragmatic UML modeling guides...), and "Migrating projects" (How to migrate earlier Modelio projects...).

**Start with
downloading
the Modelio BA
Business
Architecture
version – licenses
will be provided
within one week**

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Modelio BA

For Business Analysts and Enterprise Architects

   Requirements

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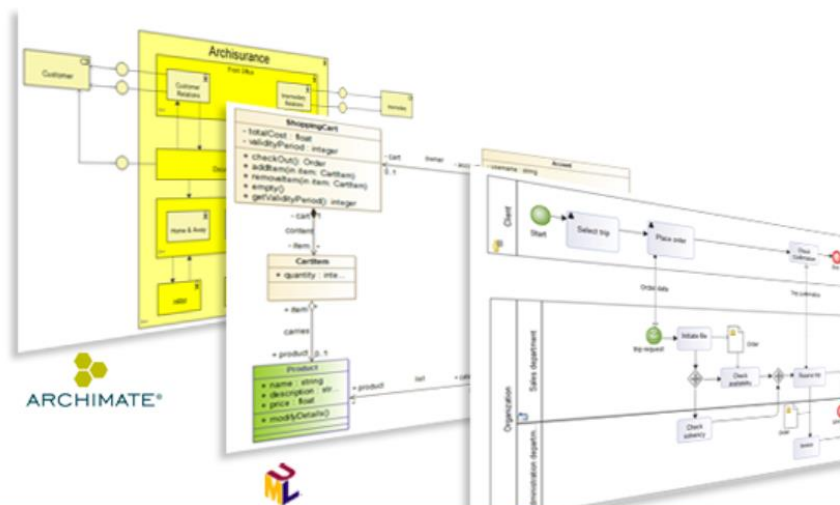
Wednesday, 14 December 2016 07:19

Modeliosoft is proud to introduce our new **Modelio 3.6** version, which still increases its benefits by bringing new exclusive features.

New Modelio BA ArchiMate EA

Modelio BA ArchiMate EA is the only tool on the market, supporting natively **ArchiMate, UML and BPMN**. This provides a modeling capacity that completely covers Enterprise modeling needs, and provide a complete and consistent repository throughout the entire enterprise.

- ArchiMate, UML and BPMN Modeling, and mapping management
- Integrated Vision and requirement analysis support
- Documentation Generation
- Spreadsheets & matrices editors
- Traceability and impact analysis management
- Integration of model processing code (Java, Jython, ...)





Welcome



MODELIO SOFT
LIMITLESS MODELING



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Archimate for Modelio 3.6.x

Documents

Order by: Name | Date | Hits | Ascendant

[ArchiMate - Quick Start Guide \(en\)](#) **hot!**

This quick tutorial will guide you through the process of creating your first ArchiMate model in Modelio

Date added: 11/08/2016

DOWNLOAD

VIEW

DETAILS

« [Start](#) [Prev](#) **1** [2](#) [Next](#) [End](#) »

Page 2 of 2

Products

Features
Benefits
Software Developers
System Architects
Business Architects

Services

Support
Consulting
Training

Resources

Diagram examples (UML, BPMN, ...)
Practical modeling guides
White papers
Modelio academic program

Technologies

UML - The Unified Modeling Language
SOA
MDA - The Model-Driven Architecture
Enterprise Architecture
BPMN - The Business Process Modeling standard

About

History
News
Contact



ExistingProject - Modelio 3.6

File Edit Configuration Views Help

Model

- ExistingProject
 - ExistingProject
 - Model
 - business
 - Notification
 - Service
 - Business Proces
 - Business Proces
 - Object
 - strategy
 - motivation
 - application
 - technology
 - physical
 - implementation
 - ViewPoint
 - ArchimateView
 - ViewPointDiagram
 - ExistingProject
 - PredefinedTypes 3.6.04

ArchimateView

Select
Marquee
Smart links

Concepts
Relationships
Realization
Serving
Common
Free drawings

```

    graph TD
      Notification[Notification] --> BusinessProcess[Business Process]
      BusinessProcess --> BusinessProcess1[Business Process1]
      BusinessProcess -.-> Service[Service]
      Service -.-> Object[Object]
  
```

Outline Audit Link Editor Diagrams Script Properties

ArchimateView (ArchimateView)

Element	Property	Value
Notes & constraints	Property	
	Value	
	Value	
Symbol	Diagram	
	Snap to geometry	<input type="checkbox"/>
	Fill color	
Modify element representation:		

ArchiMate Downloads



How do I download the ArchiMate 3.0 Specification?

- [Downloading ArchiMate 3.0 as an ArchiMate Forum member](#)
- [Downloading ArchiMate 3.0 as a non-member](#)

Downloading the ArchiMate 3.0 Specification as an ArchiMate Forum Member

If your organization is a member of The Open Group ArchiMate Forum, you may download and use ArchiMate internally under a personal annual Member License.

The download procedure:

1. Check the [ArchiMate 3.0 Member Licensing Conditions](#); then
2. [Register and download ArchiMate3.0 under an Annual Member License](#).

Downloading ArchiMate 3.0 as a Non-Member

You may download ArchiMate Version 3.0 under a free, personal, 90-day [Evaluation License](#); and you may then go on to use it internally under a free, perpetual Non-Commercial License. Alternatively, you may take out an annual Commercial License.

Applying for a ArchiMate 3.0 Evaluation License

The download procedure

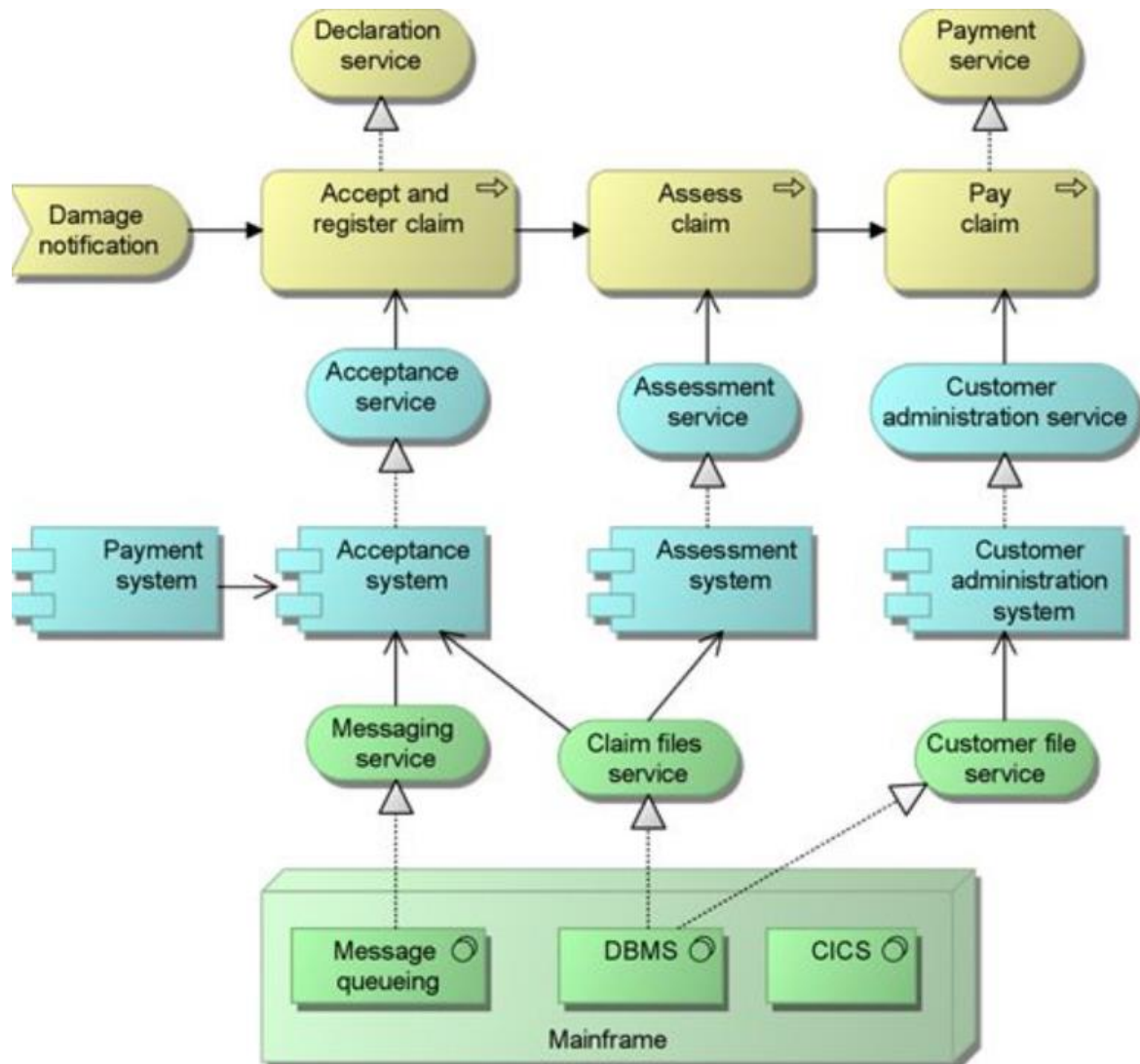
1. Check the [ArchiMate 3.0 Evaluation Licensing Conditions](#); then
2. [Register and download ArchiMate 3.0 under a 90-day Evaluation License](#).

If you download ArchiMate, you are presumed to have read and accepted the [ArchiMate 3.0 Evaluation Licensing Conditions](#). There is no need to complete and submit the license.

After the Evaluation Period

After expiry of the 90-day evaluation period you should apply for a more permanent License:

- A free, perpetual [Non-Commercial License](#) is available to Corporate, Academic Institutions and Individuals wanting to use the ArchiMate 3.0 Specification for non-commercial use.
- An annual [Commercial License](#) is available for organizations wishing to exploit ArchiMate 3.0 commercially.



UML, Use case diagram in Modelio

The screenshot displays the Modelio 3.6 interface with a UML Use Case diagram. The diagram shows a primary actor connected to a use case. The interface includes a menu bar (File, Edit, Configuration, Views, Help), a toolbar, and several panels:

- Diagrams:** Shows a tree view of the project structure, including Test2, ArchimateView, test2 Use Case diagram, and ViewPointDiagram.
- Model:** Shows a tree view of the model structure, including Test2, Test2, test2, Actor, Use Case, and test2 Use Case diagram.
- Notes & constraints:** A panel for adding notes and constraints to the diagram elements.
- Element Link Editor:** A table showing the properties of the selected element (Archimate - Archimate Modeler Module).
- Symbol:** A table for defining the properties and values of the diagram symbols.
- Outline:** A small preview of the diagram.
- Audit:** A table showing the audit log, including severity, rule, and description.

Property	Value
Name	ArchimateView
Origin	ViewPoint
Owner	<null>

Severity	Rule	Description
Error (0)		
Warning (0)		
Advice (0)		

Goal and Principle View

Layered View

Business Product View

Information Structure View

Business Function View

Organisation Structure View

Business Process View

Organisation Tree View

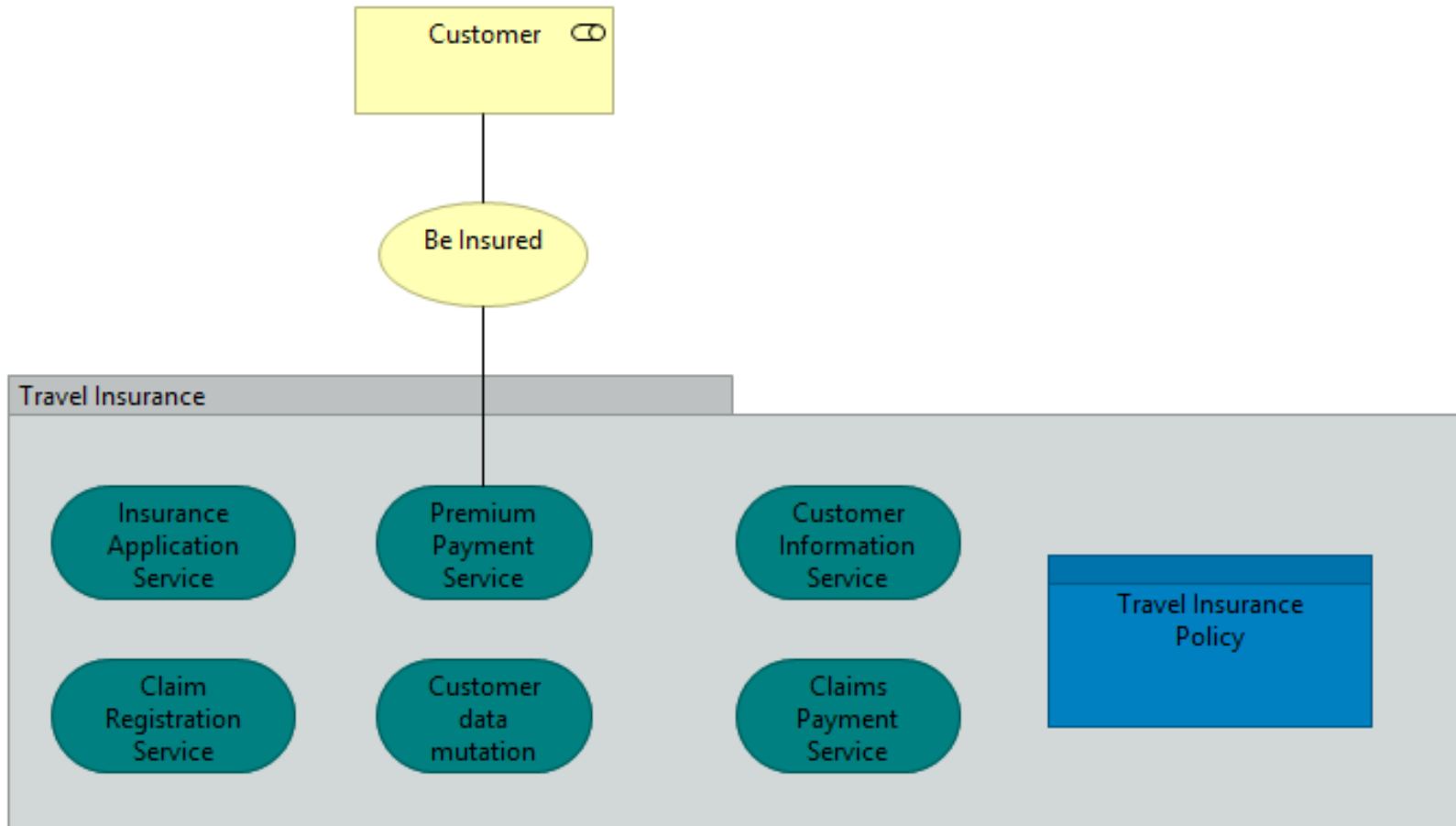
Application Behaviour View

Application Structure View

Technical Infrastructure View

Service Realisation View

Business Product View



ArchiMate



Authors : eSchoolink Group - ITNLU

Contents

1. What's ArchiMate ?
2. Why ArchiMate ?
3. Main Benefits of ArchiMate
4. Layers of ArchiMate
5. ArchiMate vs UML
6. Notations of ArchiMate
7. Demo



What is ArchiMate?

- ArchiMate is a modelling technique ("language") for describing enterprise architectures.
- It presents a clear set of concepts within and relationships between architecture domains, and offers a simple and uniform structure for describing the contents of these domains.
- ArchiMate distinguishes itself from other languages such as Unified Modeling Language (UML) and Business Process Modeling Notation (BPMN) by its well defined metamodel, and wider enterprise modelling scope.

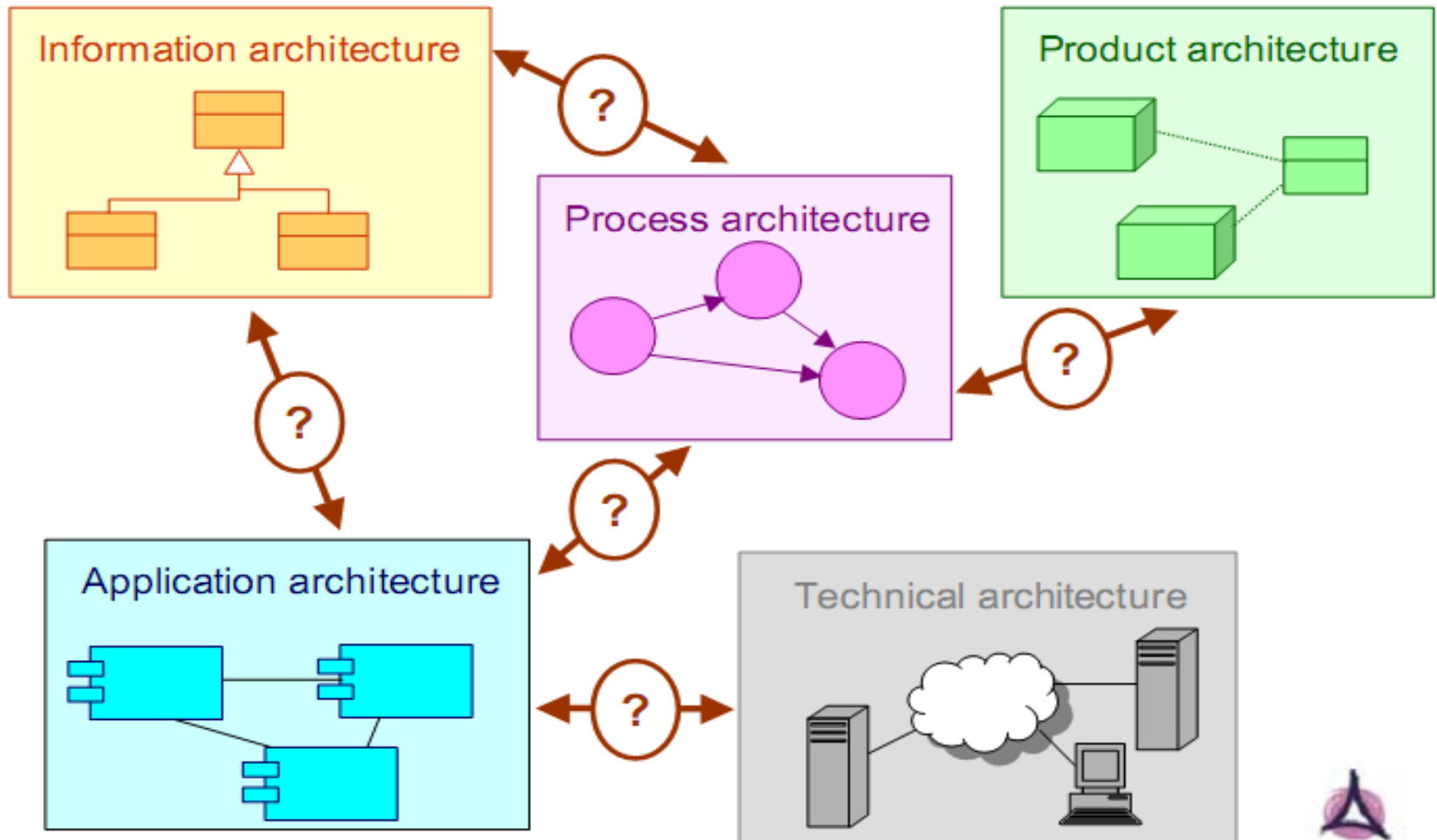
What is ArchiMate?

- ArchiMate offers a common language for describing the construction and operation of business processes, organizational structures, information flows, IT systems, and technical infrastructure.
- This insight helps the different stakeholders to design, assess, and communicate the consequences of decisions and changes within and between these business domains.

What is ArchiMate?

- An architecture framework is used to structure the concepts and relationships of the ArchiMate language
- It divides the enterprise architecture in to a business, application and technology layer. In each layer, three aspects are considered: active elements that exhibit behavior (e.g. Process and Function), an internal structure and elements that define use or communicate information.

Enterprise Architecture: Describing Coherence



Telematica



Why ArchiMate?

- Enterprise architecture is an important instrument to address this company-wide integration.
- It is a coherent whole of principles, methods and models that are used in the design and realization of the enterprise's organizational structure, business processes, information systems, and IT infrastructure.

Why ArchiMate?

- A good architecture practice enables an organization to align business and IT operations with its strategy, quickly respond to changes in the environment, and make optimal use of technological opportunities.
- The development and maintenance of architectures will lead to efficiency, cost reduction and flexibility.

Why ArchiMate?

- Within companies various domain architectures can be found, like organization, business process, application, information, and technical architectures.
- Each architecture domain has its own concepts for the modelling and visualization of its internal coherence. These specific models and visualizations simplify communication, discussion and analysis within the domain

Why ArchiMate?

- However, the relations between the concepts in these different domains are in many cases unclear. Moreover, these domains often partially overlap but use different notions to express the same ideas, sometimes even with-out the people involved knowing this.
- The resulting ambiguities and confusion stand in the way of the flexibly and efficiently operating organizations we envisage.

Why ArchiMate?

- ArchiMate wants to do away with these ambiguities. It presents a unified way of modelling enterprise architectures, integrating the various domains and describing them in an easily readable way
- ArchiMate is of course not an isolated development. The relationships with existing methods and techniques, like modelling languages such as UML and BPMN, and methods and frameworks like TOGAF and Zachman, are well-described.

Main Benefits of ArchiMate

1. It is an **international, vendor-independent standard** of The Open Group, liberating you from the lock-in of vendor-specific tools and frameworks. There is active support from the ArchiMate Forum of The Open Group.
2. Its well-founded concepts and models provide **precision**. It helps you get away from the 'fuzzy pictures' image of architecture.
3. It is a **lean and simple** language. It contains just enough concepts for modeling enterprise architecture and is not bloated to include everything possible. Its uniform structure makes it easy to learn and apply.

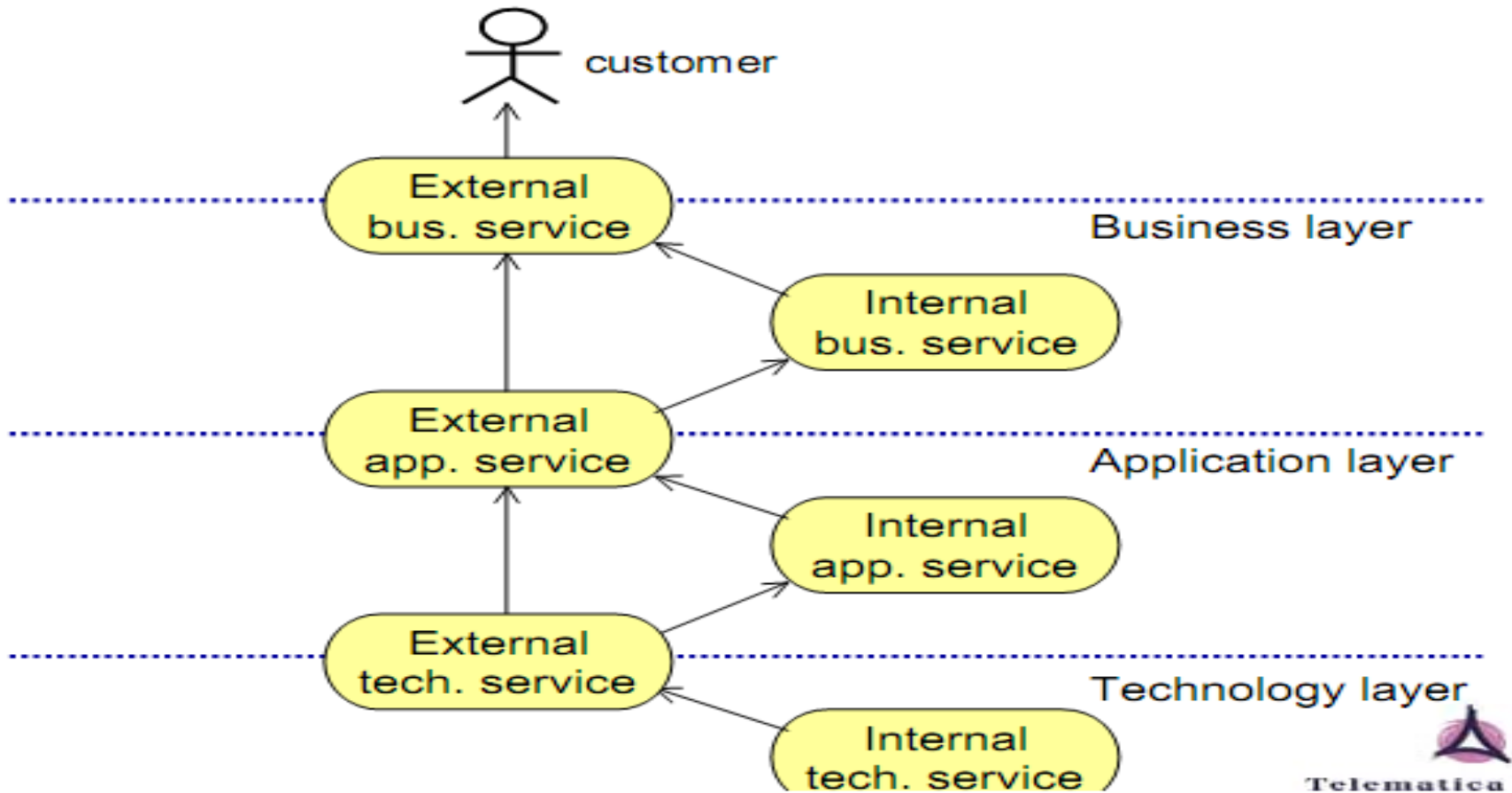
Main Benefits of ArchiMate

4. It has clear links to **existing approaches** for specific architecture areas such as software or business processes. Several concepts in ArchiMate have deliberately been borrowed from other languages such as UML or BPMN, to provide an easy bridge.
5. It does not prescribe a way of working, but it is **easily combined** with existing methods such as TOGAF.
6. It has been **tried and tested** by many different user organizations and is **supported** by numerous consultancies and software tools.

Layers

- A layered view provides a natural way to look at service-oriented models. The higher layers use services that are provided by the lower layers. ArchiMate distinguishes three main layers:
 - The **Business layer** offers products and services to external customers, which are realized in the organization by business processes performed by business actors and roles.
 - The **Application layer** supports the business layer with application services which are realized by (software) application components.
 - The **Technology layer** offers infrastructural services (e.g., processing, storage and communication services) needed to run applications, realized by computer and communication hardware and system software.

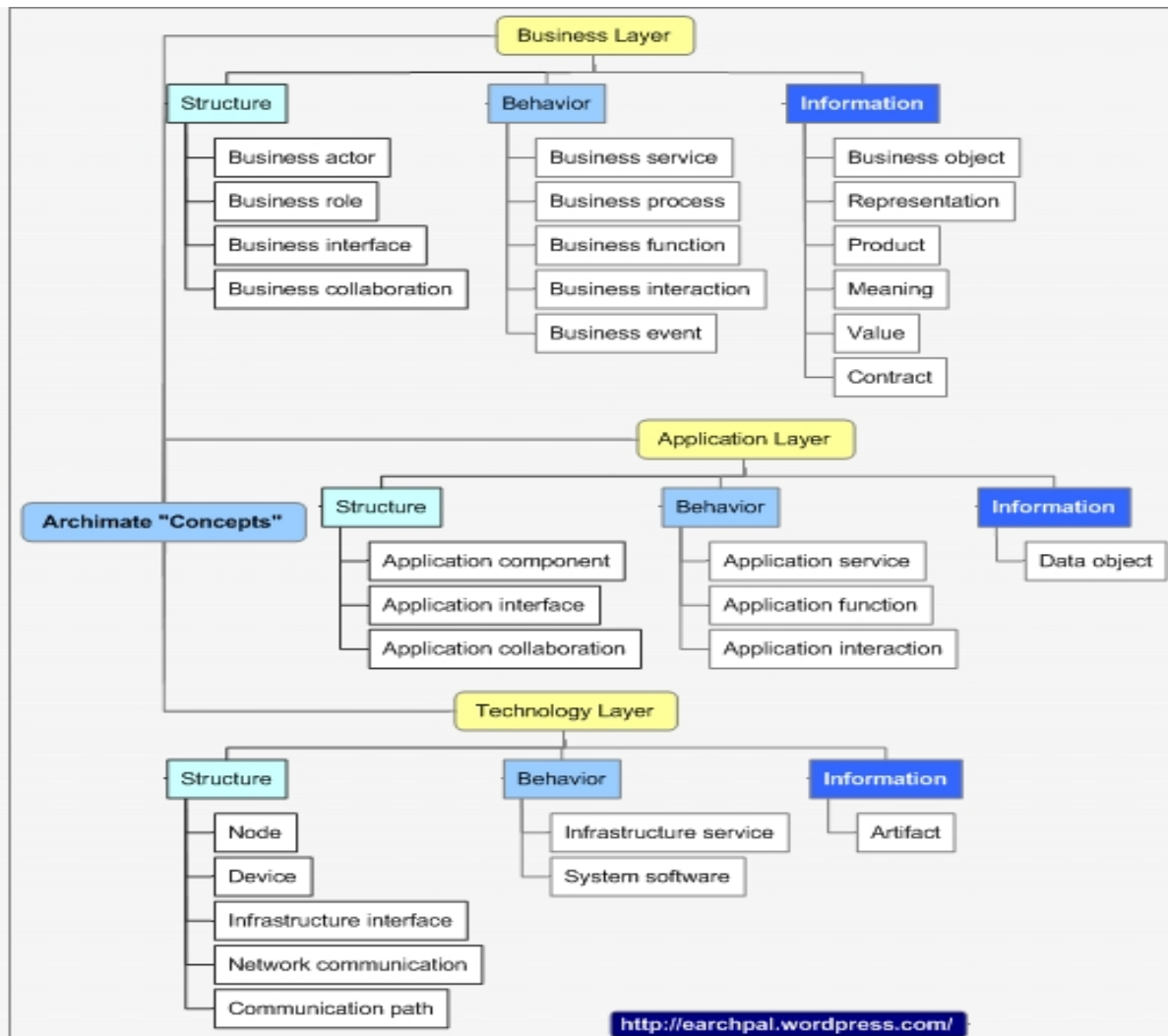
Layers



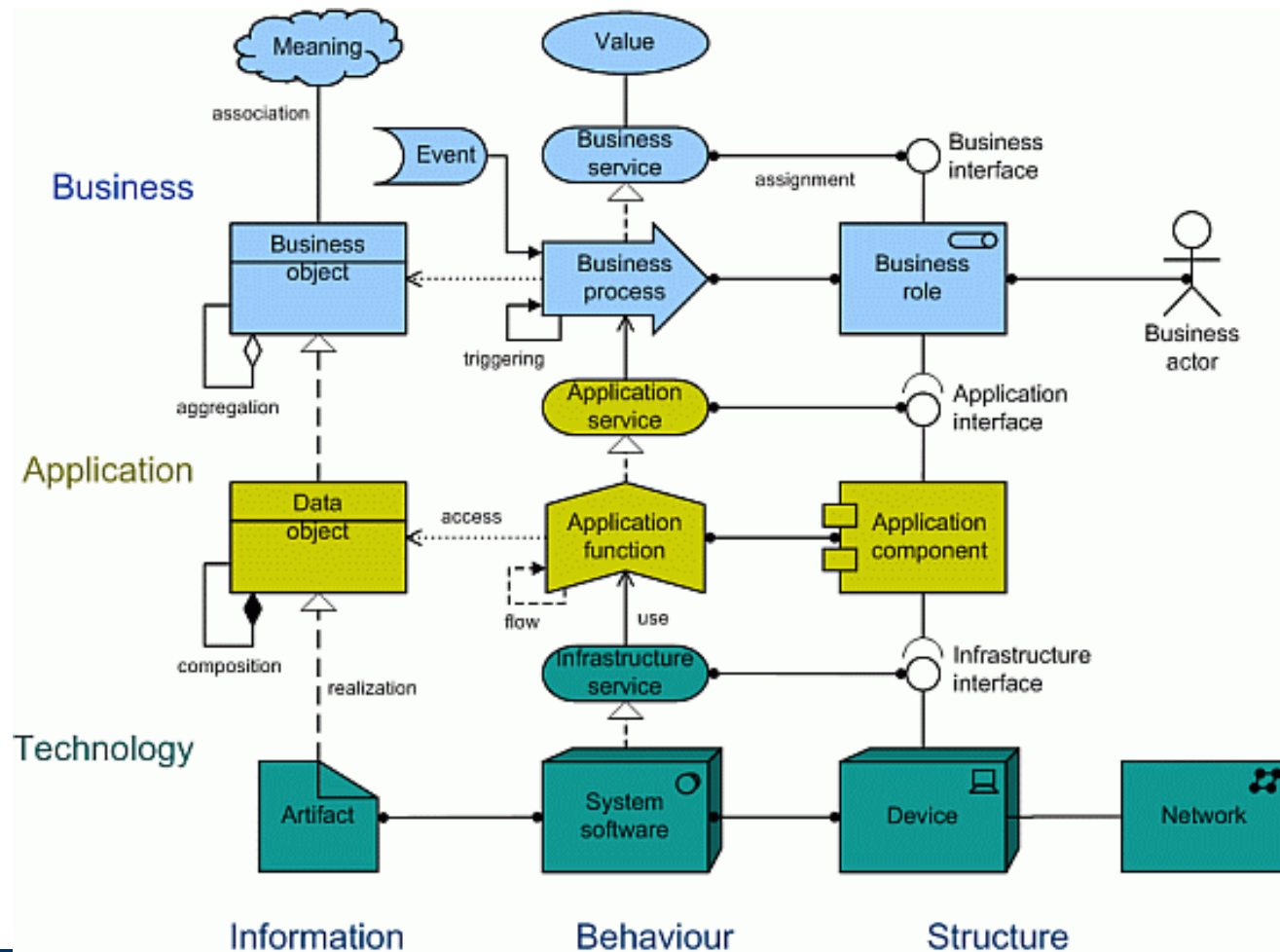
Telematica



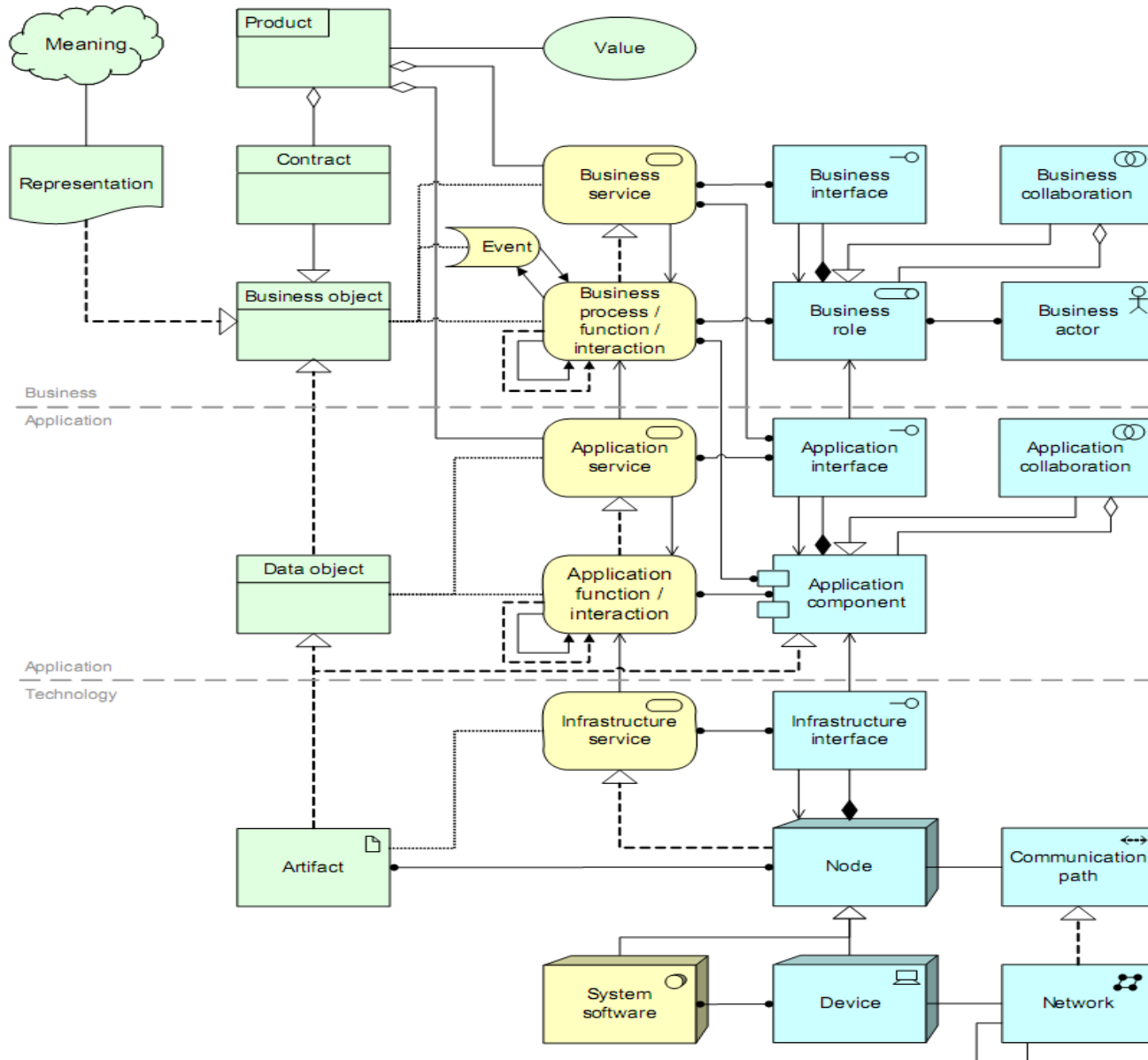
Layers , domains



Layers , domains

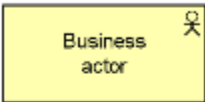

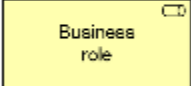

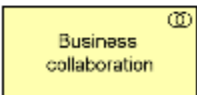
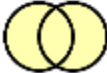
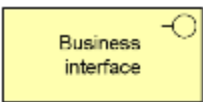


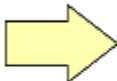







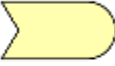


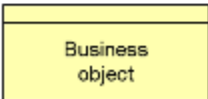

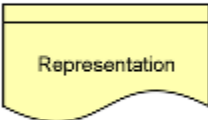
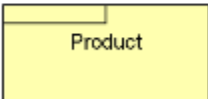
Layered view



Overview of the ArchiMate concepts and main relationships



Element	Description	Notation
Business actor	A business entity that is capable of performing behavior.	 
Business role	The responsibility for performing specific behavior, to which an actor can be assigned, or the part an actor plays in a particular action or event.	 
Business collaboration	An aggregate of two or more business internal active structure elements that work together to perform collective behavior.	 
Business interface	A point of access where a business service is made available to the environment.	 
Business process	A sequence of business behaviors that achieves a specific outcome such as a defined set of products or business services.	 
Business function	A collection of business behavior based on a chosen set of criteria (typically required business resources and/or competences), closely aligned to an organization, but not necessarily explicitly governed by the organization.	 

Business interaction	A unit of collective business behavior performed by (a collaboration of) two or more business roles.	 
Business event	A business behavior element that denotes an organizational state change. It may originate from and be resolved inside or outside the organization.	 
Business service	An explicitly defined exposed business behavior.	 
Business object	A concept used within a particular business domain.	
Contract	A formal or informal specification of an agreement between a provider and a consumer that specifies the rights and obligations associated with a product and establishes functional and non-functional parameters for interaction.	
Representation	A perceptible form of the information carried by a business object.	
Product	A coherent collection of services and/or passive structure elements, accompanied by a contract/set of agreements, which is offered as a whole to (internal or external) customers.	

ArchiMate vs UML

ArchiMate

- ArchiMate was created to model the architecture of an enterprise (all of the systems in an organization).
- ArchiMate models the business, information system (application and data), and technology architectures of the environment, including how these architectures are inter-related.

UML

- **UML still functions best as a way to document the architecture of a single system**
- **UML provides 13 diagram types, providing flexibility to describe many different types of systems.**

Archimate vs UML

- Archimate started with an understanding that these problems relate to one another; that the entire complex and difficult business of understanding IT requires a rich inter-relationship of completely different domains, from business motivation to business process to managed services to systems to infrastructure.
- Thus Archimate goes where UML doesn't: it defines a metamodel that allows these relationships to be constructed, and constrained, and communicated. The constraints allow analysis, traceability, governance, and consistency. UML is unconstrained between model types. Archimate is not.

Notations

- Every concept and relation should have a precise graphical notation, with a sufficient resemblance to the 'standard' ArchiMate notation. The notation in the Visio stencils can be used as a guideline
- Optionally, multiple notations may exist for a single concept.
- It should be possible to denote composition, aggregation and assignment both with their 'line' notation and with nesting.

Relations

- The following relation types should be supported:

- Structural relations:

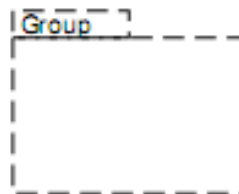
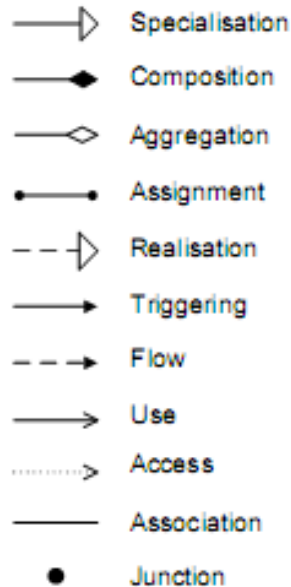
- composition*
- aggregation
- assignment
- used by
- realisation
- access
- association

- Dynamic relations:

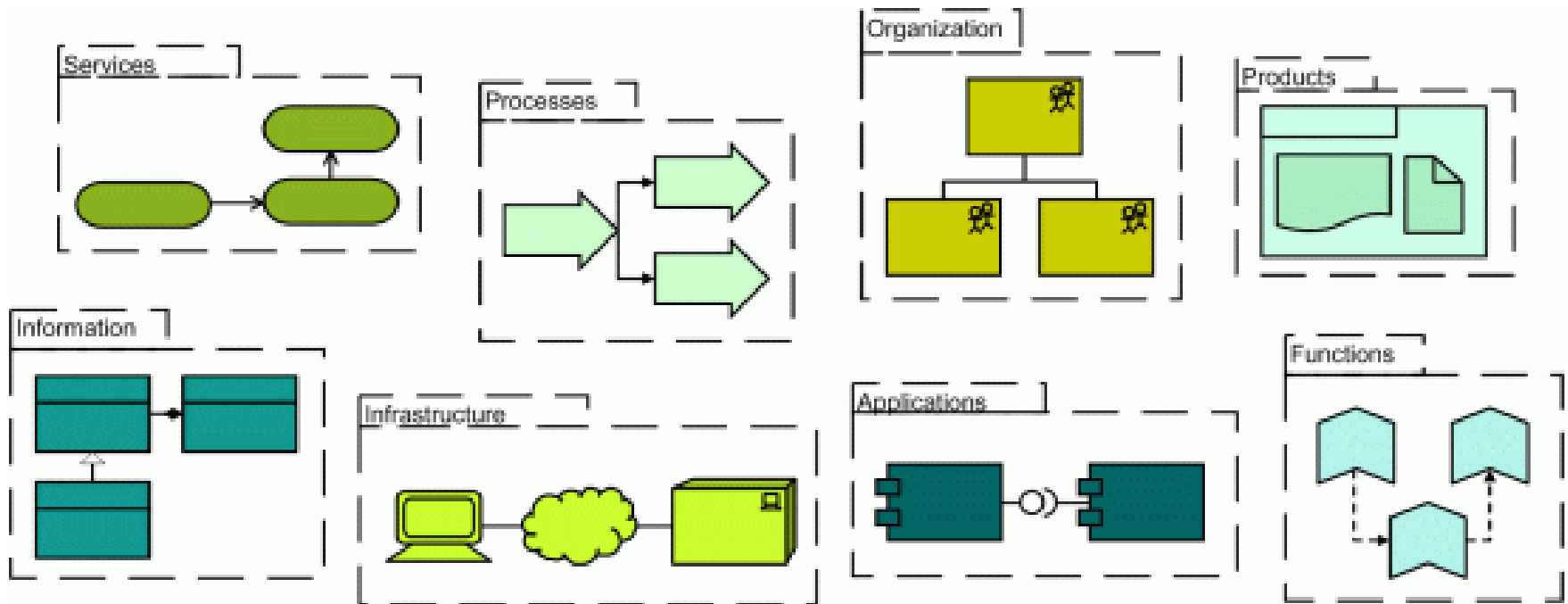
- triggering
- flow

- Other relations:

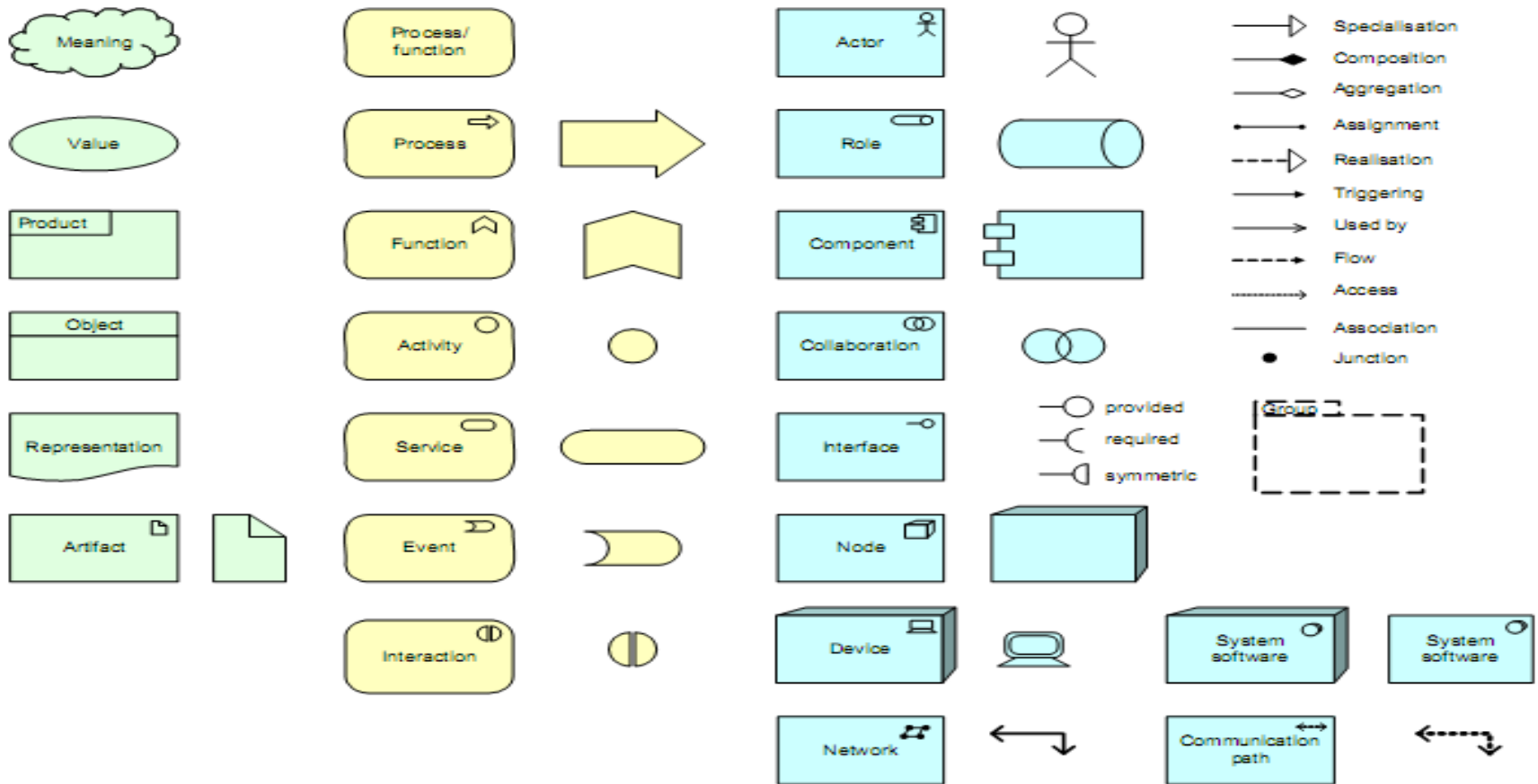
- grouping
- junction
- specialisation*



Notations

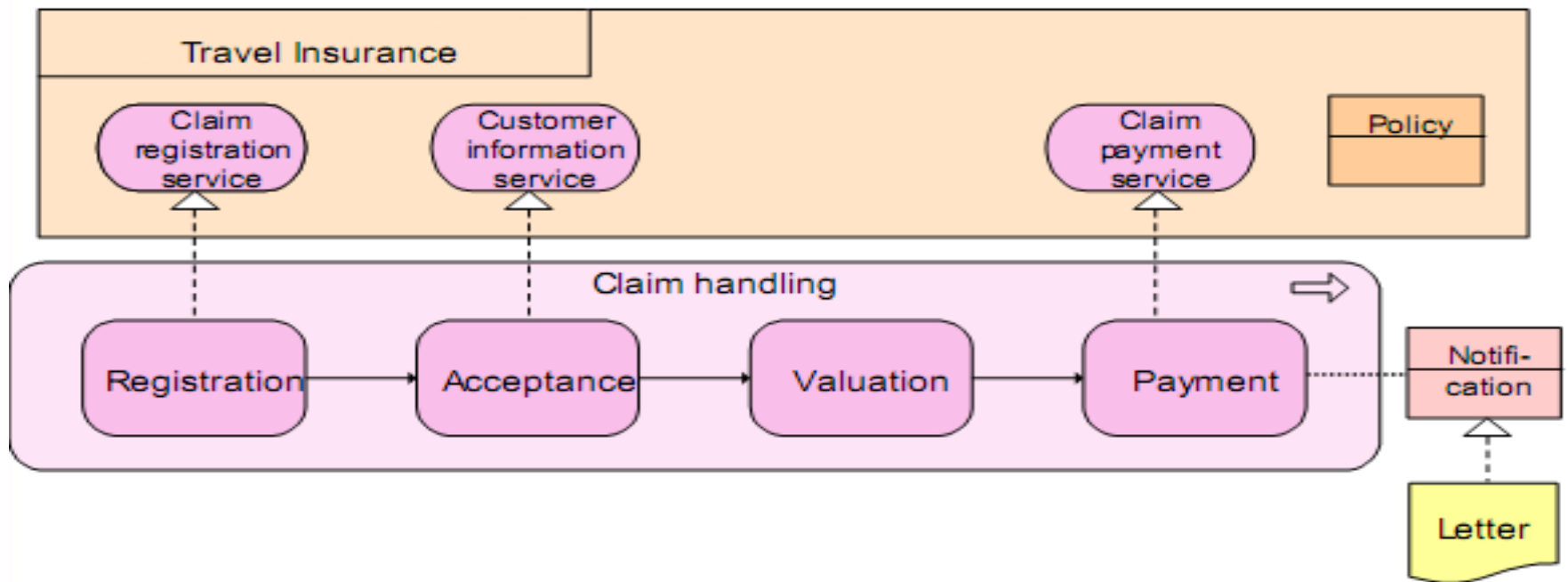


Notations & Relations



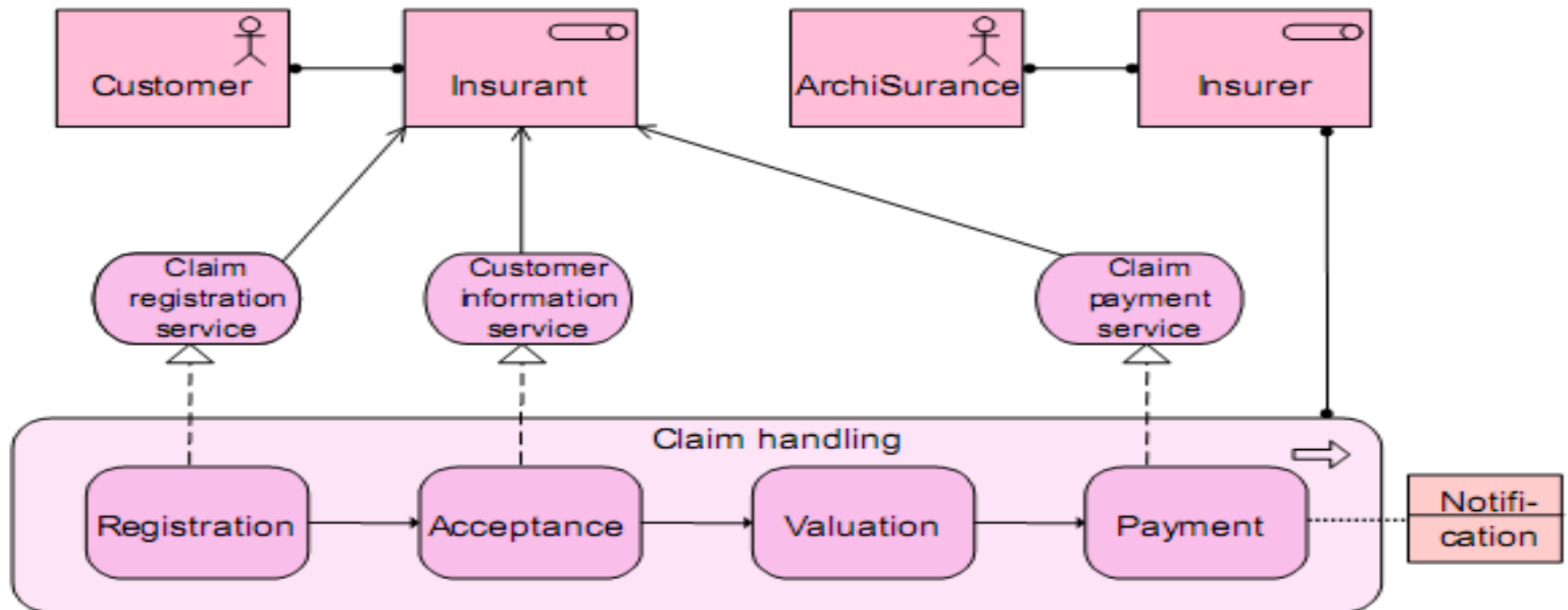
Demo

Product and Process



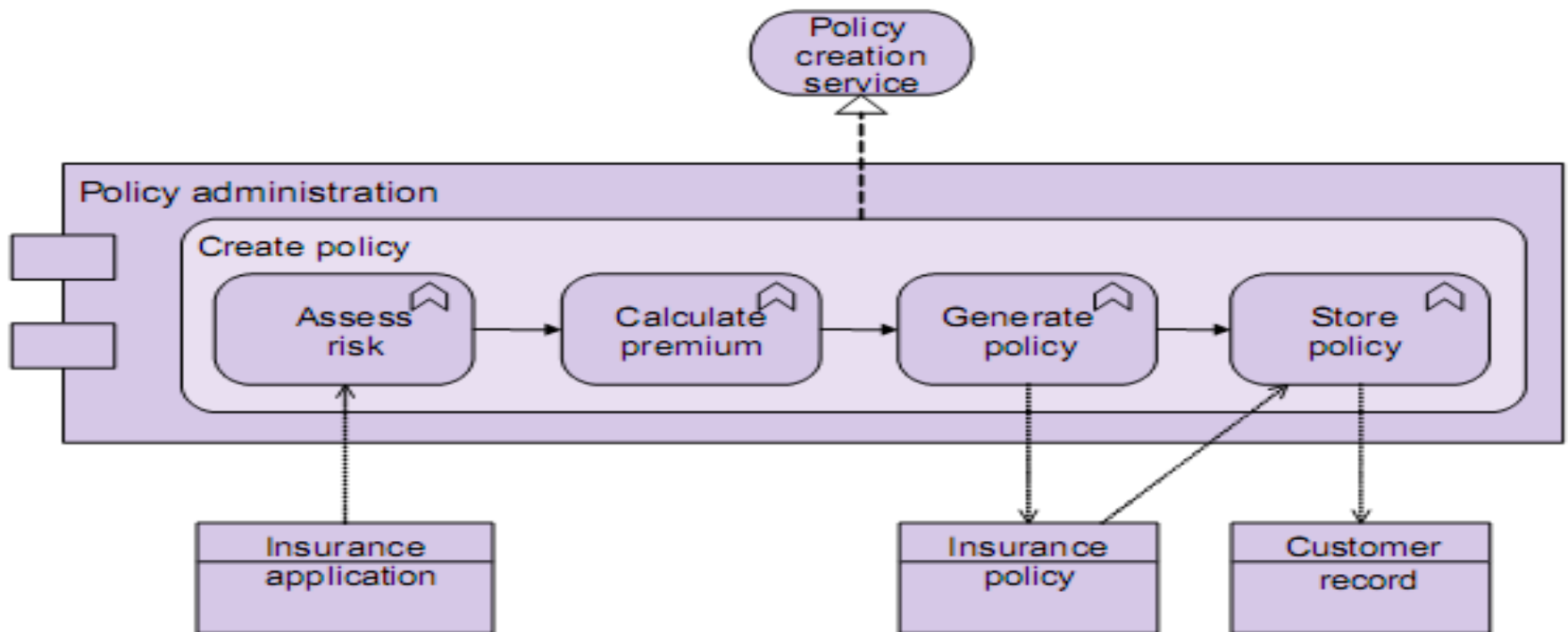
Demo

Actors, Roles, Processes



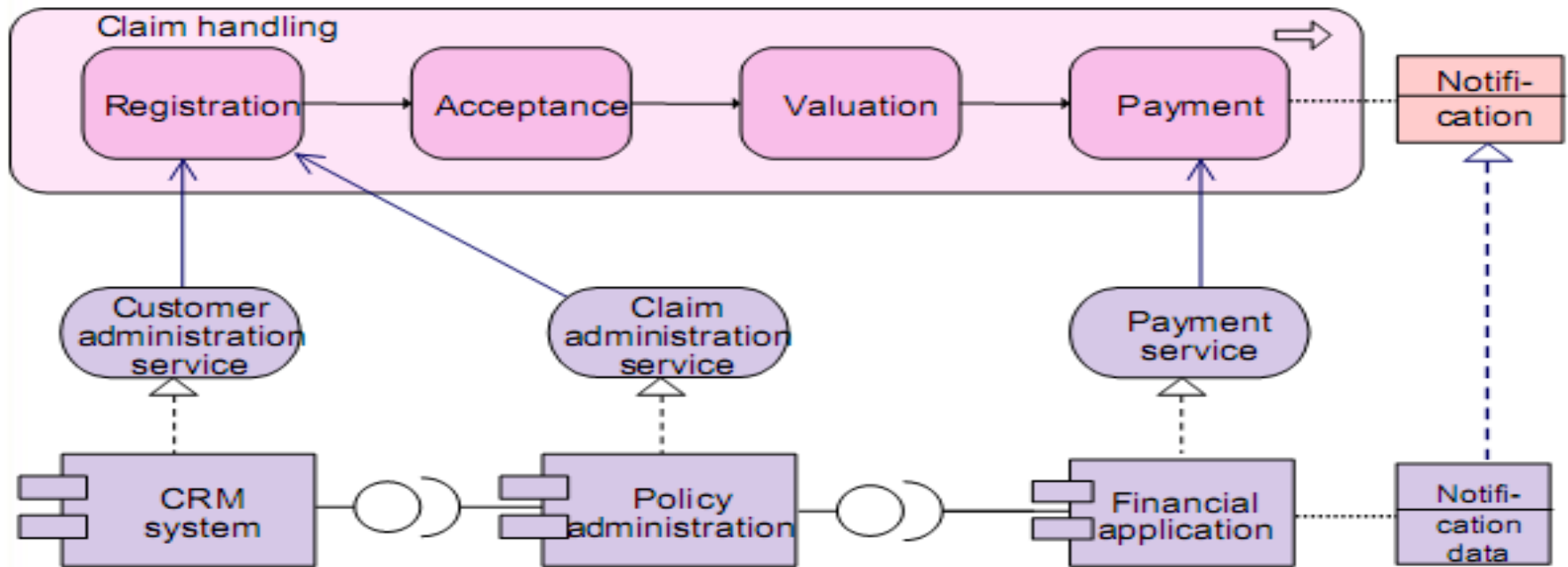
Demo

Application Behavior



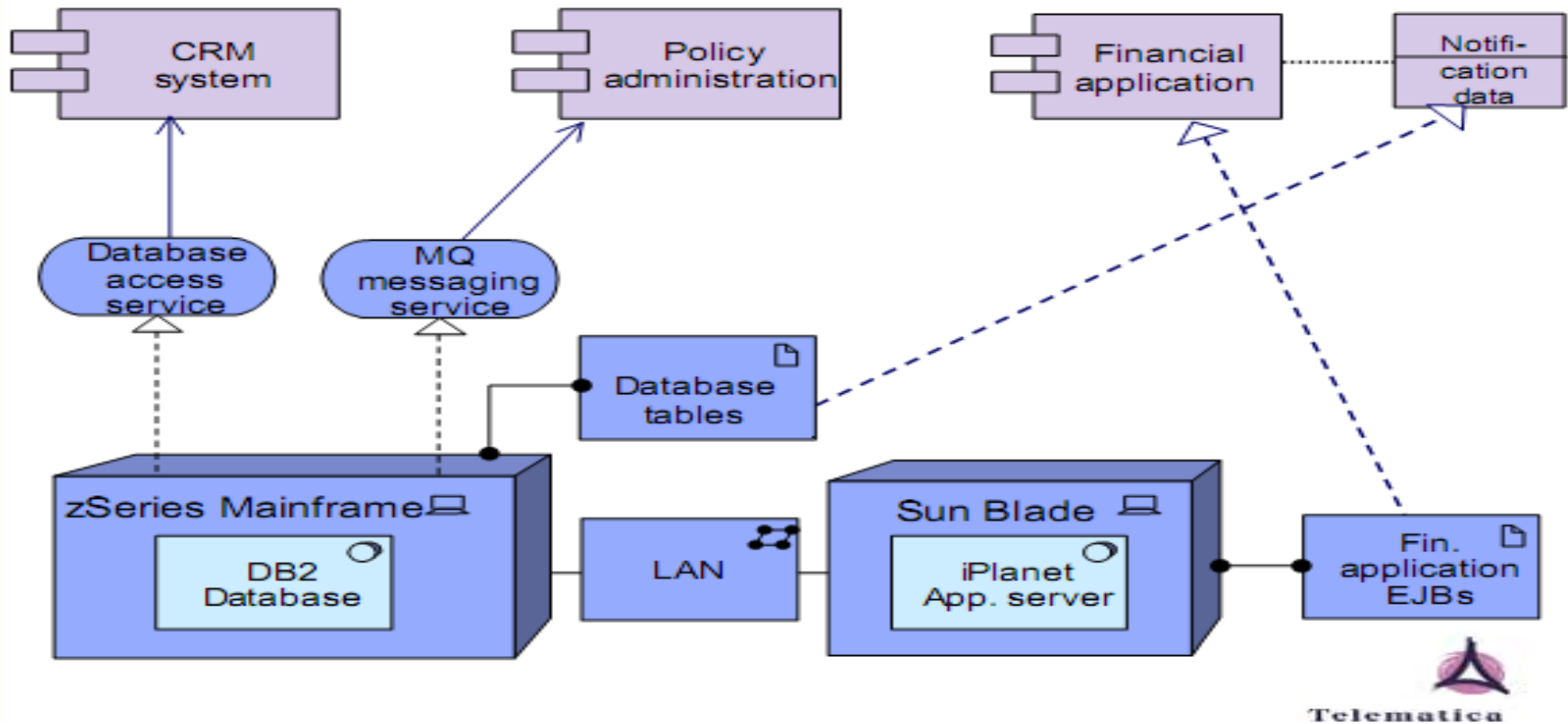
Demo

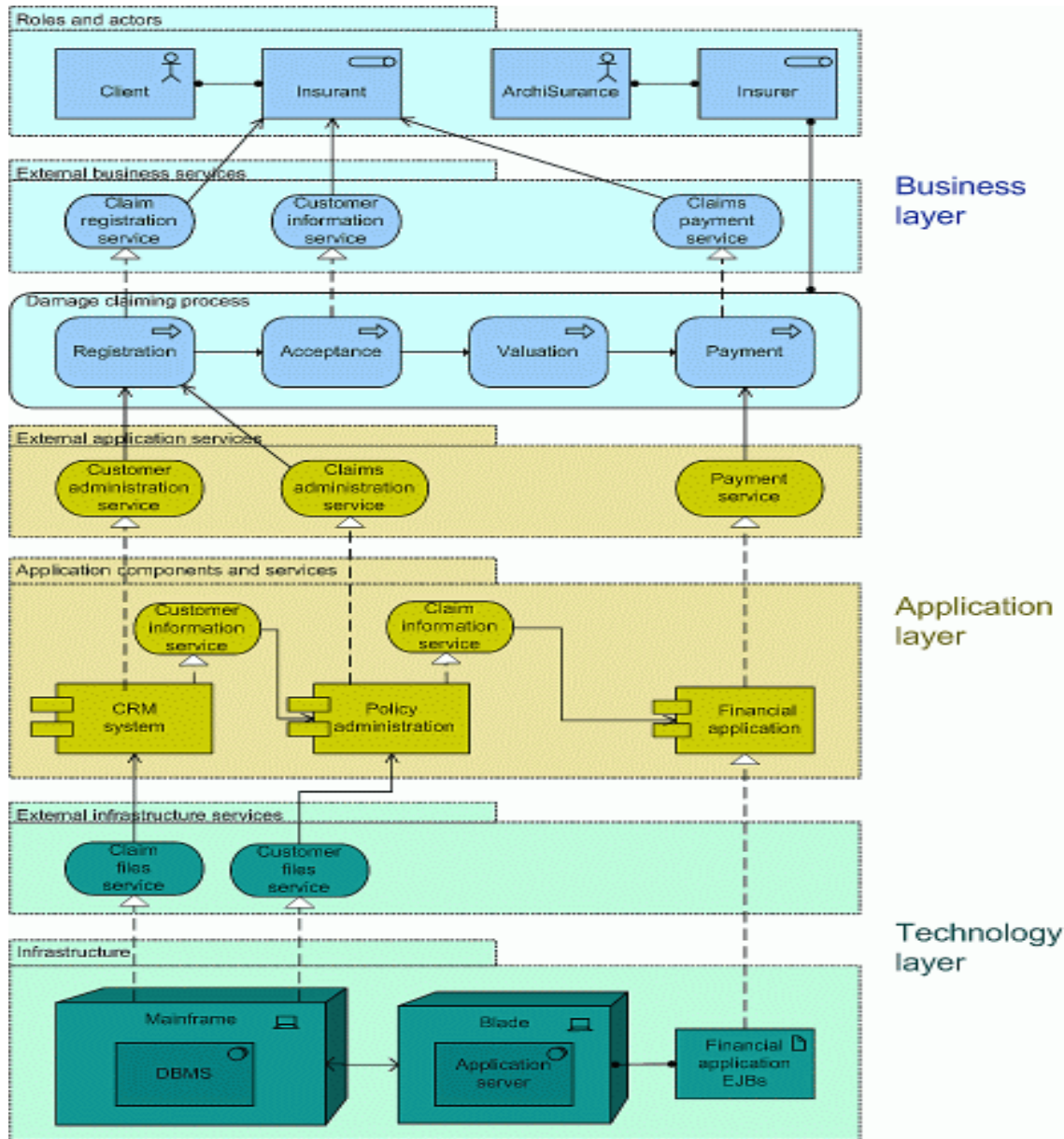
Application Usage

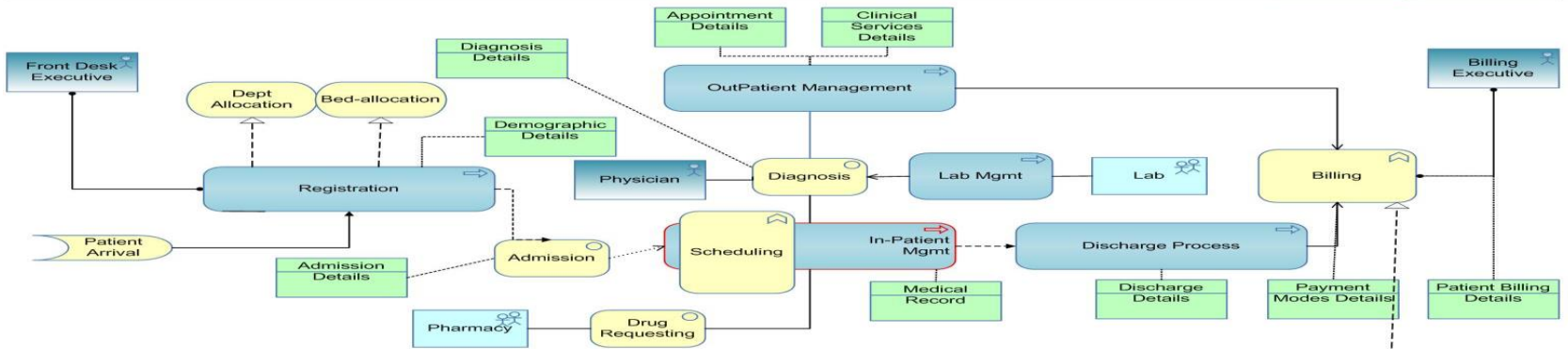


Demo

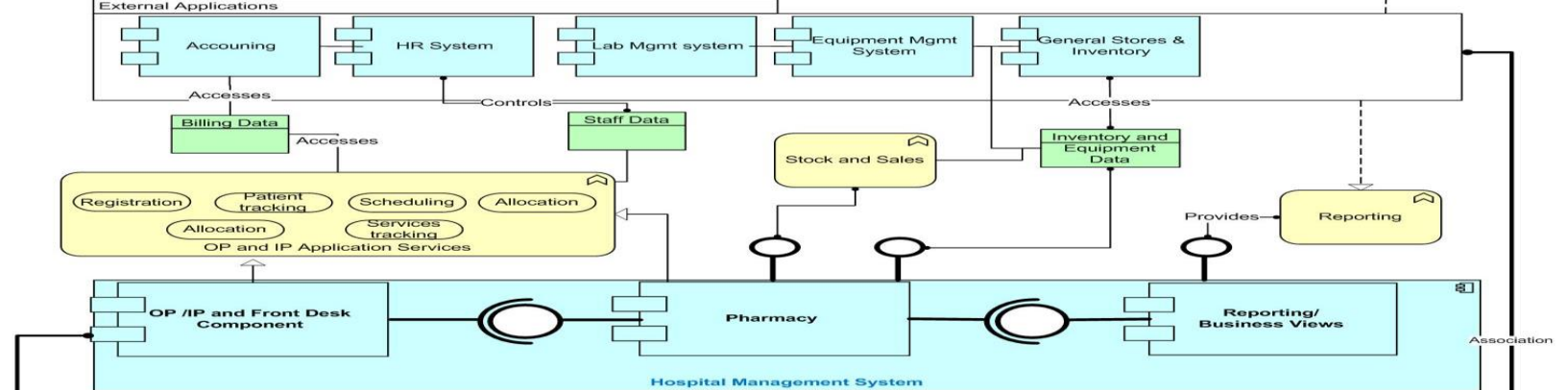
Deployment







Business Layer
Application Layer



Application Layer
Technology Layer
Association

