Very few attempt to model a whole business. But people do use these ideas and techniques in a piecemeal fashion

Avancier Methods
Enterprise Architecture

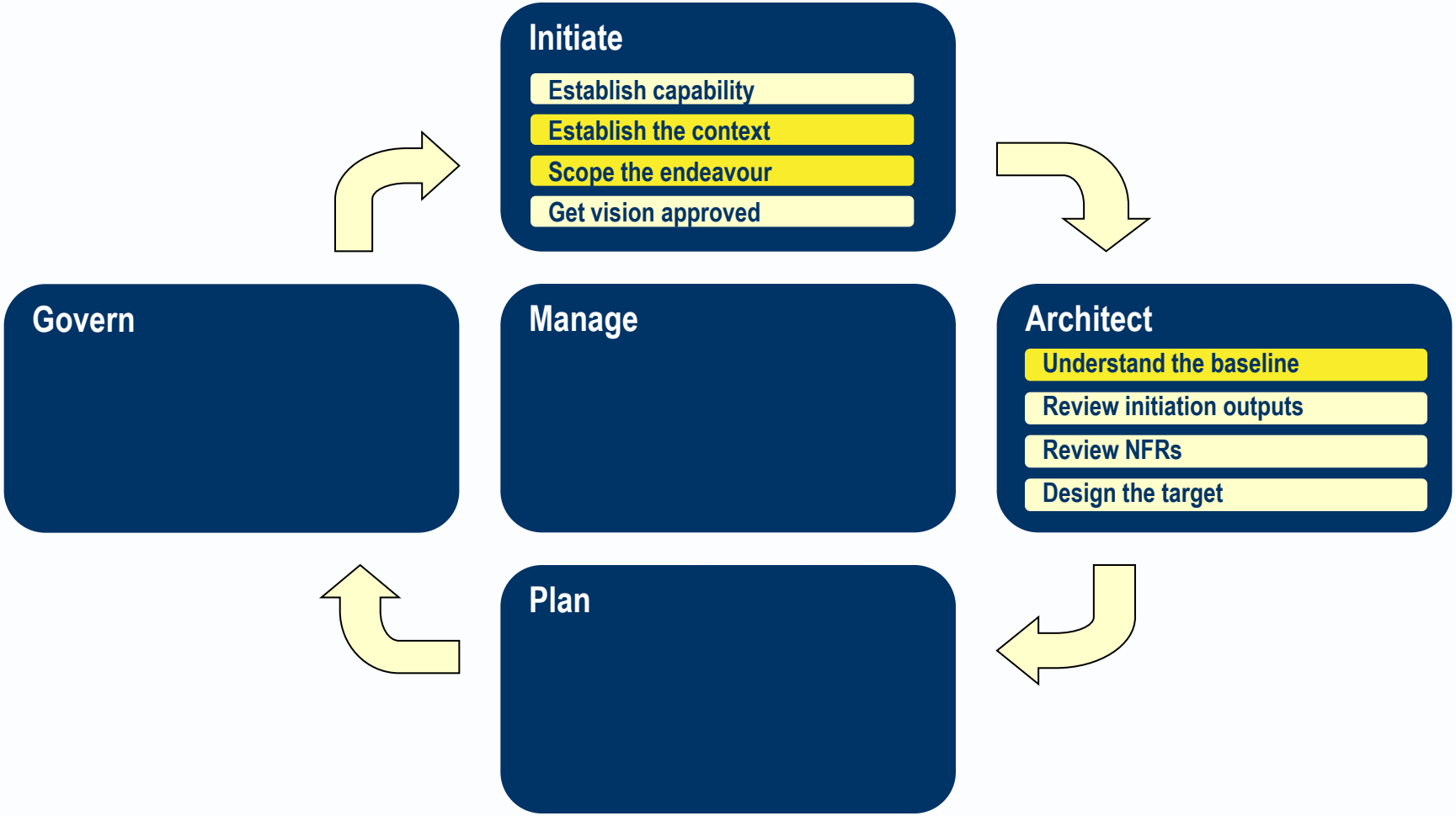
Analyse baseline business architecture

(using TOGAF artefacts)

Analyse the business architecture

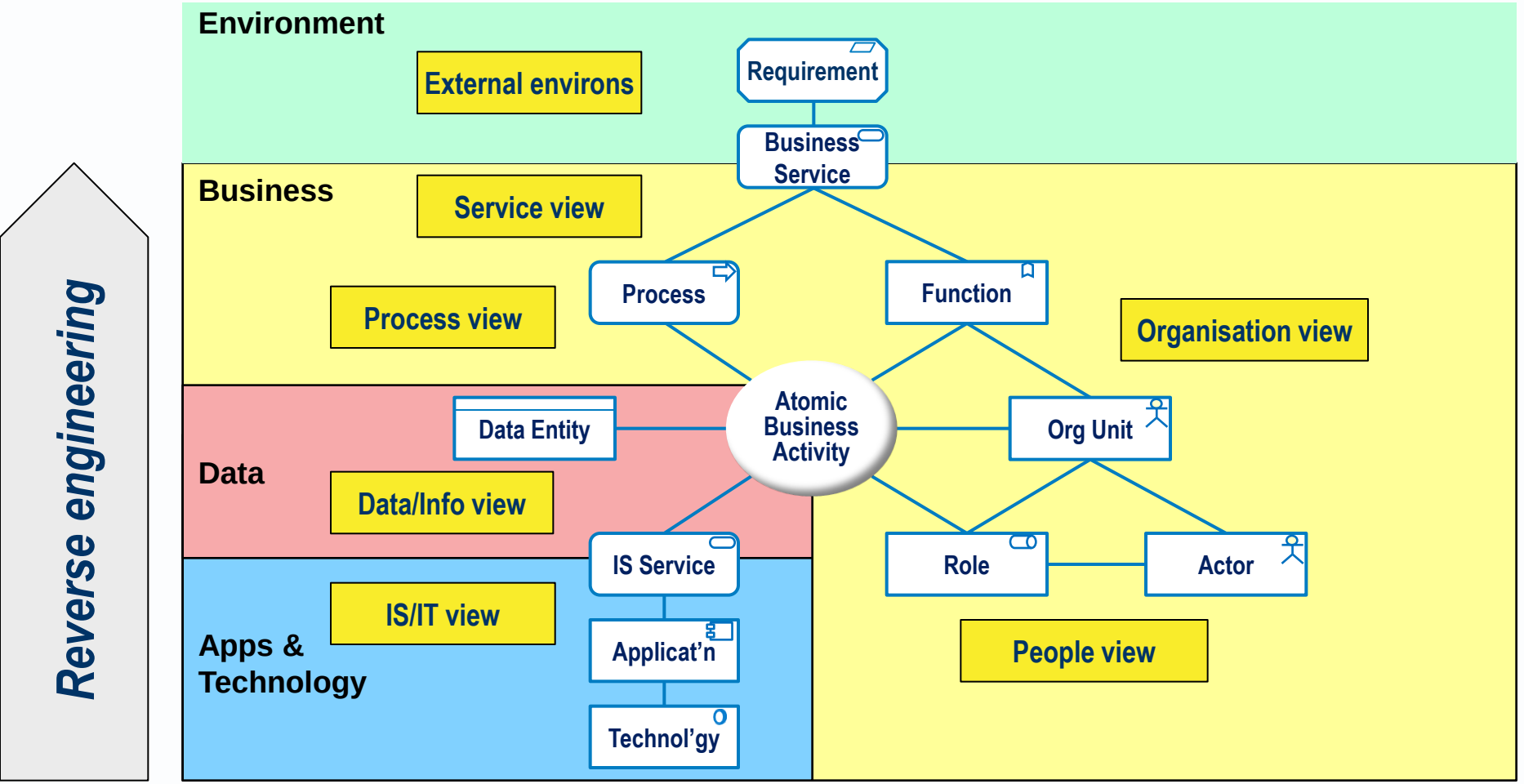
Avancier

- May be done in Initiate and/or Architect phases



Skills Framework for the Information Age suggests 7 views

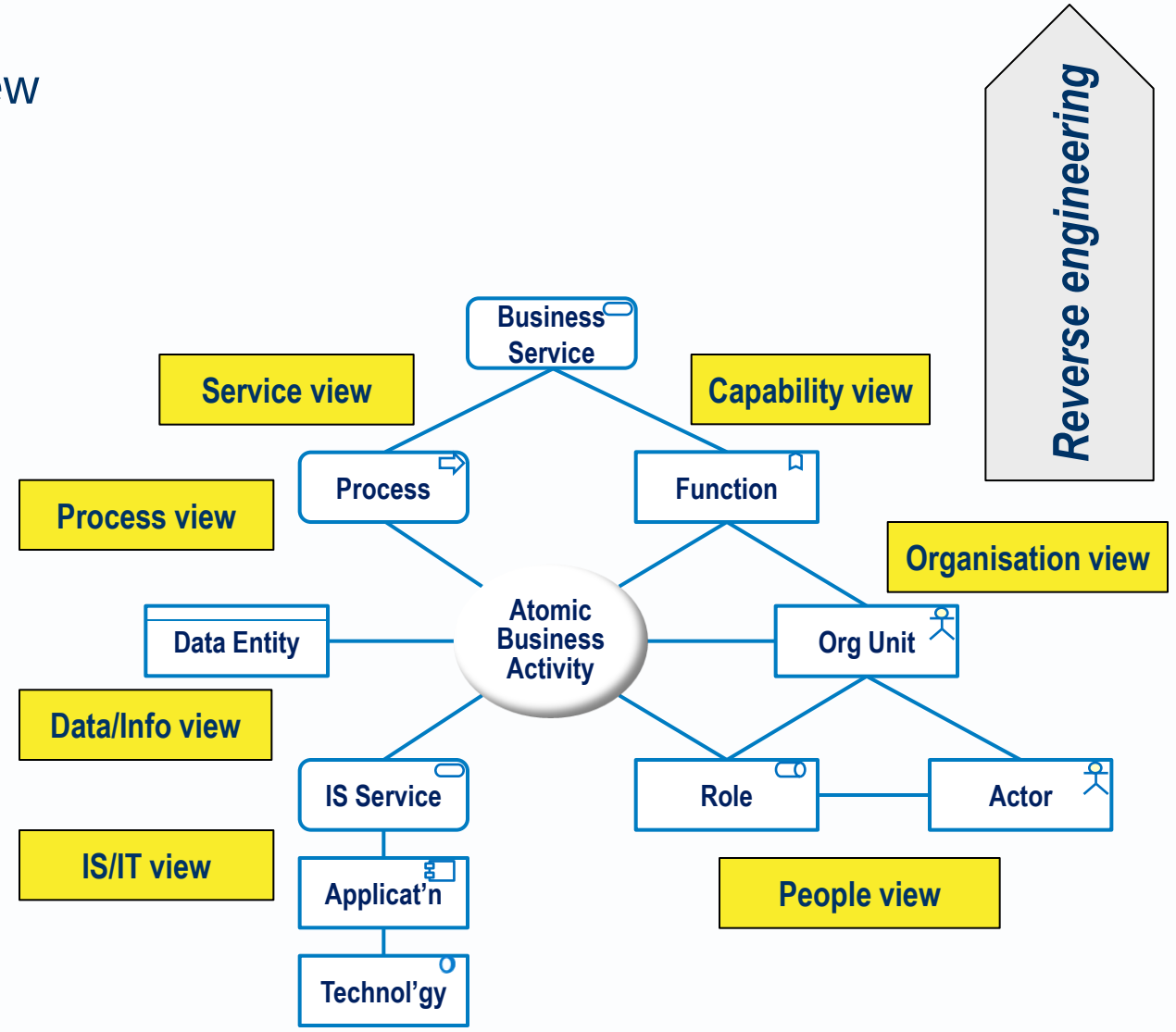
- The 7 views can be centered on the Atomic Business Activities



Baseline business architecture analysis

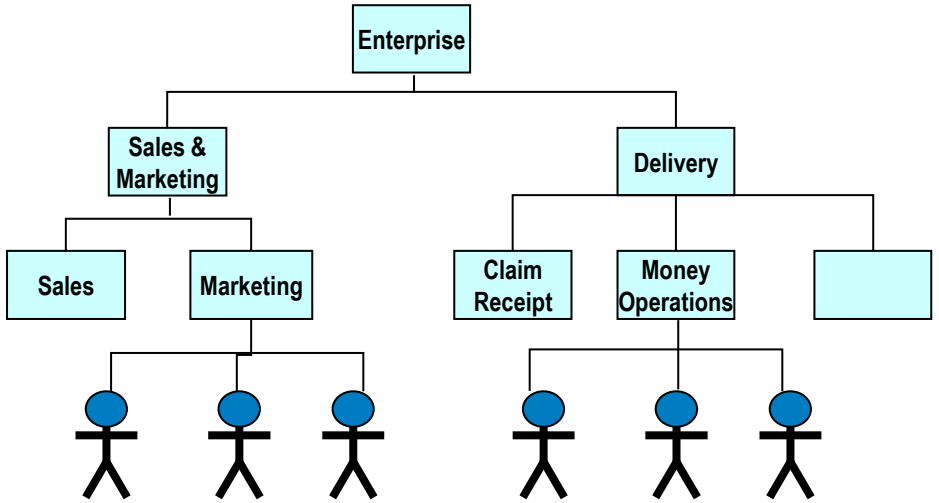
Avancier

1. Form an organisation view
2. Form a capability view
3. Form a process view
4. Form a people view
5. Form a service view
6. Map to data/info view
7. Map to IS/IT view

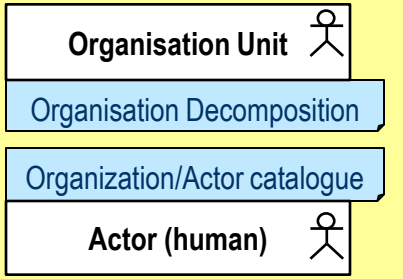


1. Form an Organisation view

- Classical Structured Analysis starts from the Organisation chart - in the area of interest.
- This management structure may descend to the level of the human Actors employed

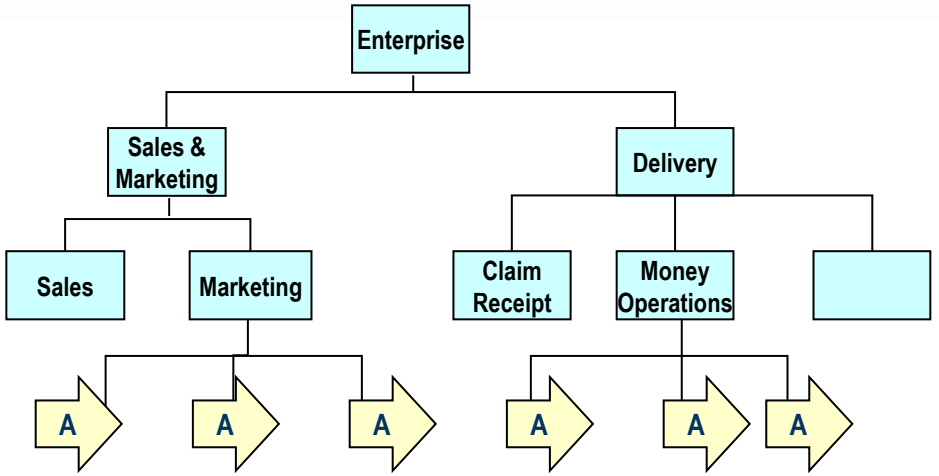


"Organization Unit:
A self-contained unit of resources with goals, objectives, and measures."
TOGAF 34.2.1



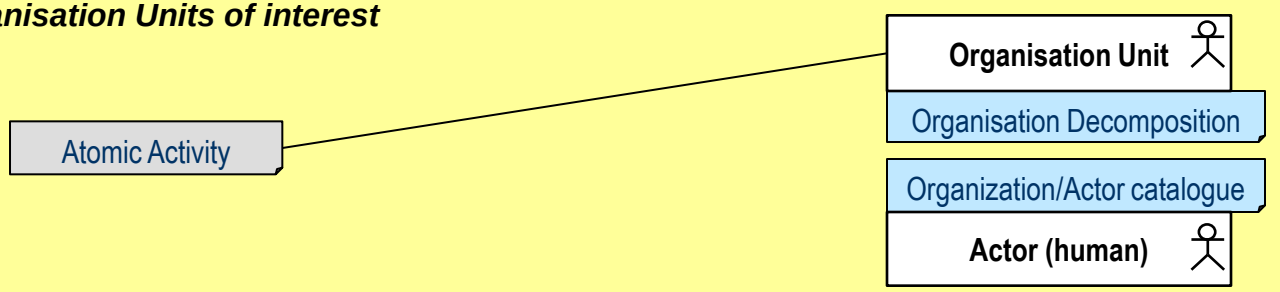
List Atomic Activities performed in each Organisation Unit

- People come and go; what they do is what matters.
- Focus on activities essential to the organisation's provision of services



Organisation Activities	Sales	Marketing	Claim Receipt
Activity A	Performed in	Performed in	
Activity B	Performed in		Performed in

You can list the Activities in the Organisation Units of interest

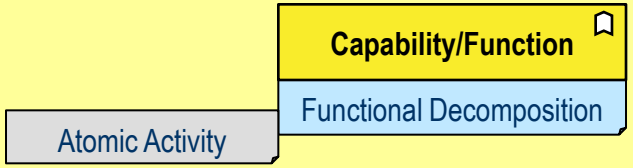


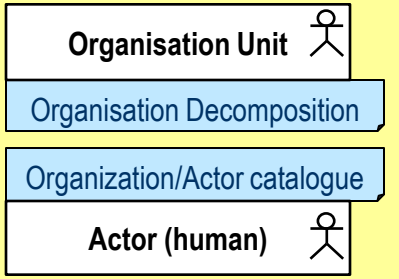
A trouble is: human social structures evolve continually

- It would be impractical to maintain an EA repository in which many architectural entities are mapped to Organisation units and human Actors that come and go

- Q) How to insure the EA repository against reorganisations that redistribute and perhaps duplicate activities between Org units?
- A) Buy or build a *logical* Organisation structure over Atomic Activities of interest

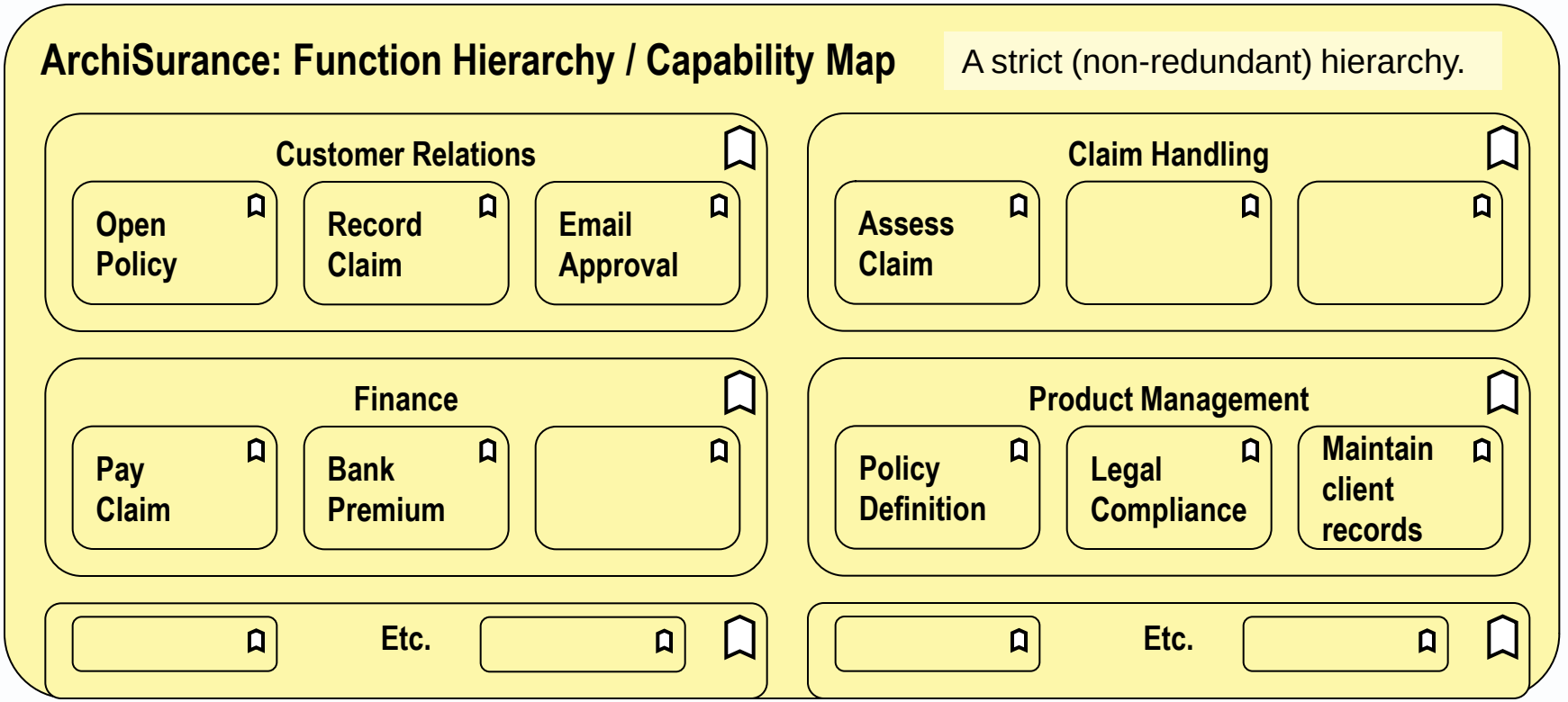
You can group the Activities





2. Form a Capability view

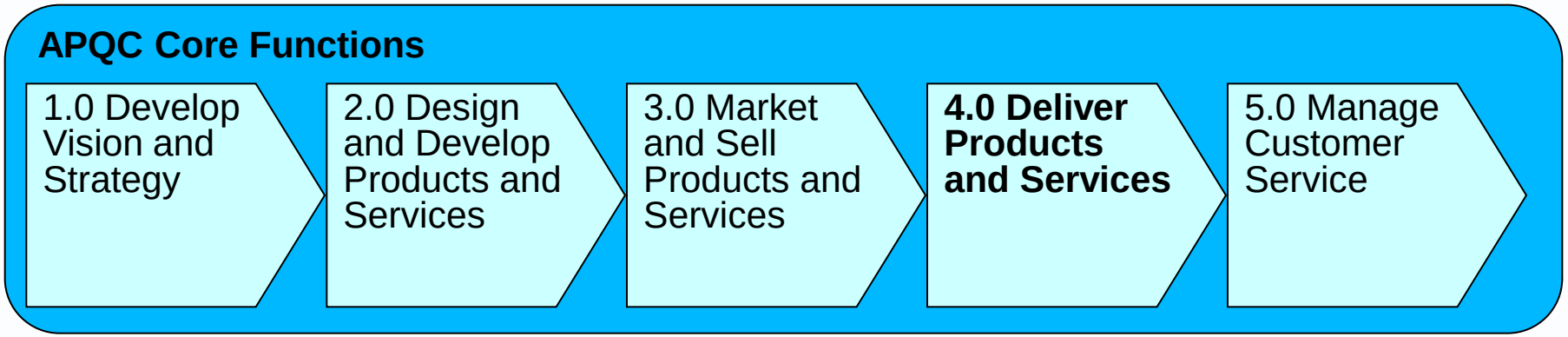
- **Buy or build** a *logical* structure over Atomic Activities
- "The level and rigor of decomposition needed varies from enterprise to enterprise" TOGAF



Buy and adapt a reference model to suit your business?

Avancier

- APQC – for a commercial enterprise (below)
- BIAN – for a bank (next slide)
- SCOR – for a supply chain business
- Proact – for a retail business



4.0 Deliver Products and Services

- 4.1 Plan for and acquire resources (Supply Chain Planning)
- 4.2 Procure Technology and services
- 4.3 Produce/Manufacture/Deliver product
- 4.4 Deliver product service to customer
- 4.5 Manage logistics and warehousing

Buy one? E.g. a business function/capability hierarchy for a bank

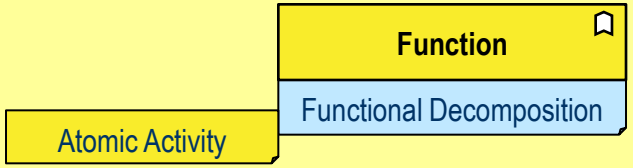
Avancier

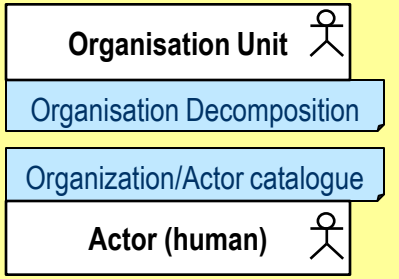
The BIAN Service Landscape V2.5

Build one? Cluster activities into business Functions

- Group Atomic Activities into logical Functions using some affinity criterion.
- Group lower level Functions into higher level Functions
- So each Function a logical subdivision an enterprise's capability
  - Definable externally by the services it provides
  - Definable internally by the activities required to deliver those services

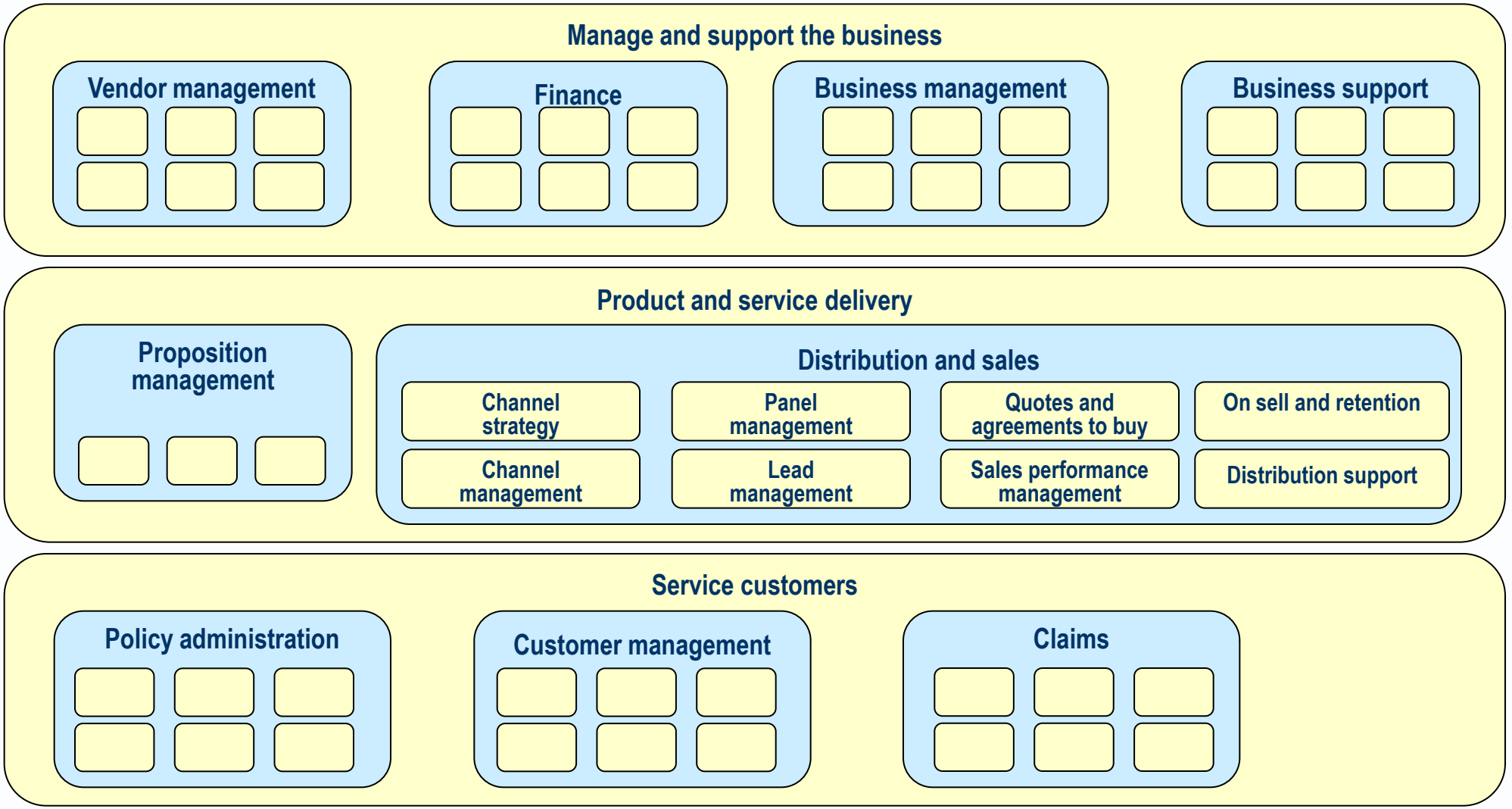
"Business Functions — a detailed, recursive step involving successive decomposition of major Functional areas into sub-Functions."
TOGAF 8.5





Function Decomposition OR Capability Map

Avancier



Managing large structures with many elements

Avancier

- What if the structure is or would be too large to manage?

- Narrow the focus to activities that
  - Are frequent
  - Are carried out by many actors
  - Create or use business data

- Relax the OPOPOT rule
  - List composite activities
  - Model lower-level activities only in process flow models

Improving a top-down decomposition structure

- High level abstract models are never right first time.

- Alternately elaborate and abstract
- To ensure that a higher level model is well formed
  - a manageable and accurate abstraction of lower levels
  - contains elements at a consistent level of granularity
  - shows what is more important to the viewer
  - hides what is less important to the viewer

Bottom-up composition

- When you group activities into higher-level business functions
- Since there are several possible cohesion criteria
  - Data created
  - Skills required
  - Materials or technology needed
- You could end up with what some call a *multi-archy*
  - A forest of different hierarchical tree structure

What if there is more than one candidate hierarchy?

Avancier

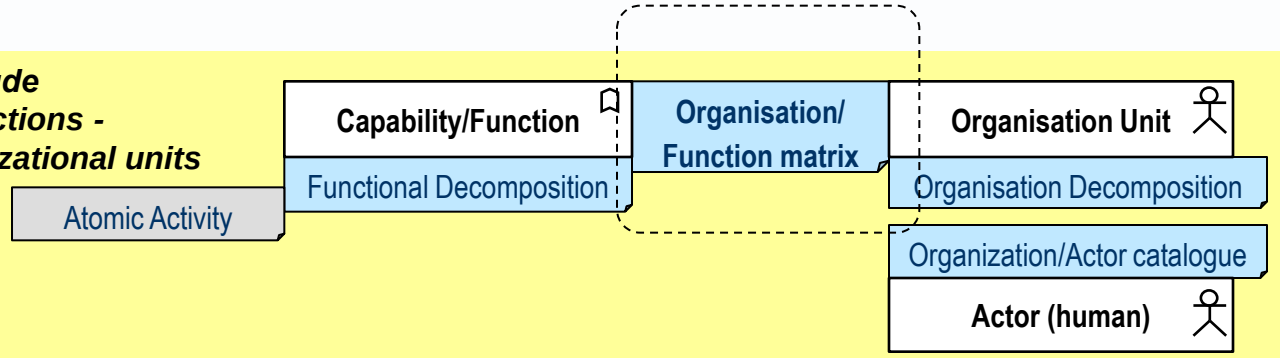
- That is normal
- You can maintain several logical hierarchies if stakeholders want to see the business classified in several ways
- But choose one as your ***primary hierarchy*** that
  - speaks to most people
  - is stable enough
  - can be used catalogue other things (e.g. applications)

Map Functions to Organisation Units

- Structured Analysis: “Identifies the key business Functions within the scope of the architecture, and maps those Functions onto the Org units within the business.” TOGAF 8.4.1

Organisation Function	Petrol	Paints	Plastics
Marketing	Activity	Activity	Activity
Sales	Activity	Activity	Activity
Delivery	Activity	Activity	Activity

“Business architecture outputs include Correlation of Organization and Functions - relate business Functions to Organizational units in the form of a matrix report” TOGAF 8.5



Three issues

- Functional Decomposition versus Functional Organisation
- Hierarchical versus Matrix Management
- The impact of non-Functional Organisation structures on EA

Functional *Decomposition* versus Functional *Organisation*

Avancier

- Functional Decomposition is supposed to be independent of the Organisation Decomposition management, *even if they have the same structure.*

Organisation Function	Marketing	Sales	Delivery
Marketing	Activity		
Sales		Activity	
Delivery			Activity

- The two structures may be same or very similar where the enterprise adopts what is called a Functional Organisation structure, in which
  - Employees are grouped in a hierarchy under headings such as Marketing, Sales, Delivery, Accounting and IT.
  - Each Functional department manager controls a budget.
  - Each employee has one clear reporting line upwards.
  - Cross-department projects are possible, but much communication in such a project must pass through the department heads.
- The two structures are more likely different where the management hierarchy is divided according to region, or customer type, or product type, or project.

Hierarchy versus Matrix Management

- The term Organisation Decomposition term implies a hierarchy.
- Many modern enterprises appear to have a matrix management structure.
- The classic matrix management structure is Function against Product.

Function Product	Marketing	Sales	Production
Petrol			
Paints			
Plastics			

- You might replace Product by Project, Service, Customer Type or Region.

- How do we define “Organisation Units” in such a case? Do we need to define them at all?

The impact of non-Functional Organisation structures on EA

Avancier

- It isn't the job of the EA team to shape the organisation structure
- But the politics, problems and possibilities of EA are much affected by it.

Project characteristics	Organizational structure				
	Functional	Matrix			Projectized
		Weak	Balanced	Strong	
Project manager's authority	little or none	limited	low or moderate	moderate to high	high to near total
Resource availability	little or none	limited	low or moderate	moderate to high	high to near total
Who controls the project budget	functional manager	functional manager	mixed	project manager	project manager
Project manager's role	part time	part time	full time	full time	full time
Project manager's administrative staff	part time	part time	part time	full time	full time

- http://www.managementtutor.com/difference-between/difference-between-functional-projectized-matrix-organization-structure.html

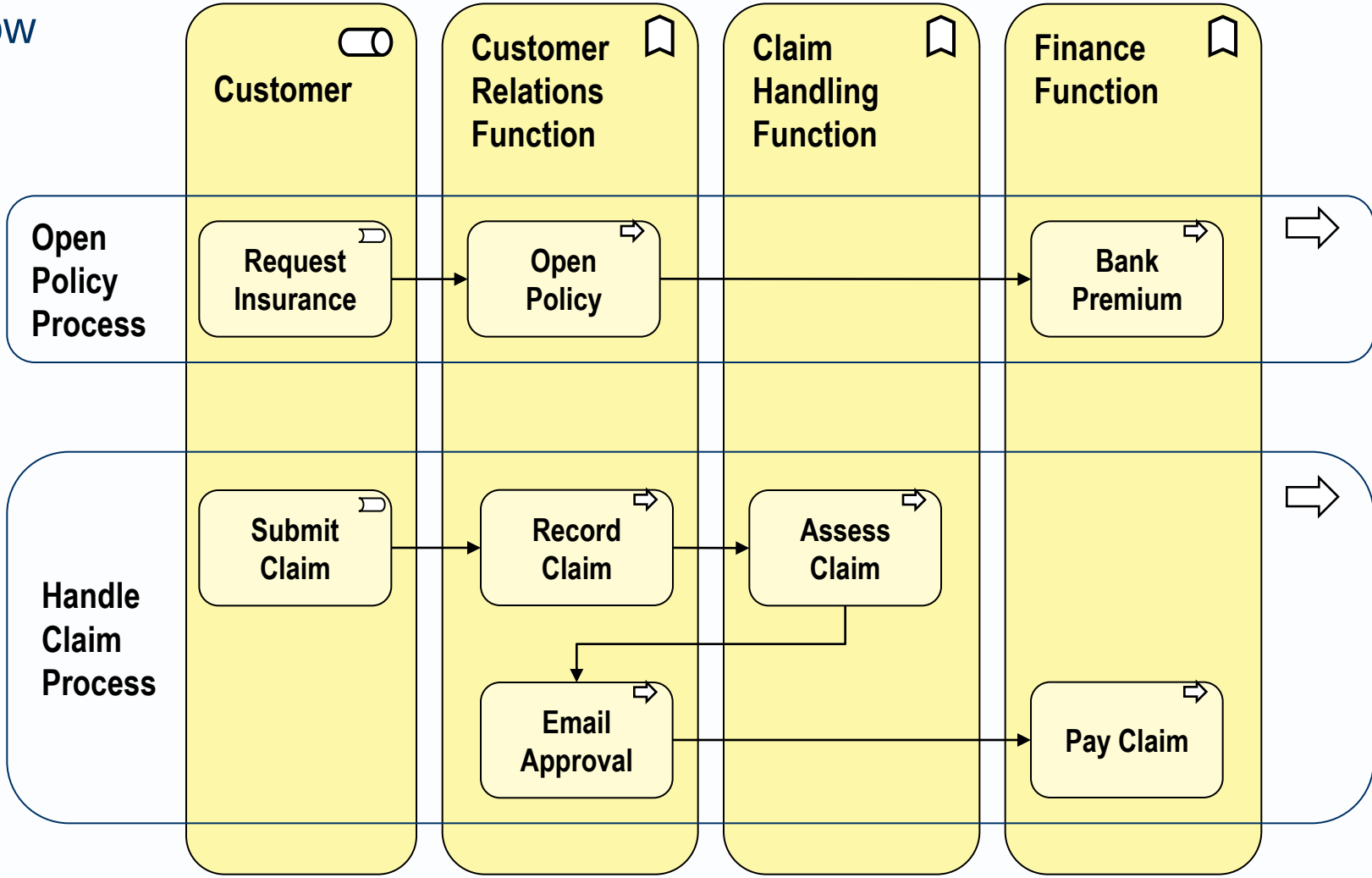
3. Form a Process view

Swim lanes show Structure

- Actor
- Role or
- Function

Arrows show Behaviour

- Event
- Trigger
- Activity



Map atomic process steps to business functions

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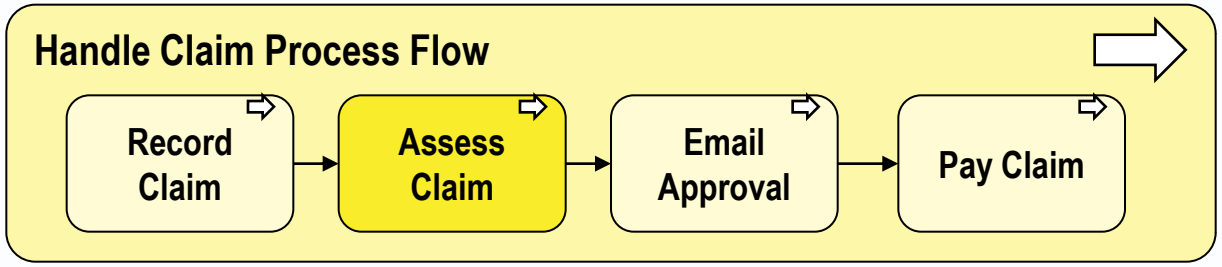
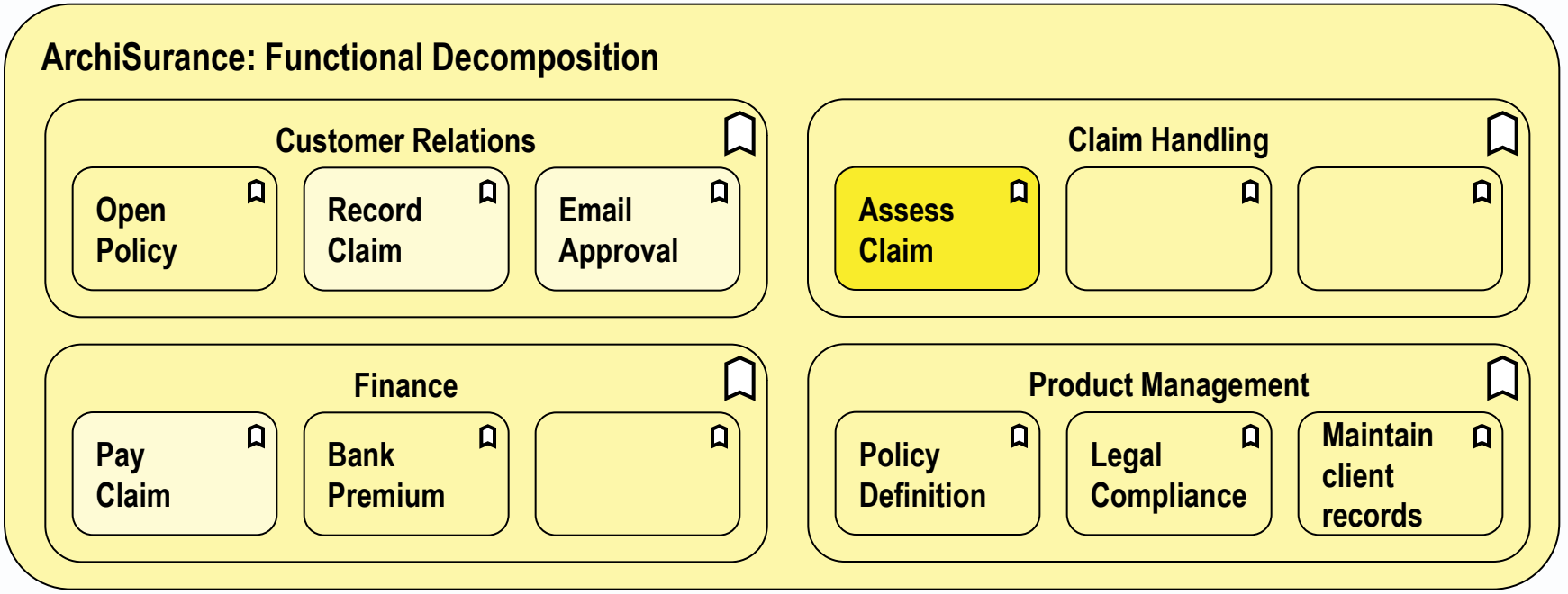
Atomic Business Processes



May be placed under a Functional Decomposition as *Atomic* Business Functions

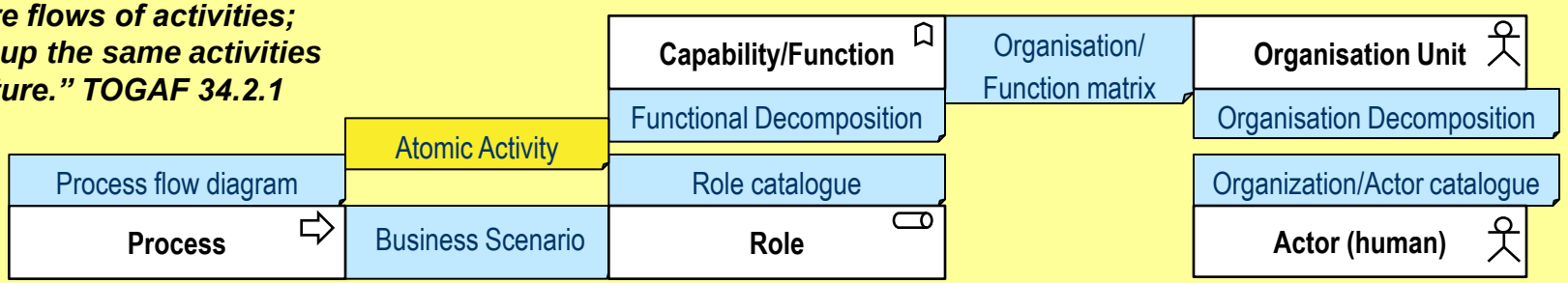


Complete correspondence is a theoretical possibility

- Each atomic Process could be placed as an atomic Function
- **But almost nobody gets complete their models.**
- The Function hierarchy usually stops at a high (3rd or 4th) level
- Some Process models descend to a lower (5th or 6th) level.
  - one-person, one place, one time (OPOPOT) activities.
  - can be mapped to the data created and used

Function / Process	Cust. Relat'ns	Claims	Finance
Open Policy	Open Policy		Bank Premium
Handle Claim	Receive Claim	Assess Claim	Pay Claim

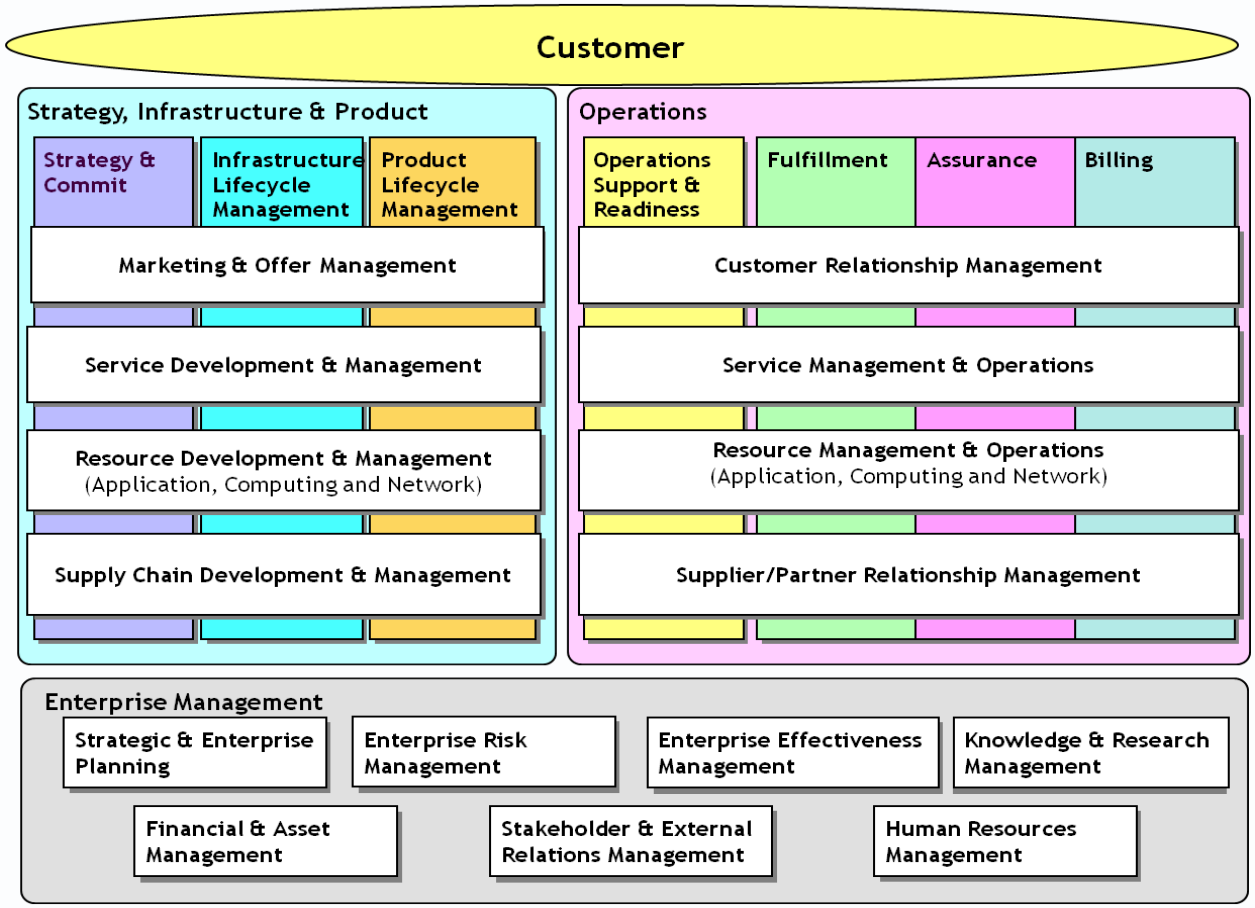
"Processes are flows of activities; Functions group the same activities under a structure." TOGAF 34.2.1



Build a top-level business process map

- Shows the main Processes supported or executed by the business system
- May be arranged in swim lanes – by phase, Function/Capability or organisation unit

- E.g. TMF eTOM

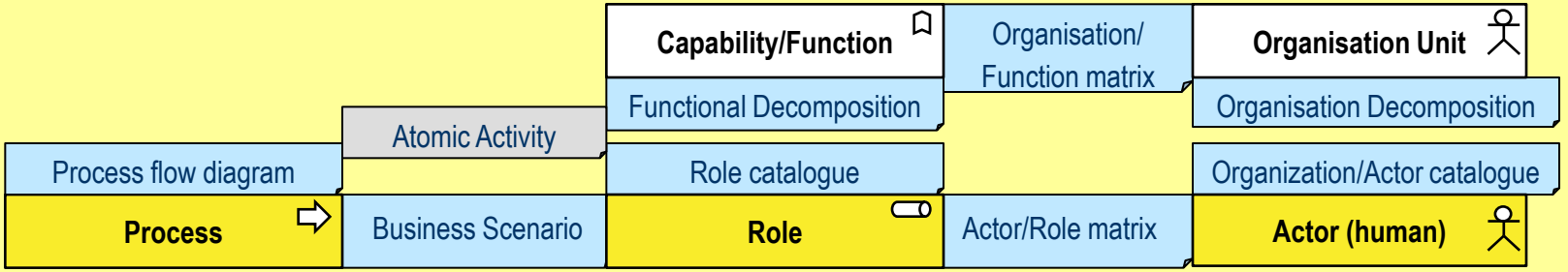


4. Form a people view

- A Role is a group of activities that is performable by one or more Actors - by virtue of the abilities required.

Role / Process	Role A	Role B
Activity A		Accountable
Activity B	Responsible	Consulted
Activity C		Involved

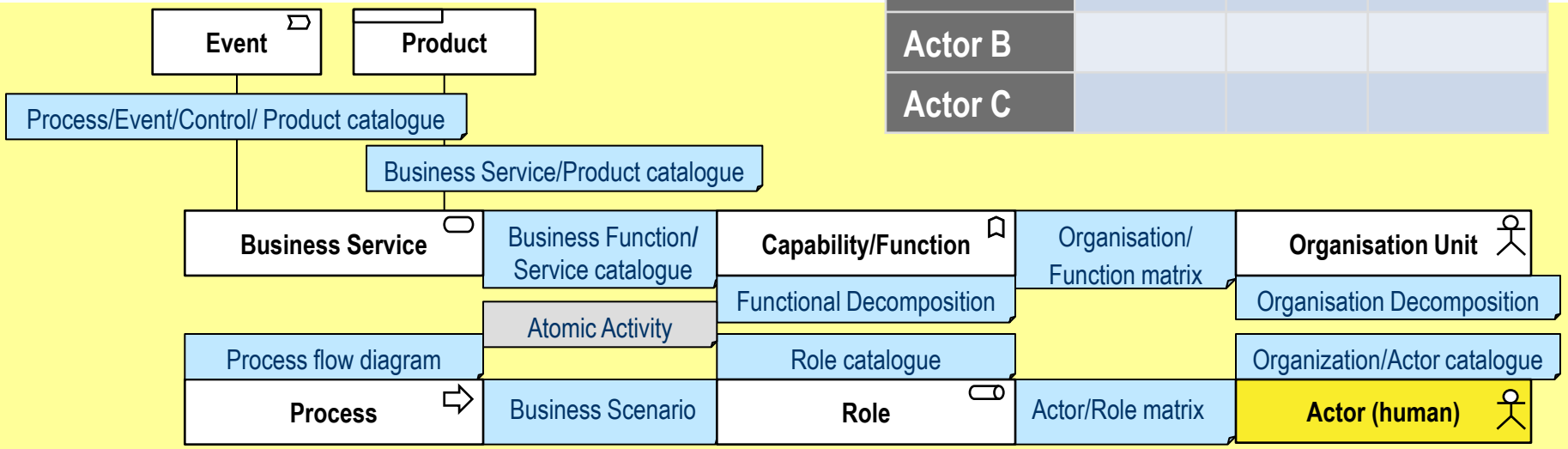
Role / Actor	Role A	Role B	Role C
Actor A			
Actor B			
Actor C			



EA usually models Roles rather than Actors

- Model Roles rather than individual Actors, except perhaps where a Role is performed by only one Actor
- (Of course, a human can do more than any Role they are asked to play. But what each individual might do outside the system (in addition to or in conflict with Role definitions) is not documented.)

Role / Actor	Role A	Role B	Role C
Actor A			
Actor B			
Actor C			

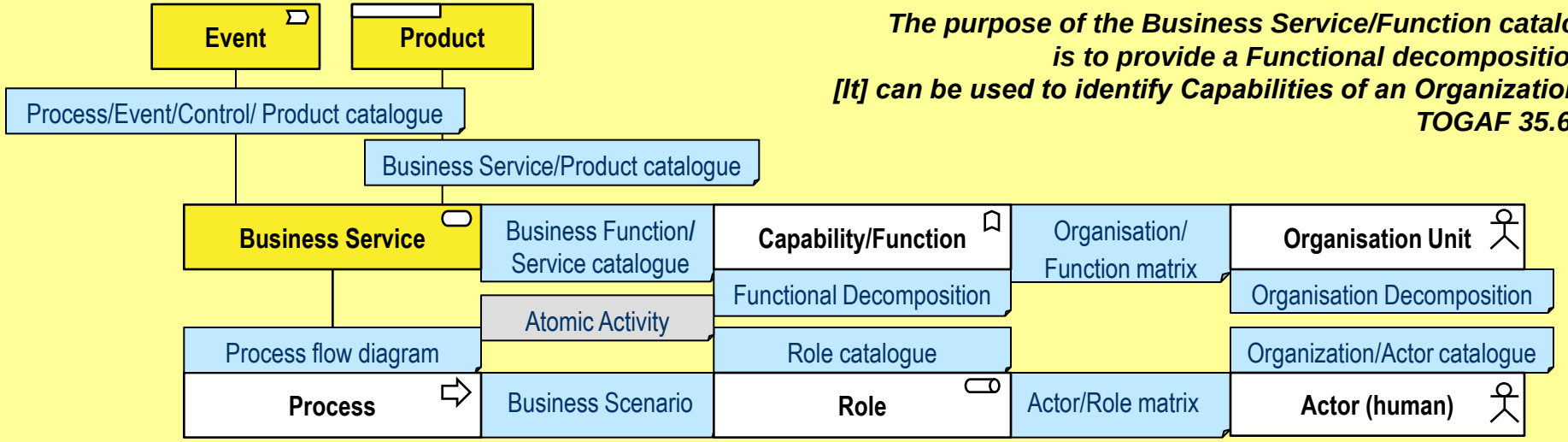


5: Form a service view

- A raison detre of a business is to provide services
- Services can be defined at any level of business system decomposition

Barber Services
- Hair cut – £20
- Shave - £5
- Manicure - £10

Logistics Services
- Delivery
- Express delivery
- Recorded delivery

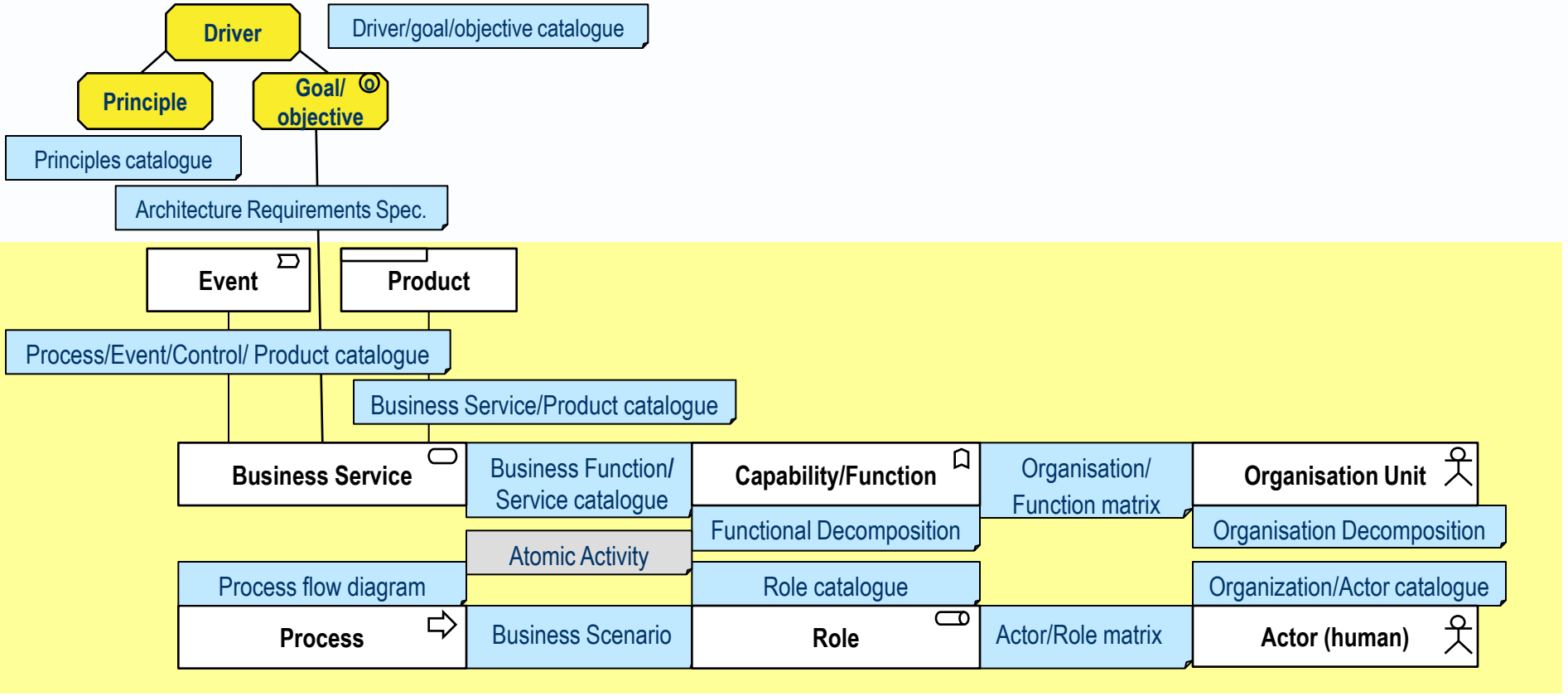


The purpose of the Business Service/Function catalog is to provide a Functional decomposition. [It] can be used to identify Capabilities of an Organization" TOGAF 35.6.3

Mapping Services to Motivations

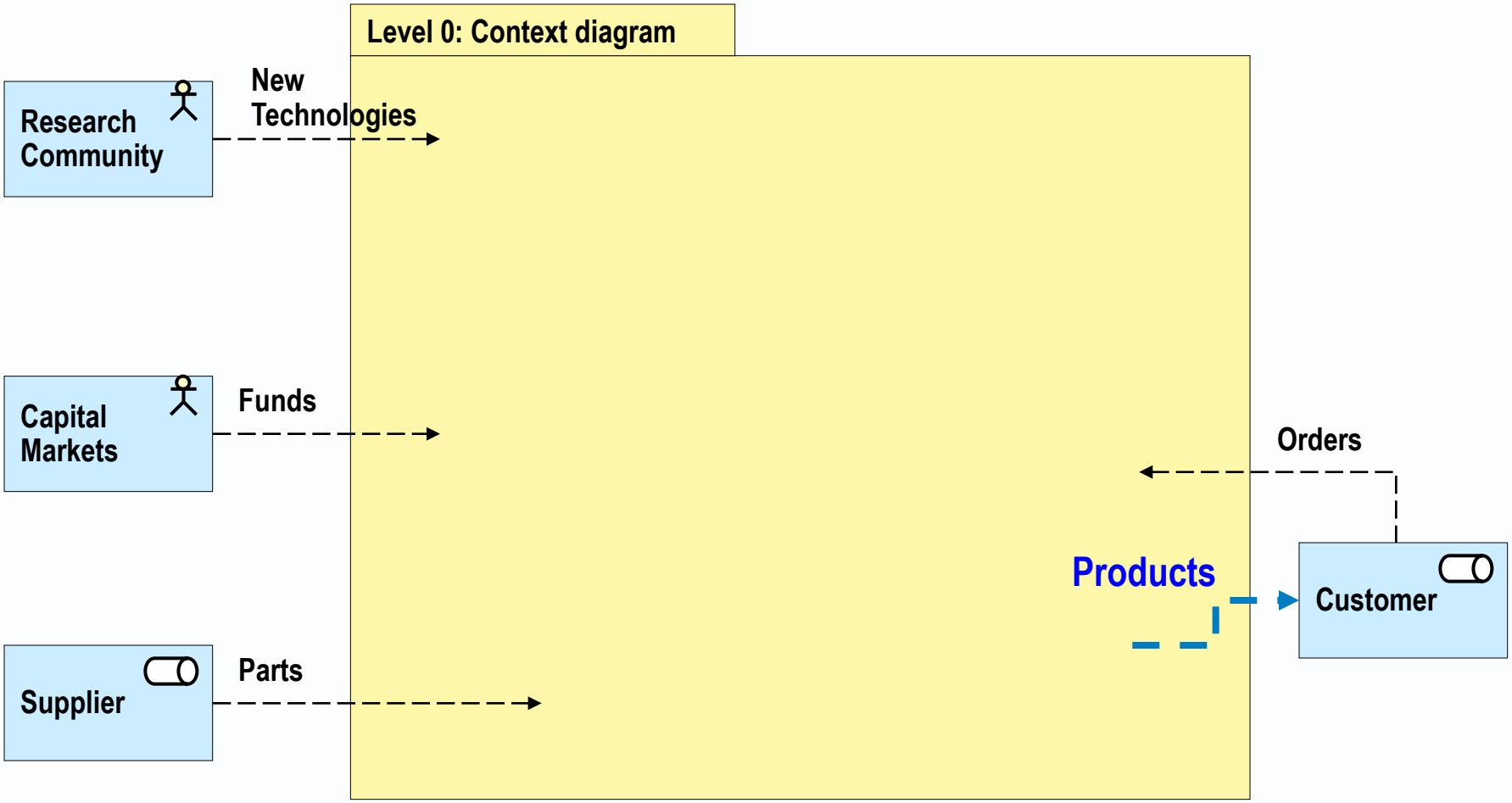
Avancier

- TOGAF relates Services to Requirements



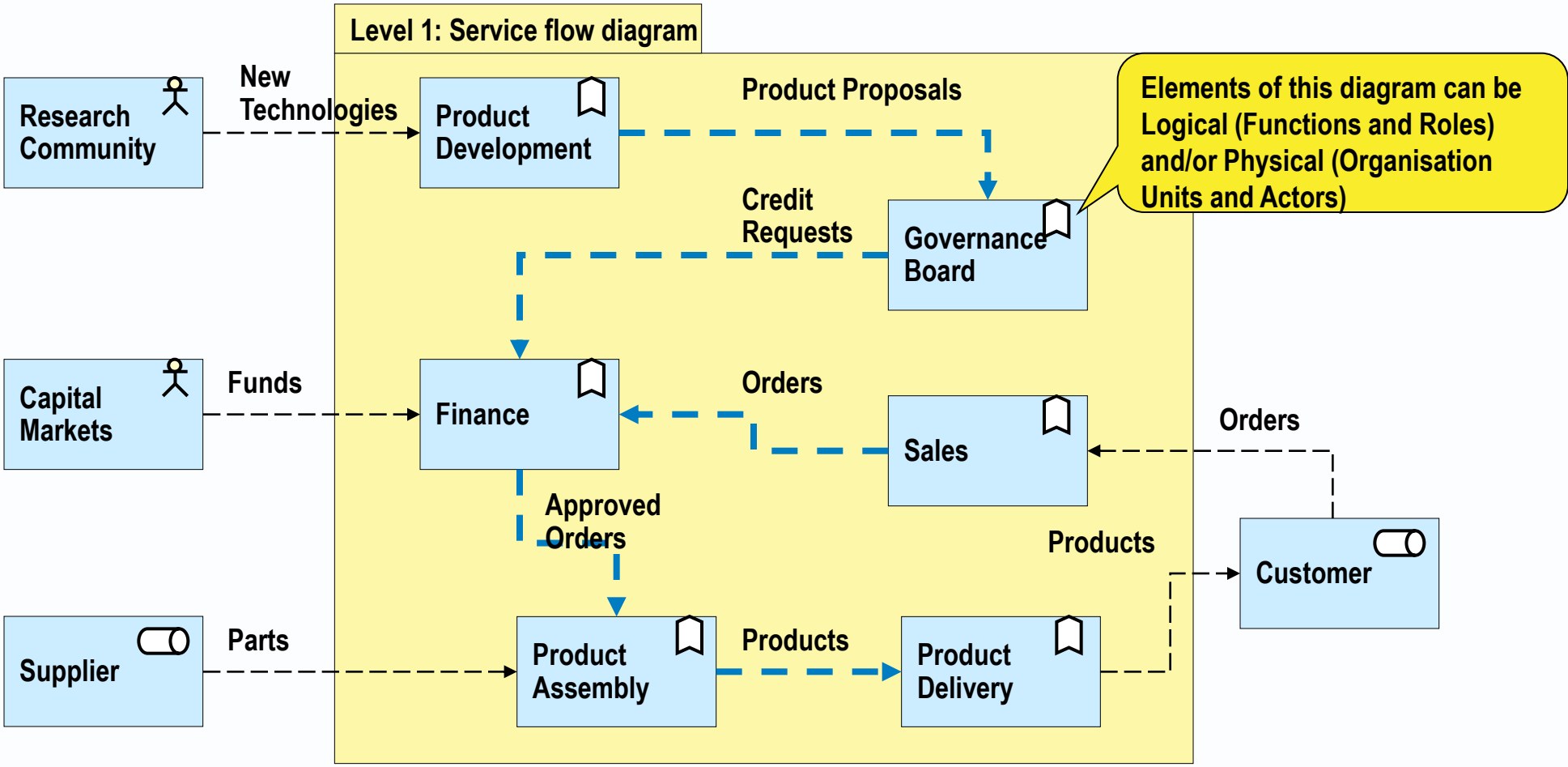
Level 0: Define external services

- Identify your customers and what services they want.
- Identify your suppliers



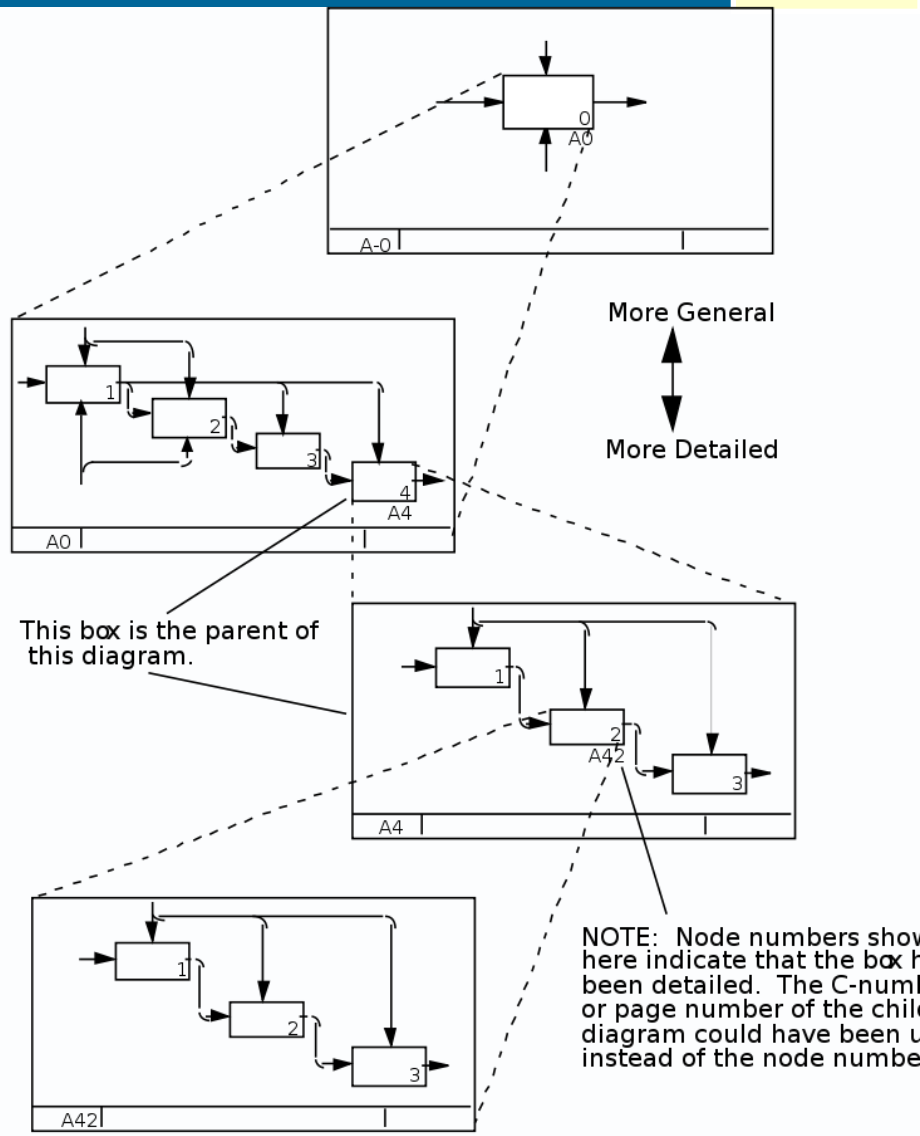
Level 1: Define internal services

- What flows between nodes within the system and to/from external entities?
- Link the nodes - differentiating material and information flows.



Clasical top-down decomposition

- Decompose level 0 into level 1 capabilities/functions
- Define inter-function services and flows
- Decompose level 1 capabilities/functions into level 2
- Define inter-function services
- Etc.

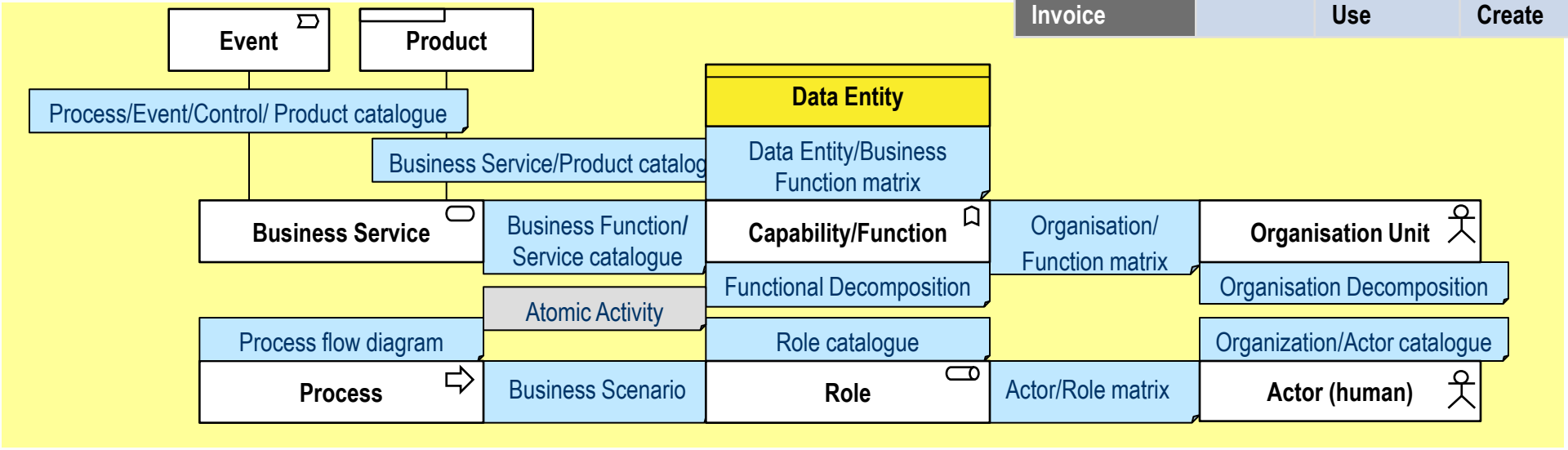


- "6 Decomposition Structure" by itl.nist.gov - FIPS Publication 183. Licensed under Public Domain via Commons - https://commons.wikimedia.org/wiki/File:6_Decomposition_Structure.svg#/media/File:6_Decomposition_Structure.svg

6. Map to data/info view

- EA is concerned with Processes that **create and use data**
- Atomic Activities can be mapped to data entity types. E.g.
  - Product Type (SKU, Description, Unit Price, Warranty Period, Delivery Fee)
  - Product Instance (SKU, Instance Number, Supplier Id, Purchaser Id, Delivery Date).

Function / Data Entity	Sales	Delivery	Finance
Customer	Create	Use	Use
Order	Create	Use	Use
Invoice		Use	Create



Clustering activities by Data created

Avancier

- You can (for example) use data creation as a way to group activities performed by humans and/or computers

Activity / Data	Billing	Delivery	Sales	Reporting
Customer	Read	Read	Create	Read
Order	Read	Read	Create	Read
Delivery	Read	Create		Read
Invoice	Read	Create		Read
Payment	Create			Read
Report				Create

- The NW corner method sorts rows and columns by clustering them on a shared cell entry (here, Create)

Activity / Data	Sales	Delivery	Billing	Reporting
[illegible]	Create	Read	Read	Read
Order	Create	Read	Read	Read
Delivery		Create	Read	Read
Invoice		Create	Read	Read
Payment			Create	Read
Report				Create

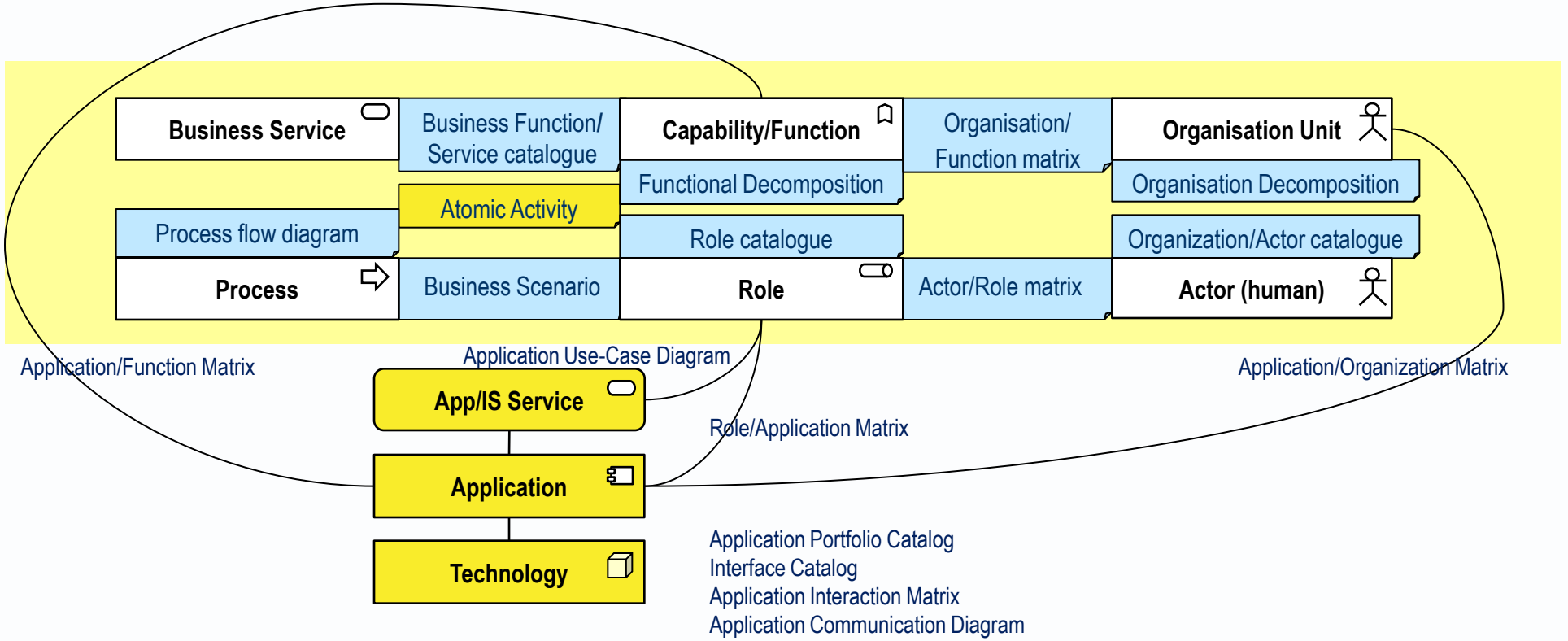
Where is I/O data?

- Stored data entities are mapped to activities
- I/O data is defined in service contracts

Service Contract	**Business Service**	**999**
Signature	**Name**	**Train seat booking**
	Input	**Journey details**
	Output	**Train ticket**
Semantics or rules	**Preconditions**	**Seat available**
	Post conditions	**Booking Payment authorised**
Non-Functional Requirements	**Response time**	**5 minutes**
	Throughput	**1,000 per second**
	Availability	**99.95%**

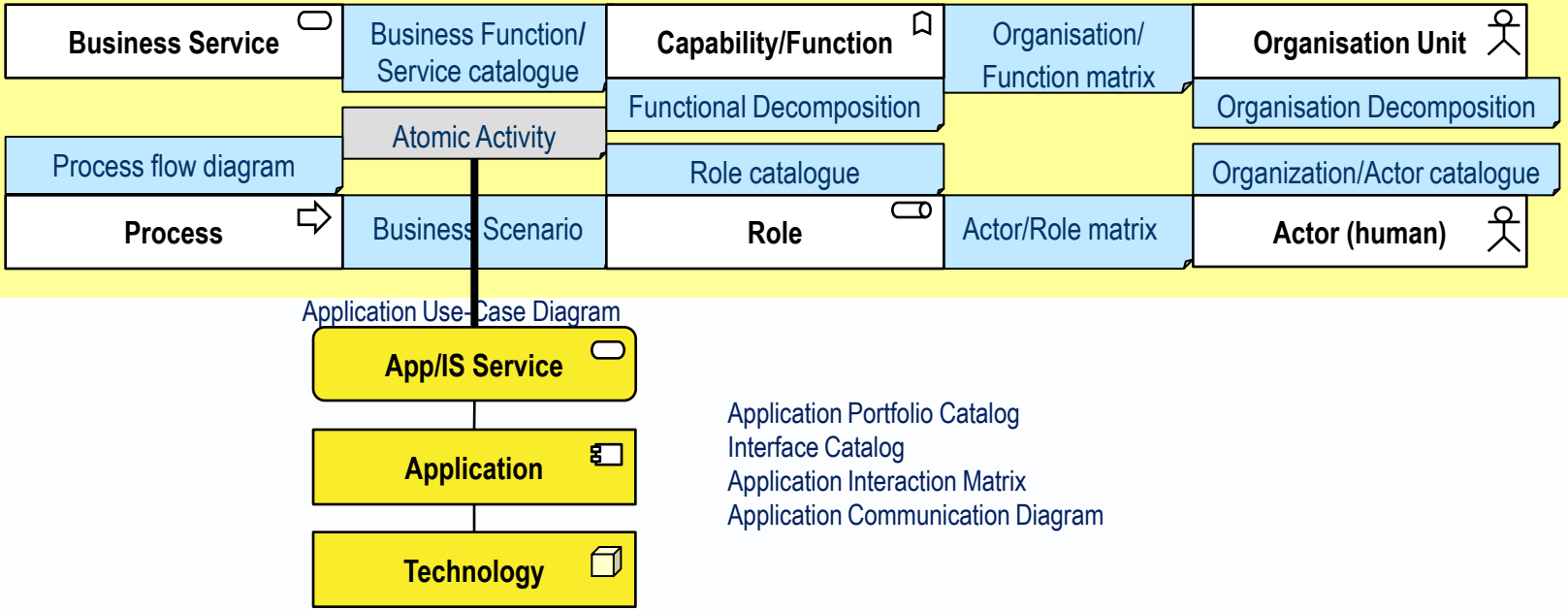
7. Map to IS/IT view

- Relate Business elements to IS Services (App Use cases) and Applications
- TOGAF offers several artefacts



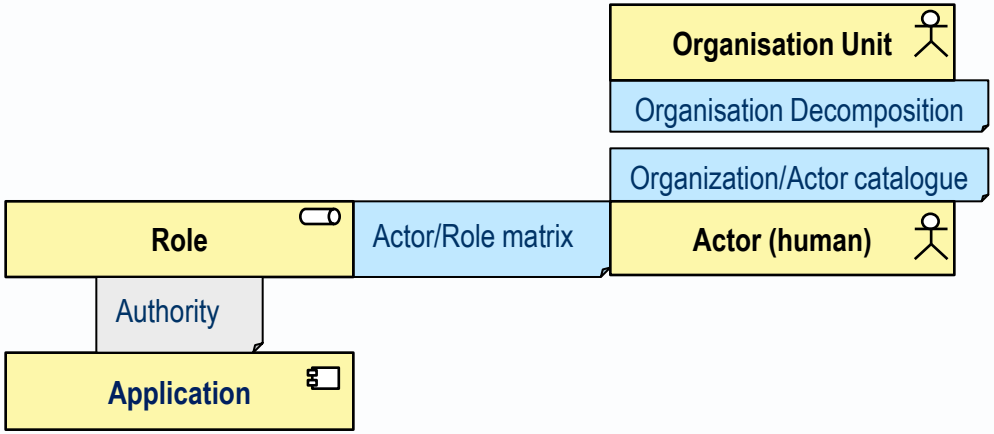
Alternative

- The "Atomic (Business) Activity" is central to the human and computer activity systems of interest to EA. Suppose it were agreed that a Process sequences Atomic Activities, a Capability/Function groups Atomic Activities needed to provide that Capabilty/Function's Services, a Role groups Atomic Activities performable by Actors with the abilities required for the Role? Then other architectural elements can be all related to Atomic Activity.



What might you find already documented?

- A company directory, identity management or access control system may already record and relate some of the entities below

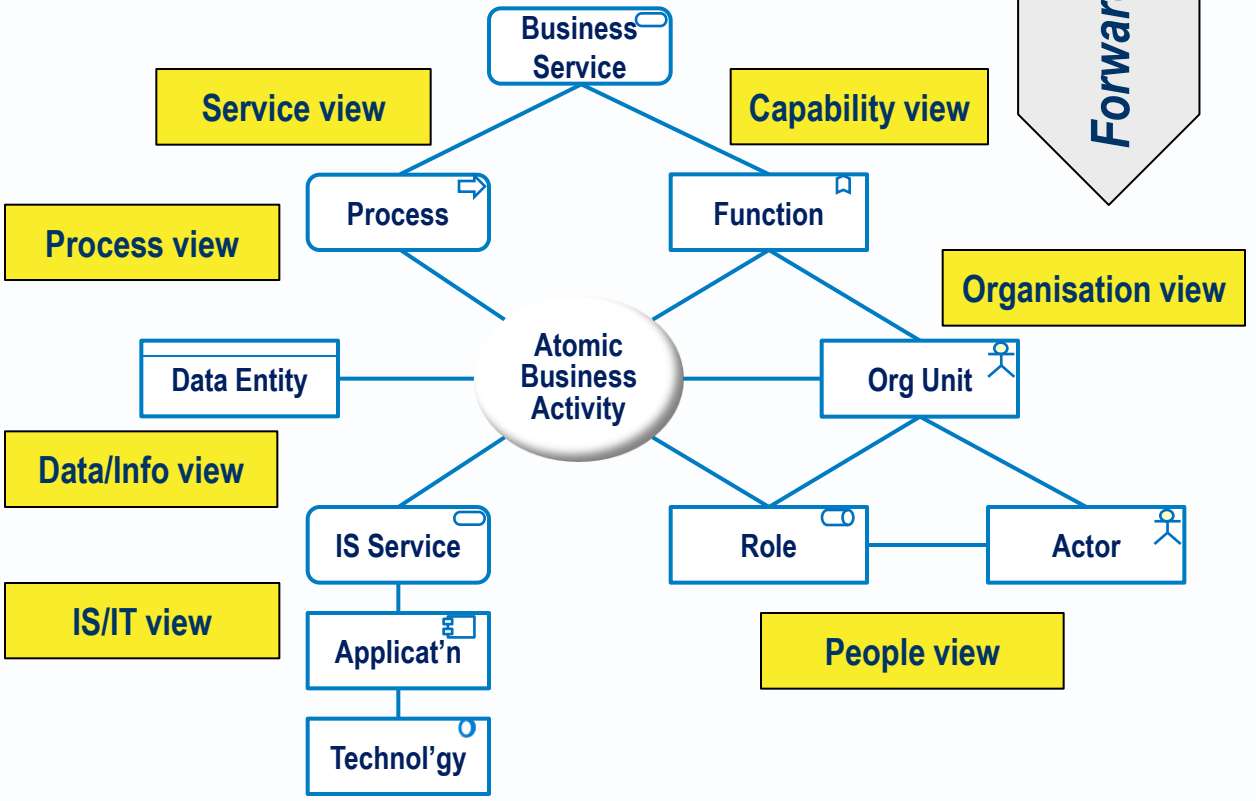


Baseline business architecture analysis

1. Form an organisation view
2. Form a capability view
3. Form a process view
4. Form a people view
5. Form a service view
6. Map to data/info view
7. Map to IS/IT view

Very few attempt to model a whole business from the top down. But people do use these ideas and techniques in a piecemeal fashion

Forward engineering



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Analysis – prior to business reengineering

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Study motivations

- Drivers: SWOT, PESTLE
- Directives: Principles, Policies, Rules
- Aims: Goals, Objectives, Requirements

Baseline problems and opportunities

- Overlaps between services provided by functions
- Gaps where the provided service is not the truly required service
- Delays in hand-overs between activities
- Opportunities to increase parallel processing

And target requirements

- Identify the processes that distinguish you competitively
- Envision your customer's experience as it ought to be
- Decide how you would like your company to grow
- Define services to be provided by the new business

Enhancing TOGAF with Avancier Methods

Avancier

TOGAF's ADM is a management framework that promotes the role of architects

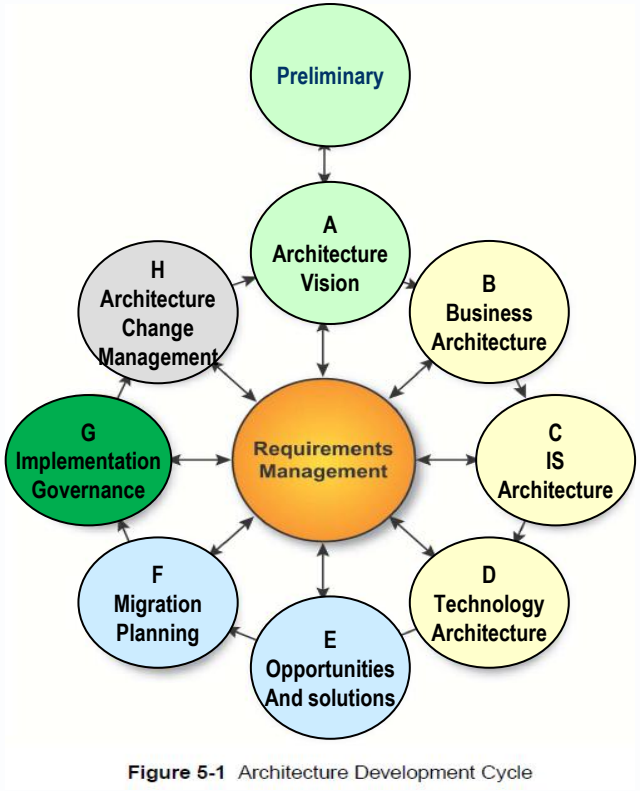

Figure 5-1 Architecture Development Cycle

AM gives architects more specific processes and documentation artefacts