Logicality

- To help you recognise various Logical-to-Physical* Process Threads which underpin architecture approaches
  - (ArchiMate, TOGAF, Zachman Framework, BCS reference model)

1. Business to IT
2. Construction
3. Realisation
4. Reification
5. Specialisation
6. Decomposition (top-down, what-how cascade)

* Nothing in the world of system specification is physical in the sense of tangible, so logical and physical are steps in a specification process that leads to a working system, which is “real”.

Six process threads used in architecture methods

- Business to IT
  - start with the Business need – especially for Data
  - define Applications to provide that Data
  - define the Technology Platform needed by those Apps
- Construction
  - start with the required Behaviour - Processes
  - define a Structure of Components to execute those Processes
- Realisation
  - start with the External Interface of the System or Component
  - define the Internal Structure of the System or Component
- Reification
  - start with Idealised (Vendor and Technology Neutral) Components
  - define Real Components that will do the work
- Specialisation
  - start with Generic, Universal, Structures and Components
  - make them Specific, Unique to our Enterprise
- Decomposition (top-down, what-how cascade)
  - start with high-level requirements
  - elaborate until we have defined the detail of components to meet them

Most Architecture Frameworks work from Business to IT

1. Business to IT

- start with the Business need for Data
- define Applications to provide that Data
- define the Technology Platform needed by those Apps

Migration Business to IT	Baseline	Target
Business	Process Organisation Locations	Process Organisation Locations
Information Systems	Data Applications	Data Applications
Technology	Infrastructure Technologies	Infrastructure Technologies

1

TOGAF maps services and processes to components

1. **Business to IT**
2. **Construction: Behaviour to Structure**
   - start with the required Behaviour - Processes
   - define the Structure of Components to execute those Processes

Construction Business to IT	Behaviour	Structure
Business	Business Service Business Process	Business Function
Information Systems	Information System Service	Logical Application Component
Technology	Platform Service	Logical Technology Component

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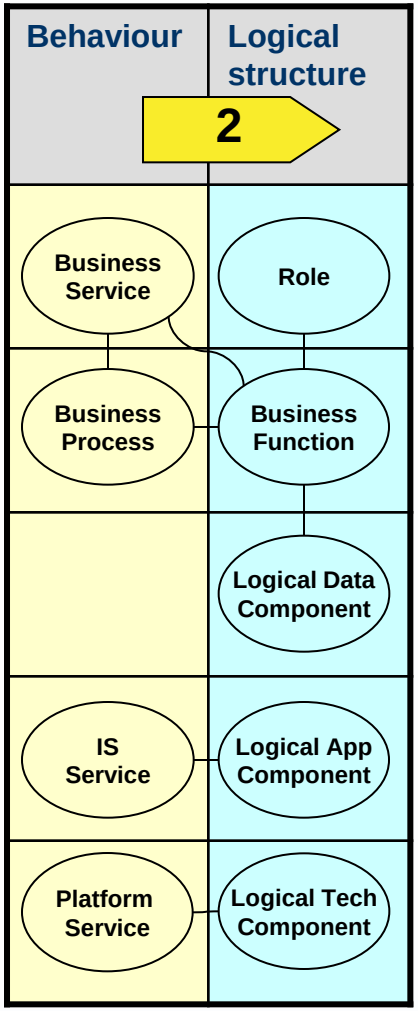
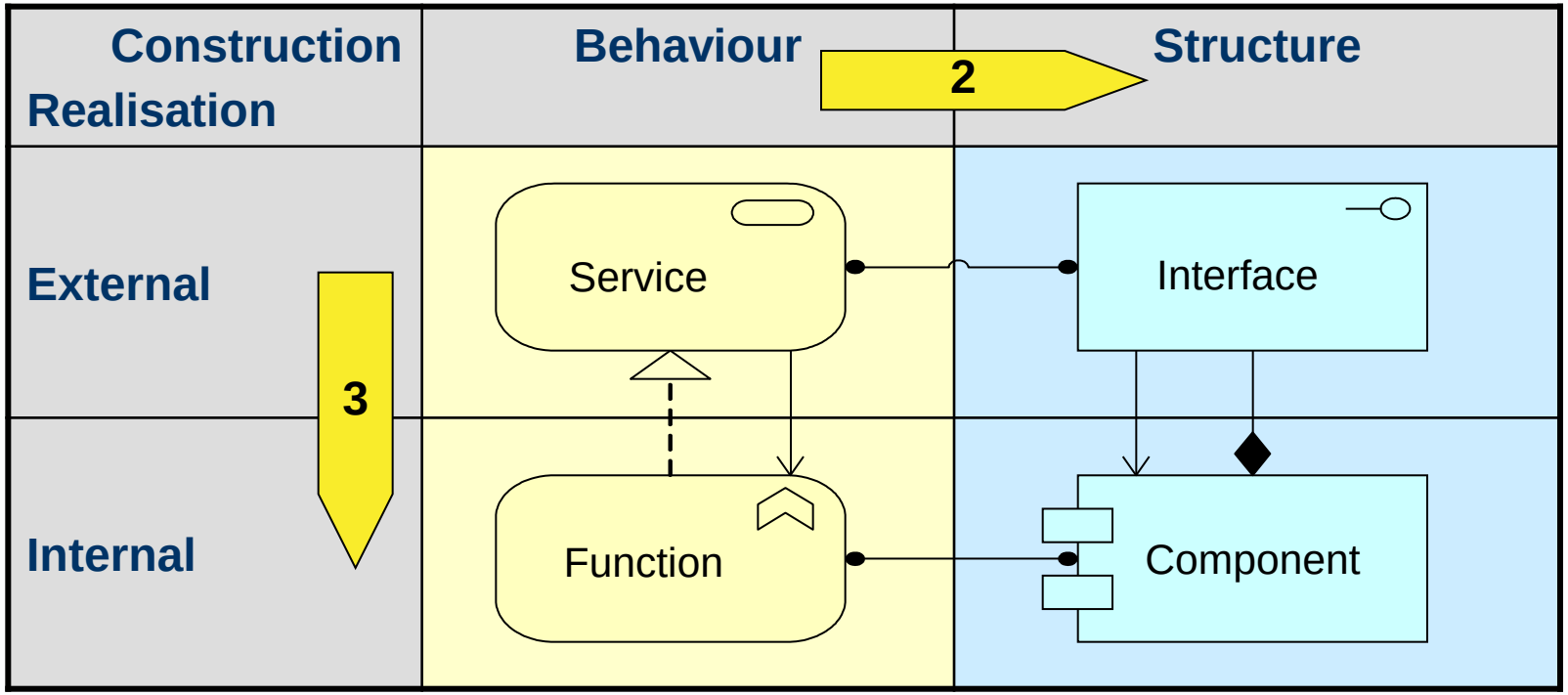


ArchiMate and BCS do likewise

2. Construction: Behaviour to Structure
3. Realisation: External to Internal

- start with the External Interface of the System or Component
- define the Internal Structure of the System or Component



TOGAF defines logical structure before physical structure

4. Reification: Ideal-to-Real

- start with Idealised (Vendor and Technology Neutral) Components
- define Real Components to do the work

Construction Reification	Behaviour	Structure
Logical	Service Process	Architecture Building Block
Physical		Solution Building Block

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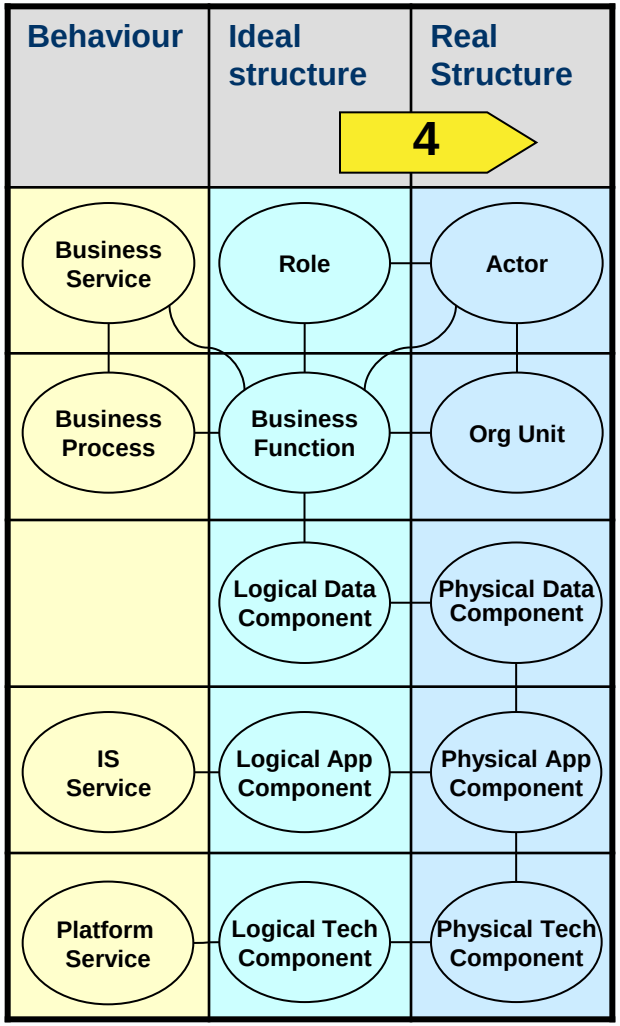


The Zachman Framework has *six* levels of ideal-to-real

- "a schema based on two classifications
  - the primitive interrogatives: What, How, When, Who, Where, and Why.
  - reification, the transformation of an abstract idea into an instantiation."

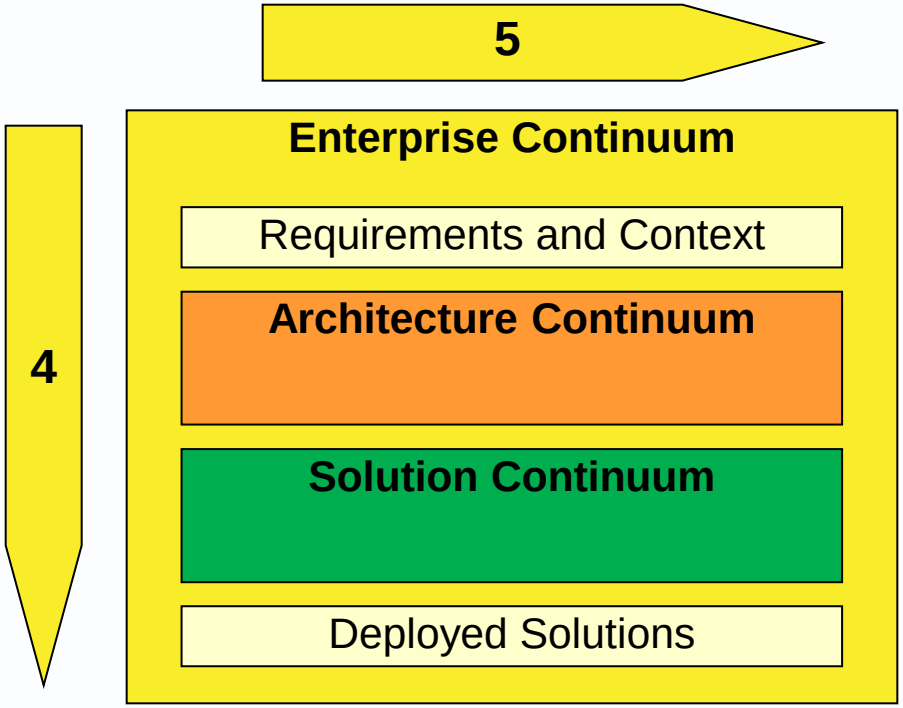
The Zachman Framework		What	How	Where	Who	When	Why
Ideal to Real (4)	Identification						
	Definition						
	Representation						
	Specification						
	Configuration						
	Instantiation						

TOGAF’s Enterprise Continuum features two threads

4. Reification: Ideal-to-Real

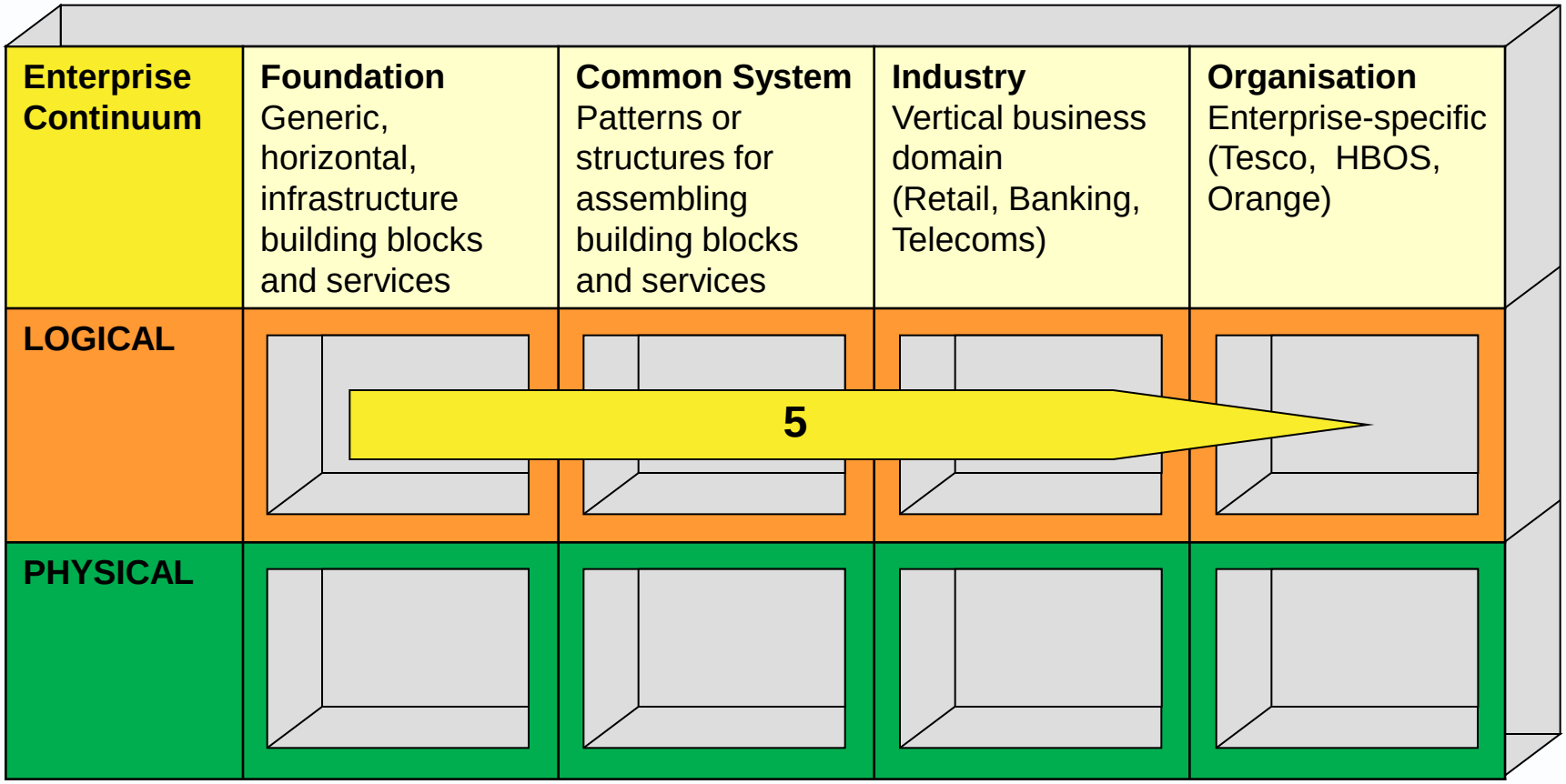
5. Specialisation: General to Specific

- start with Generic, Universal Structures and Components
- make them Specific to our Enterprise



Specialisation: General to Specific

- From generic nuts, bolts and building blocks
- To organisation-specific structures and components



Decomposition (top-down, what-how cascade)

- Our papers on Abstraction distinguish
  - Idealisation - Realisation
  - Generalisation - Specialisation
  - Composition – Decomposition

- All three kinds of abstraction may be used in a process that takes us from a more logical specification to a more physical specification, separately and together

- Top-down decomposition is perhaps the primary tool used in elaboration of a specification to the point where builders can use it

Top-down and bottom-up process threads

- Top-down: designing a new system
  - start with external actor's requirements for outputs
  - map each output to one or more broad services
  - decompose services until you can match each to a provided (or providable) service or component
    - be it reusable in enterprise service catalogue, or buyable in a package. or buildable a bespoke system

- Bottom up: building an effective enterprise-wide SOA
  - must deliver a *manageable* catalogue of services
    - limited to *common use services*
    - and *actively managed* in a way that
  - must *encourage and assist* people to match
    - required services (identified in instances of method A)
    - provided (or providable) services
  - cuts across instances of method A

Using the Logical-to-Physical Process Threads

- Different architecture frameworks use different selections of the logical-to-physical process threads
- For example

	Thread	ArchiMate	TOGAF
1	Business to IT	Business, Apps, Infrastructure	Business, Data, Apps, Technology
2	Construction	Behaviour to Structure	Behaviour to Structure
3	Realisation	External to Physical	
4	Reification		Ideal to Real
5	Specialisation		General to Specific
6	Decomposition		Top-down elaboration

This presentation is for those interested in aligning different architecture frameworks

1 of 6 related presentations at http://avancier.co.uk

Avancier

Logicality

Process threads you will find in various architecture frameworks

Modularity

Foundation concepts and strands in the modelling of human and computer activity systems

Granularity

The challenge of multi-level goals, plans and specifications

Architecture meta meta concepts

A 4 cell schema for modelling systems, which helps you understand meta models

Functionality

Functions, Organisation Units and Processes in human activity systems

Architecture meta models

Comparing the meta models of industry standard architecture frameworks