

# The Open Group Conference London

## SAP EAF and TOGAF 9

History, differences, similarities  
and recommendations for the future

A personal (and software vendor) perspective!



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28<sup>th</sup> April 2009



- Assumption – this audience understands the basics concerning:
  - What is Enterprise Architecture?
  - What is an EA framework?
  - What is TOGAF?
- Objectives:
  - Provide a short background to TOGAF 8.1 and SAP EAF
  - Explain the major differences and similarities between SAP EAF and TOGAF 9
  - Discuss personal recommendations for TOGAF 9.1, 10 etc.

1. **Background to TOGAF 8.1 and SAP EAF**
2. TOGAF 8.1 and 9
3. Major differences and similarities between SAP EAF and TOGAF 9
4. Recommendations for TOGAF 9.1, 10...

# A short history of TOGAF up to version 8.1


## The Open Group Architecture Framework



- Originated from US DoD Technical Architecture Method for Information Management (TAFIM)
- TAFIM 3.0 ownership moved from DoD to The Open Group in 1995, renamed to TOGAF
- New versions were originally developed and released approximately each year
- First 7 versions focussed on IT Architecture only
- Version 8.0 extended into Enterprise Architecture by adding Business Architecture domain
- Version 8.1 released at the end of 2003
- Considered a reliable, proven method for developing Enterprise Architecture and considered to be the de facto market leader for Enterprise Architecture frameworks
- An open standard but with strict license guidelines i.e. if you are developing Enterprise Architecture for a customer using TOGAF you must have either a commercial license or be a member of the Open Group Architecture Forum
- Vendor neutral, not industry specific, applicable for enterprises of any size or location
- Intended to be tailored with a focus on method ('how') rather than deliverables ('what')



- SAP Enterprise Architecture team set up in August 2006
- Enterprise Architects (mostly external to SAP) were recruited in 3Q and 4Q 2006
- Discussions with Capgemini in 4Q 2006 for a joint EA Framework development
- Development started in January 2007 and completed in April 2007
- Launched simultaneously at Sapphire and Open Group conferences April 2007
- SAP EAF content made publicly available and released to the Open Group
- Successful customer pilot in UK June/July 2007
- SAP EA Services, SOA200 training course and Associate SAP EA certification developed in 2Q 2007
- Over 50 SOA200 training courses have been run globally – many hundreds of people have been trained in SAP EAF and certified as Associate SAP EAs
- SOA200 is now SAP's second most popular training course worldwide!
- Successful adoption of SAP EAF by major SAP customers and many successes

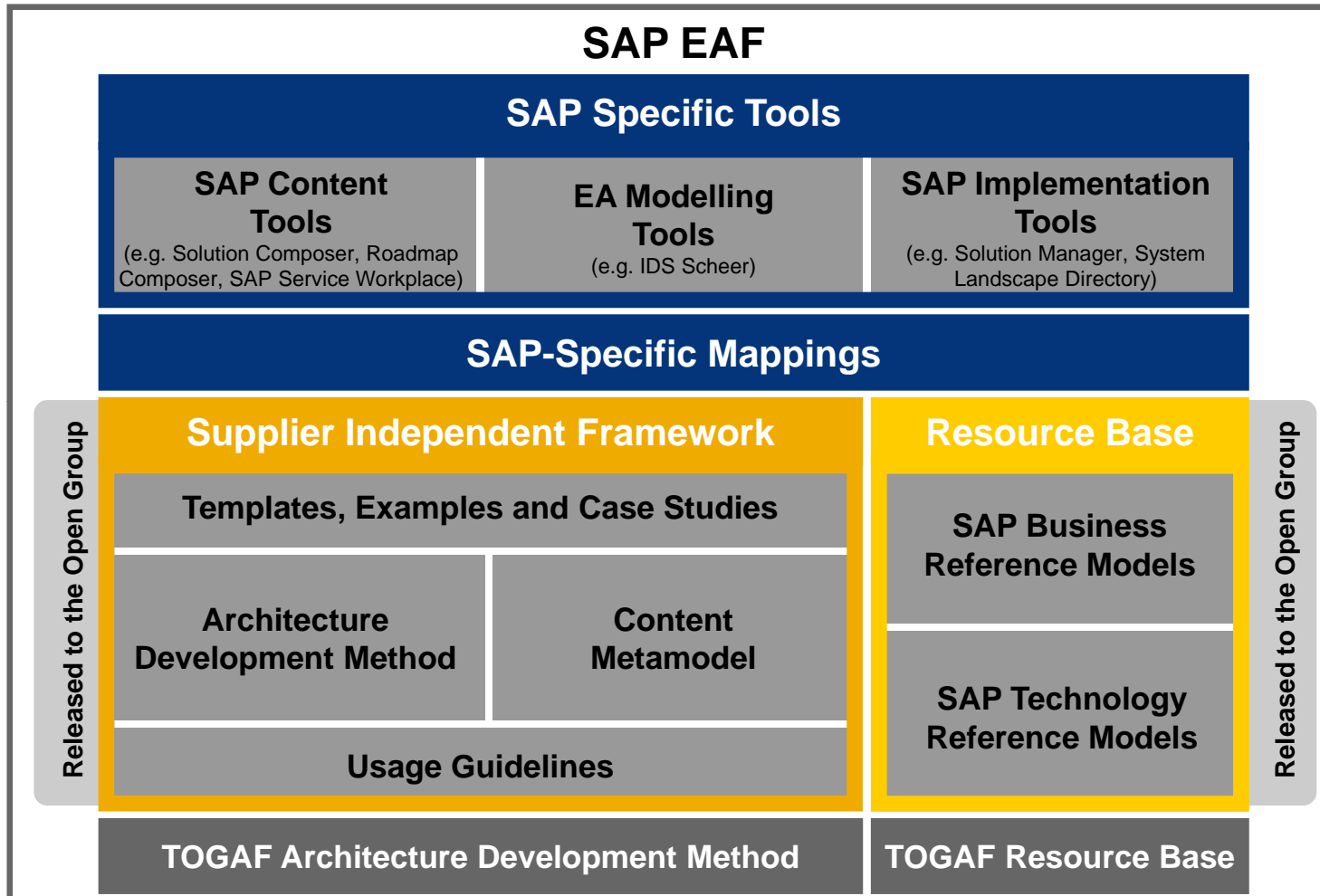


“SAP Enterprise Architecture Framework is an extension of the TOGAF Framework specifically designed to support the effective adoption of packaged solutions in the Service-Oriented Enterprise”

Collaboration between SAP and Capgemini – working under the guidance of the Open Group

- **Vision, strategic product knowledge, initiative leadership (SAP)**
- **Experience in Enterprise Architecture Framework Development and experience of working with the Open Group (Capgemini)**
- **Integration with EA Tools and SAP-specific content (SAP and IDS Scheer)**
- **Standards and foundation – Open Group (Architecture Forum)**

# What is Actually *In* SAP EAF?



# Agenda



1. Background to TOGAF 8.1 and SAP EAF
2. **TOGAF 8.1 and 9**
3. Major differences and similarities between SAP EAF and TOGAF 9
4. Recommendations for TOGAF 9.1, 10...



## TOGAF 8.1.1 – 349 pages of content

### ■ Part I: Reference models and Information Bases

- Technical Reference Model
- Application Architecture Reference Model
- Standard Information Base

### ■ Part II: Building blocks & Enterprise Continuum

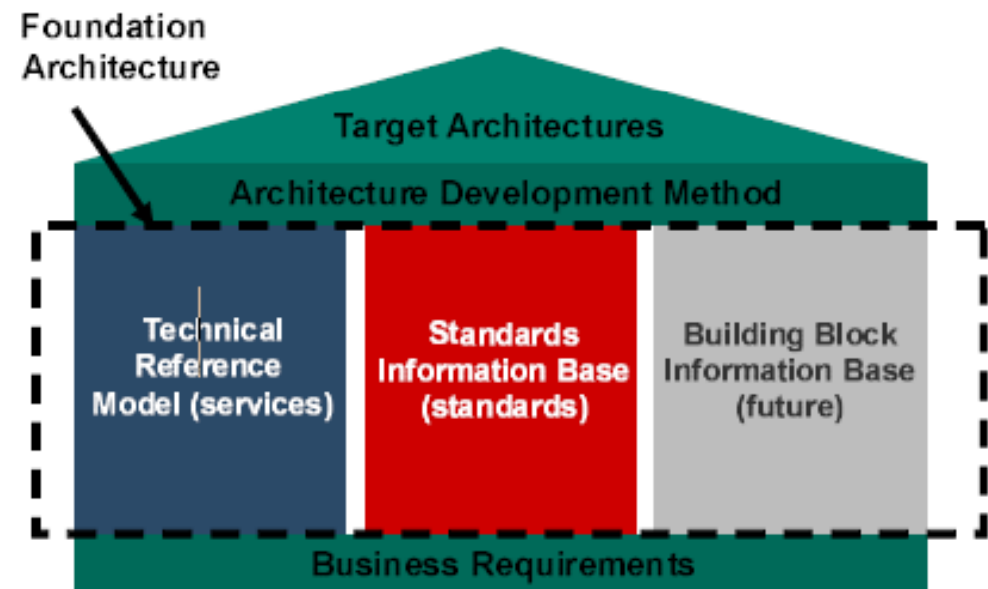
- Develop a consistent and comprehensive model
- Show multiple views to communicate the model effectively

### ■ Part III: Architecture Development Method

- Core of TOGAF. Step by step guidelines to develop enterprise architecture

### ■ Part IV: Resource base to support the ADM

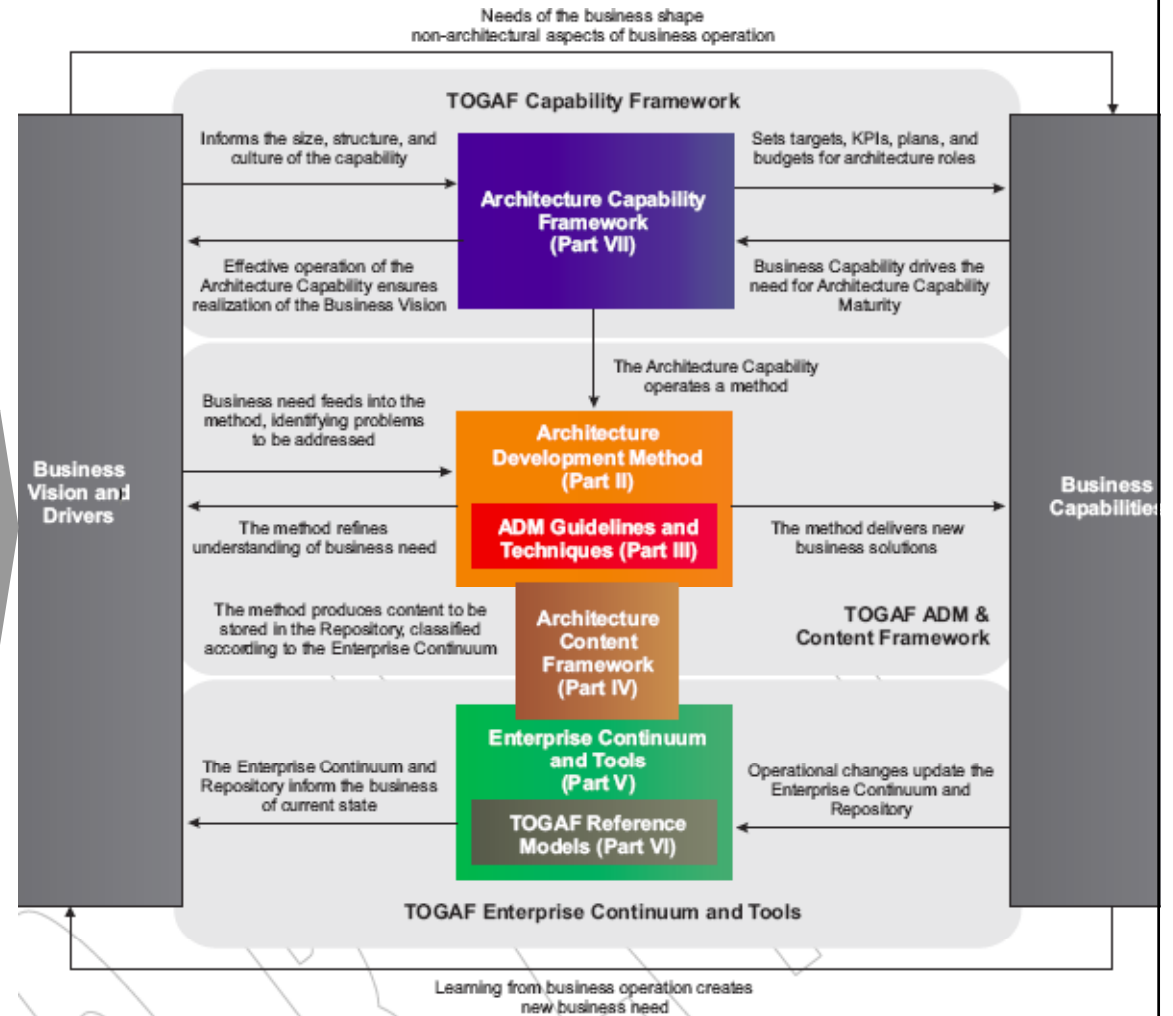
- Tools & Techniques
- Architecture Practitioner Conferences





## TOGAF 9 – 744 pages of content!

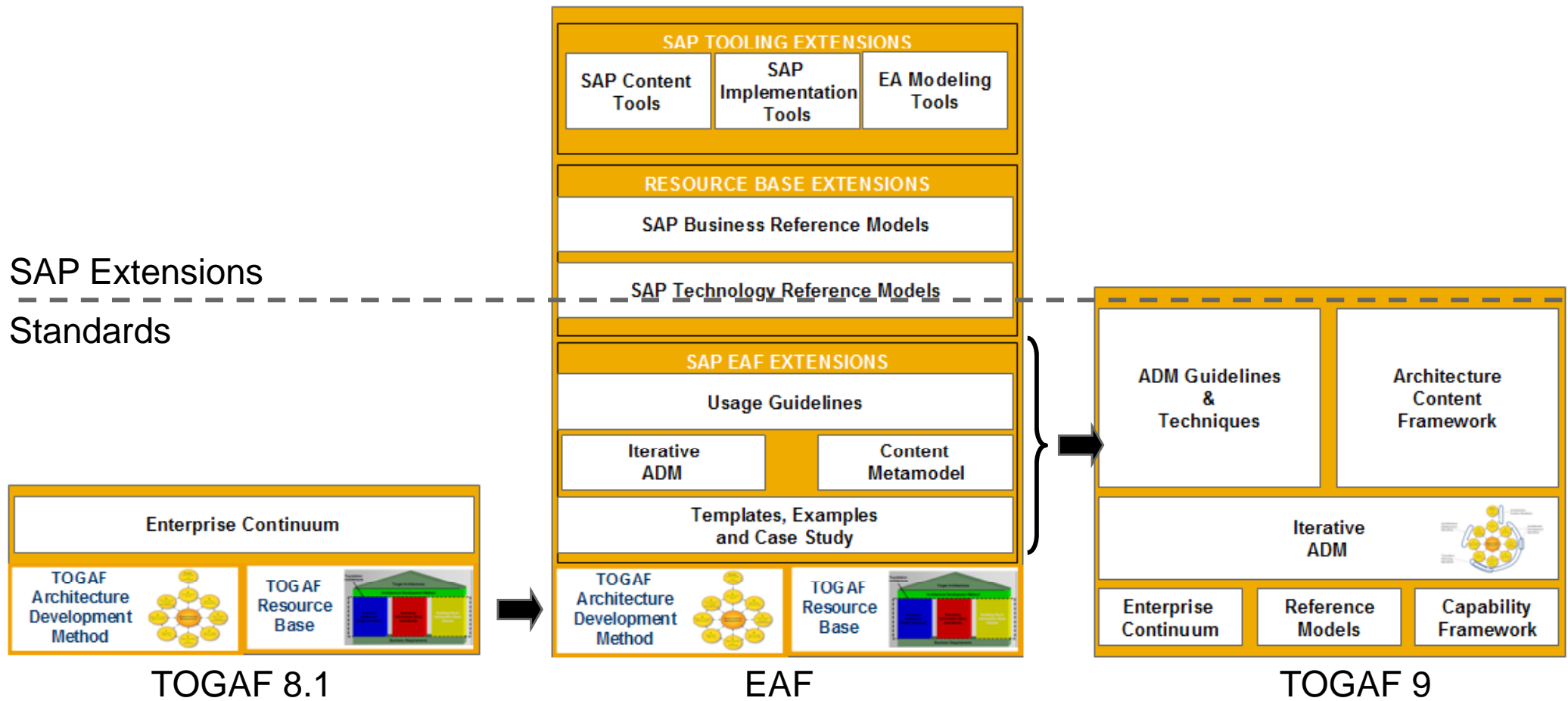
- Part I: Introduction
- Part II: Architecture Development Method
  - Core of TOGAF. Step by step guidelines to develop an enterprise architecture.
- Part III: ADM Guidelines & Techniques
  - Collection of guidelines and techniques applicable to TOGAF and the ADM
- Part IV: Architecture Content Framework
  - Structured metamodel for architectural artifacts and overview of typical architectural deliverables.
- Part V: Enterprise Continuum & Tools
  - Taxonomies and tools to categorize and store output of architecture activities
- Part VI: TOGAF Reference Models
  - TOGAF Foundation Architecture, TRM, III-RM
- Part VII: Architecture Capability Framework
  - Organization, processes, skills and roles required to operate an architecture function within an enterprise.



## Summary

- Parts III, IV and VII are the sections containing the most significant new content
- Most of the additional elements in Part II, III and IV were taken directly from SAP EAF

# Summary - SAP EAF has contributed many significant additional elements to TOGAF 9.0



# Agenda



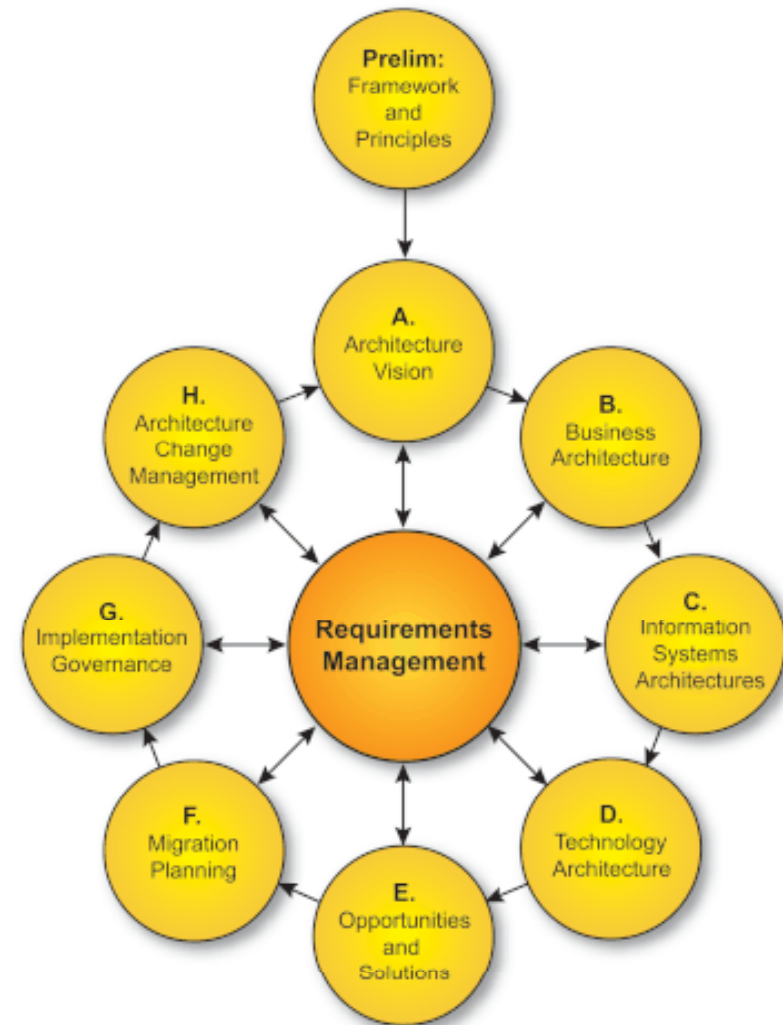
1. Background to TOGAF 8.1 and SAP EAF
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# Part III – ADM Guidelines and Techniques

## A recap on the TOGAF ADM

### TOGAF 8.1, SAP EAF and TOGAF 9.0

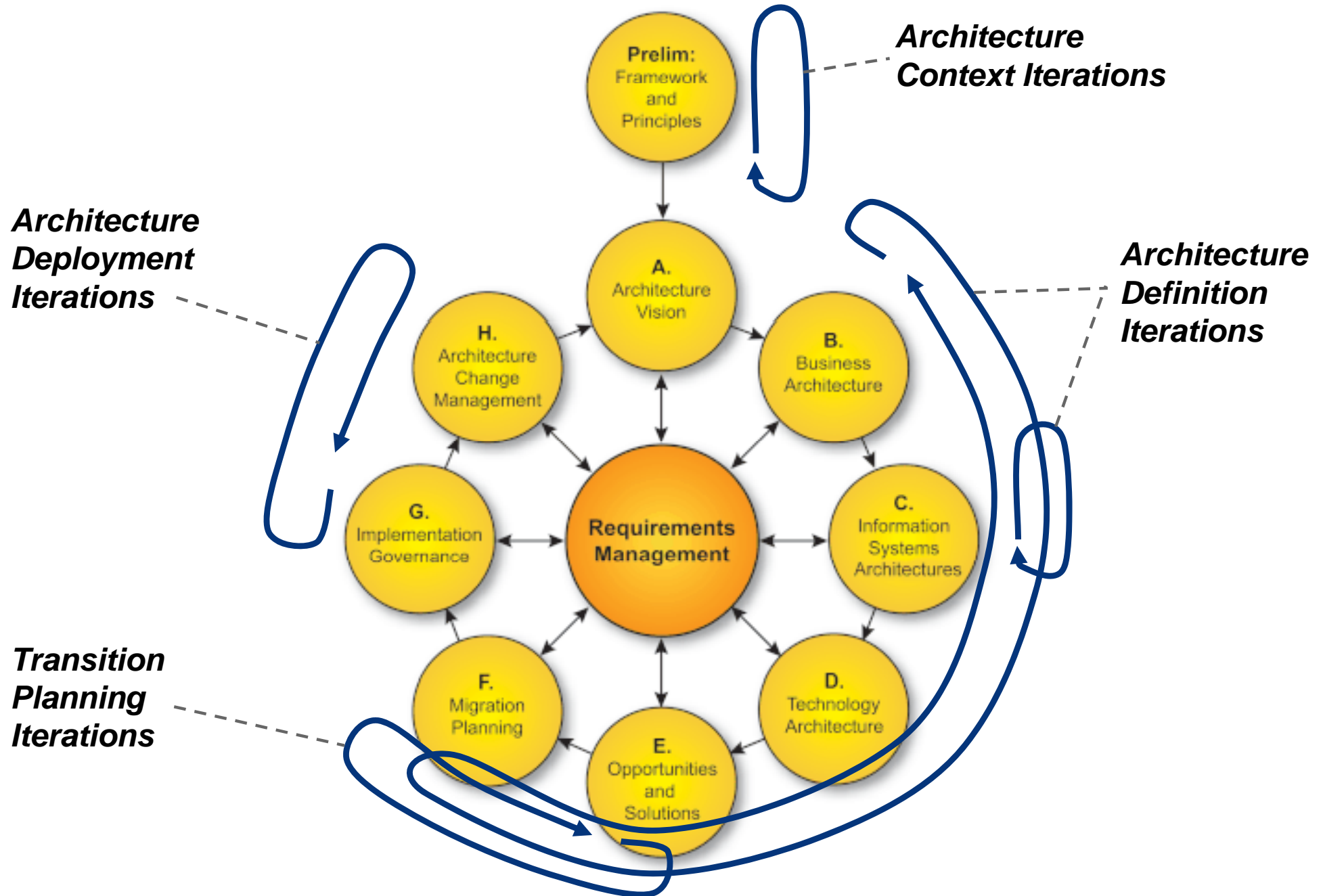
- Preliminary Phase
- Phase A: Architecture Vision
- Phase B: Business Architecture
- Phase C: Information System Architecture
- Phase D: Technology Architecture
- Phase E: Opportunities and Solutions
- Phase F: Migration Planning
- Phase G: Implementation Governance
- Phase H: Architecture Change Management
- Requirements Management



### Summary

- The essence of the TOGAF 8.1 ADM (the wheel) is retained in TOGAF 9
- New SAP EAF concepts such as Iteration Cycles and Process Styles (As-Is or To-Be First) have been carried forward directly and without change into TOGAF 9

The concept of Iteration Cycles introduced in SAP EAF has been carried forward directly into TOGAF 9



# The concept of Process Styles (As-Is or To-Be first) introduced in SAP EAF has been carried forward directly into TOGAF 9



SAP EAF Phase		Architecture Context	Architecture Definition			Transformation Planning		Architecture Deployment	
		<i>Initial Iteration</i>	<i>Iteration 1</i>	<i>Iteration 2</i>	<i>Iteration n</i>	<i>Iteration 1</i>	<i>Iteration n</i>	<i>Iteration 1</i>	<i>Iteration n</i>
<i>Prelim</i>		Core	<i>Informal</i>	<i>Informal</i>	<i>Informal</i>				Light
<i>Vision</i>		Core	<i>Informal</i>	<i>Informal</i>	<i>Informal</i>	<i>Informal</i>	<i>Informal</i>		Light
<i>Business Architecture</i>	<i>As-Is</i>	<i>Informal</i>	Core	Light	Core	<i>Informal</i>	<i>Informal</i>		Light
	<i>To-Be</i>	<i>Informal</i>	<i>Informal</i>	Core	Core	<i>Informal</i>	<i>Informal</i>		Light
<i>Application Architecture</i>	<i>As-Is</i>	<i>Informal</i>	Core	Light	Core	<i>Informal</i>	<i>Informal</i>		Light
	<i>To-Be</i>	<i>Informal</i>	<i>Informal</i>	Core	Core	<i>Informal</i>	<i>Informal</i>		Light
<i>Data Architecture</i>	<i>As-Is</i>	<i>Informal</i>	Core	Light	Core	<i>Informal</i>	<i>Informal</i>		Light
	<i>To-Be</i>	<i>Informal</i>	<i>Informal</i>	Core	Core	<i>Informal</i>	<i>Informal</i>		Light
<i>Technology Architecture</i>	<i>As-Is</i>	<i>Informal</i>	Core	Light	Core	<i>Informal</i>	<i>Informal</i>		Light
	<i>To-Be</i>	<i>Informal</i>	<i>Informal</i>	Core	Core	<i>Informal</i>	<i>Informal</i>		Light
<i>Opportunities and Solutions</i>		<i>Informal</i>	Light	Light	Light	Core	Core	<i>Informal</i>	<i>Informal</i>
<i>Migration Planning</i>		<i>Informal</i>	Light	Light	Light	Core	Core	<i>Informal</i>	<i>Informal</i>
<i>Implementation Governance</i>						<i>Informal</i>	<i>Informal</i>	Core	Core
<i>Change Management</i>			<i>Informal</i>	<i>Informal</i>	<i>Informal</i>	<i>Informal</i>	<i>Informal</i>	Core	Core

- Core = primary focus activity for the iteration
- Light = secondary focus activity for the iteration
- Informal = potential activity in the iteration, not formally mentioned in the method

# More practical guidance has been added to the new TOGAF 9.0 phase descriptions



- |  |   |
|--|---|
| ■ Phase 0: Preliminary Phase               | Similar to EAF, some new concepts         |
| ■ Phase A: Architecture Vision             | Similar to EAF, some new concepts         |
| ■ Phase B: Business Architecture           | Similar to EAF, same viewpoints           |
| ■ Phase C: Information System Architecture | Similar to EAF, same viewpoints, generic  |
| ■ Phase D: Technology Architecture         | Similar to EAF, same viewpoints, generic  |
| ■ Phase E: Opportunities and Solutions     | Significantly improved over 8.1 and EAF   |
| ■ Phase F: Migration Planning              | Significantly improved over 8.1 and EAF   |
| ■ Phase G: Implementation Governance       | Different from EAF, very light in content |
| ■ Phase H: Architecture Change Management  | Similar to EAF                            |
| ■ Requirements Management                  | Similar to EAF, very light in content     |



## There are some differences from SAP EAF to TOGAF 9 at an overall level and within each phase



- Conduct Formal Stakeholder Review steps remain in each of phases B, C and D for TOGAF 9. SAP EAF recommends only having a formal stakeholder review at the end of each major Iteration Cycle (i.e. at the end of Phase D) so as to avoid the implication that the TOGAF ADM is a 'waterfall' approach.
- TOGAF 9 remains unclear as to whether Application or Data Architecture should be defined first within phase C Information Systems Architecture. SAP EAF recommends defining Application Architecture before Data Architecture.
- Following phase B, the approach, inputs, steps and outputs defined for phases C and D for TOGAF 9 are highly repetitive, somewhat generic and lacking specific and practical guidance.
- The incremental approach taken to the definition of inputs and outputs (i.e. the outputs from earlier phases are always used as inputs to subsequent phases) leads to long and repetitive checklists rather than highlighting new phase-specific deliverables.
- Significant improvements have been made by Capgemini to address the lack of content in phases E and F which were very light in TOGAF 8.1 and SAP EAF.
- Phase G has also been changed by Capgemini to address the lack of content in TOGAF 8.1 and SAP EAF but it remains light and a potential improvement area.

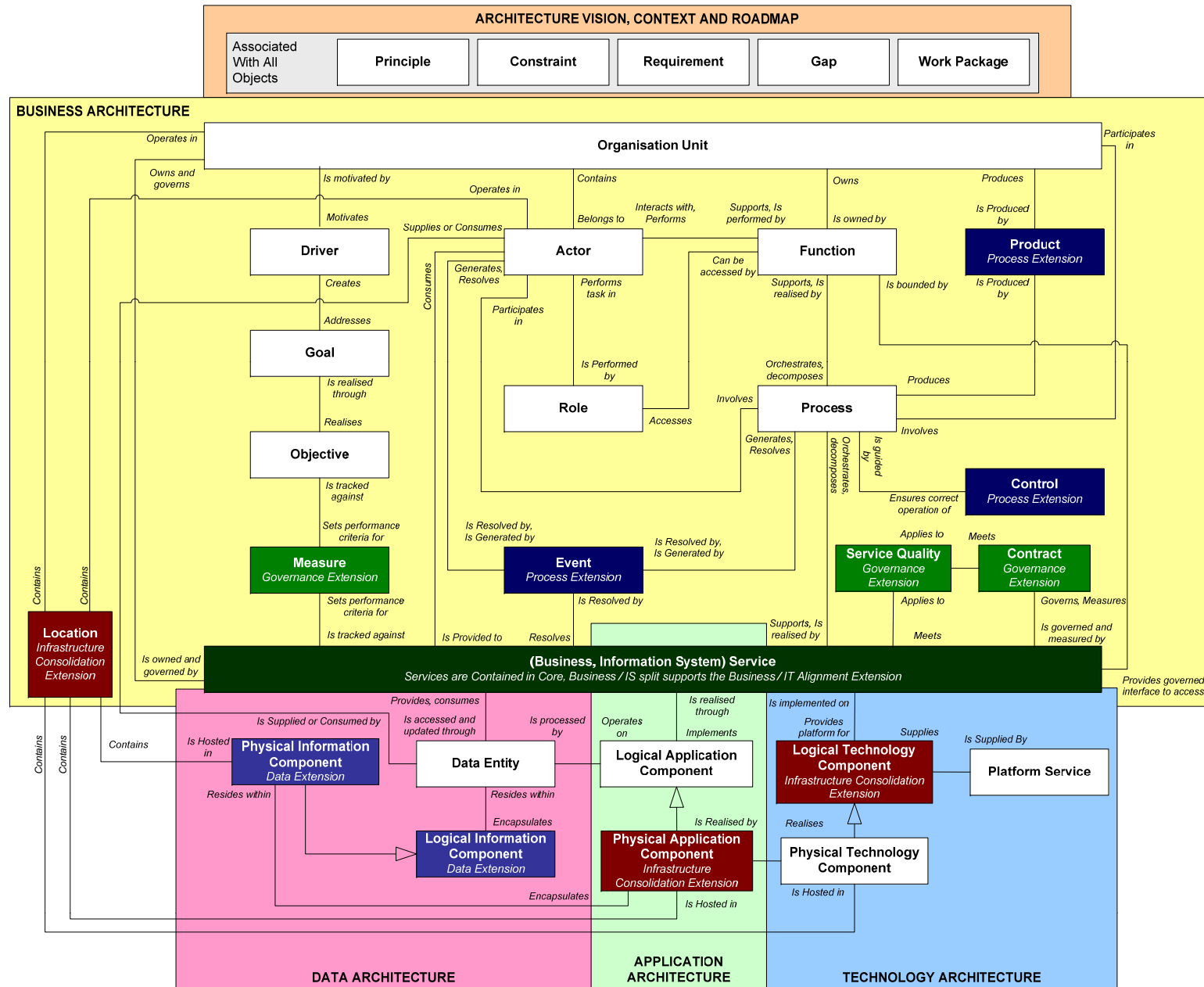
## There are numerous elements in the TOGAF 9 ADM that will be familiar to SAP Enterprise Architects!



- The basic TOGAF approach to defining the overall approach, inputs, steps to be carried out, and outputs for each phase has been followed, and more narrative steps and practical guidance can be found in TOGAF 9 compared with TOGAF 8.1
- The concept of Catalogs, Matrices and Views (Diagrams) introduced in SAP EAF and their definition and production within the ADM have been carried forward directly into TOGAF 9
- The Catalogs, Matrices and Views (Diagrams) recommended for production during Phases B, C and D in TOGAF 9 are almost identical to those defined in SAP EAF.
- Many of the new concepts, accelerators and templates introduced in SAP EAF have been carried forward directly into the TOGAF 9 narratives e.g.
  - Principles catalog, template and examples (Phase 0 - Preliminary)
  - Stakeholder map and template (Phase A – Architecture Vision)
  - Business capability assessment (Phase A – Architecture Vision)
  - Types of architecture engagement (Phase A – Architecture Vision)
  - Service contracts (Phase B - Business Architecture)
  - Classification of changes (Phase H - Architecture Change Management)
- Many of the individual narrative steps and descriptions from SAP EAF phases have been carried forward directly into TOGAF 9 and will be recognisable to SAP Enterprise Architects and SAP customers trained and certified in SAP EAF

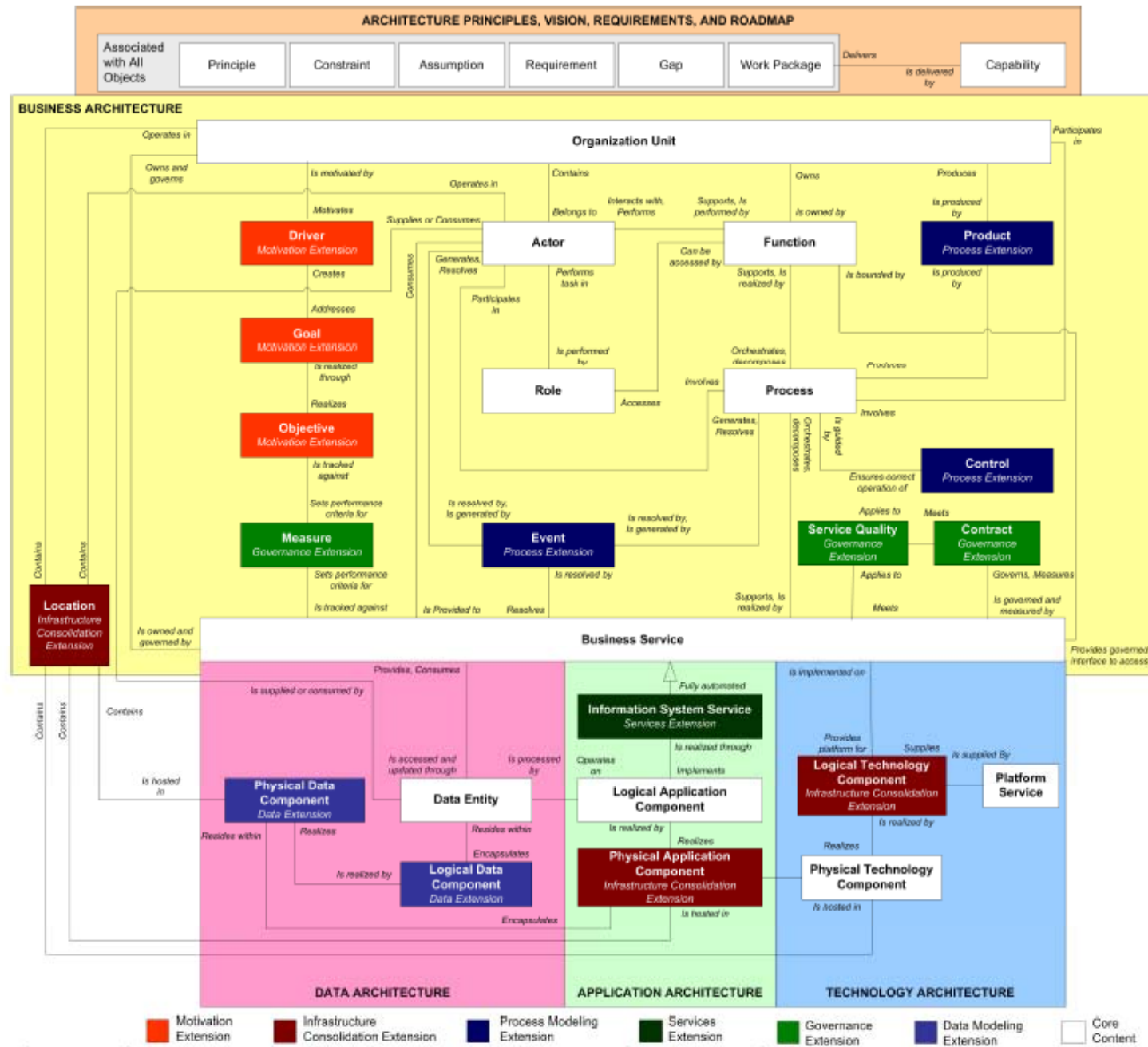
# Part IV - Architecture Content Framework

## A recap on the SAP EAF Metamodel



# Part IV - Architecture Content Framework

## The TOGAF 9 metamodel looks very familiar!



# At last, a TOGAF metamodel, with only minor differences to the SAP EAF metamodel!

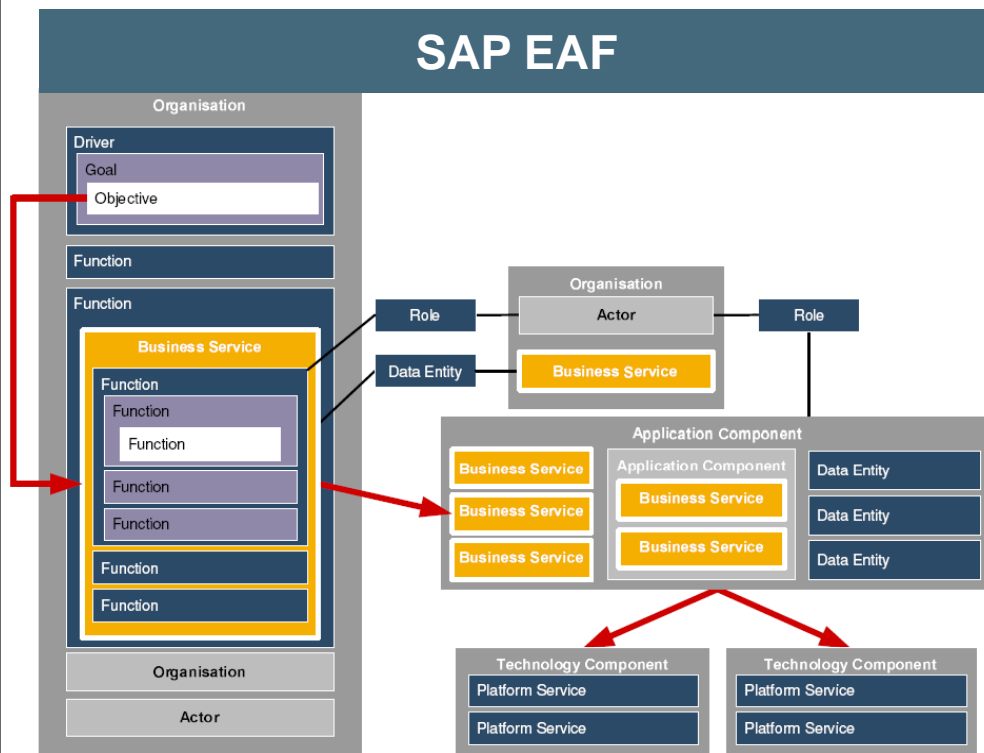


- TOGAF 8.1 had no formal, clearly-defined metamodel.
- The metamodel introduced in TOGAF 9 is based entirely on the SAP EAF metamodel with minor differences, one of which is significant *and erroneous!*
- TOGAF 9 retains the SAP EAF concept of 'core' and 'extension' entities.
- The major difference is that TOGAF 9 has the Drivers, Goals and Objectives entities defined as Motivation Extension entities – in SAP EAF these are core. *We believe this is incorrect and leads to the strong possibility of IT-focused architecture definition in isolation i.e. without appropriate business context and alignment!*
- TOGAF 9 introduces the Capability entity which has a relationship to the Work Package entity. This entity is defined in Phase E. All other core and extension entity definitions and relationships are carried forward from SAP EAF to TOGAF 9.
- The Business/IT Alignment extension in SAP EAF has been renamed the Services extension.
- The TOGAF 9 metamodel diagram more clearly shows a separation between the Business Service and Information System Service entities.
- TOGAF 9 defines optional attributes for some but not all metamodel entities that can be captured and reported on, ideally using an Enterprise Architecture tool.

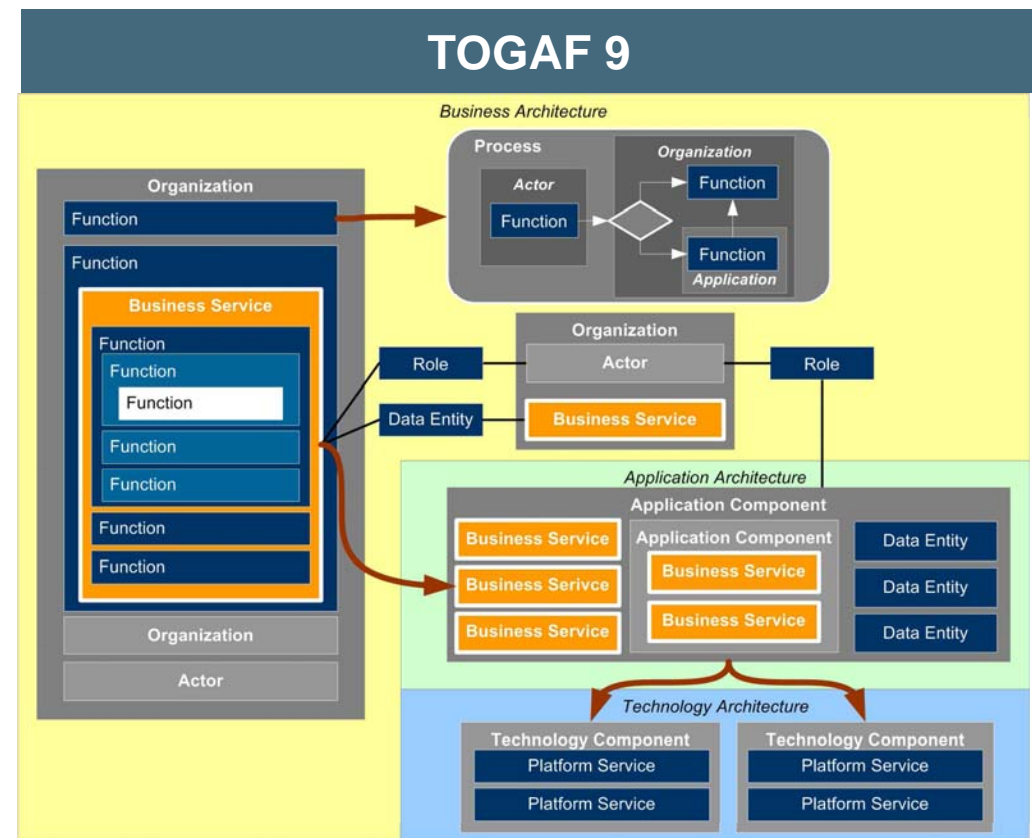
Key EAF entity relationship discussions have been carried forward into TOGAF 9 - including errors!



## SAP EAF



## TOGAF 9



**Business Service** entities shown above within the Application Component entities are actually **Information System Services**!

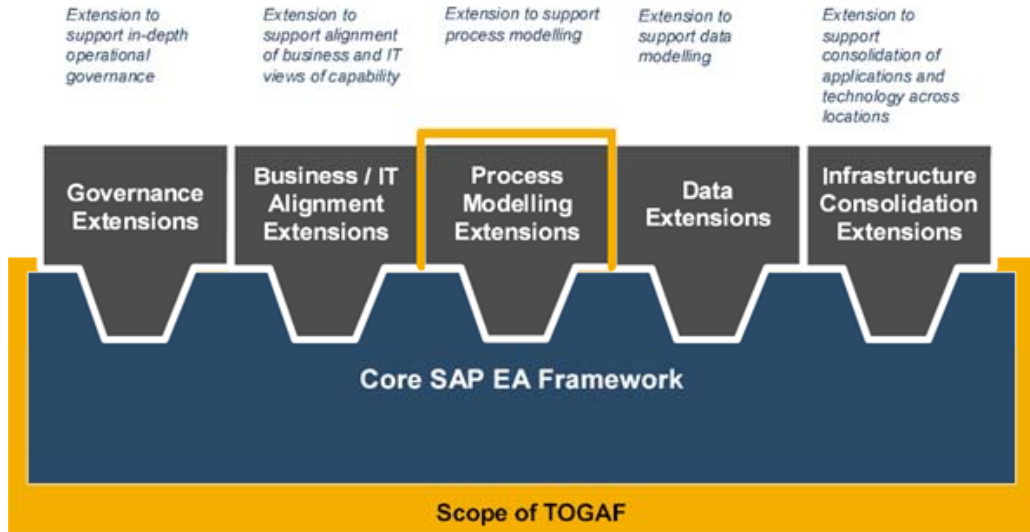


- The concept of Catalogs, Matrices and Views introduced in SAP EAF has been carried forward to TOGAF 9 but please note that Views are now called Diagrams (definition: both are renderings of architecture content in diagrammatic format!)
- TOGAF 9 defines Views as “a representation of a system from the perspective of a related set of concerns” while Viewpoints “define the perspective from which a View is taken”. Catalogs, Matrices and Diagrams are used to provide Viewpoints.
- Almost all of the set of Catalogs, Matrices and Views (Diagrams) provided with SAP EAF have been carried forward into TOGAF 9 with some additions:
  - TOGAF 9 adds a Product Lifecycle Diagram to Business Architecture
  - TOGAF 9 adds a System/Use Case Diagram to Application Architecture
  - TOGAF 9 has a Benefits Diagram for Opportunities and Solutions instead of a Portfolio View
  - TOGAF 9 has a Class Diagram for Data Architecture instead of a Conceptual/Logical ER View
  - All of the above are Core diagrams
- SAP EAF provides detailed descriptions of the purpose and content from a metamodel entity perspective of the various Catalogs, Matrices and Diagrams to be produced. These descriptions have been carried forward to the TOGAF 9 Architecture Content Framework.

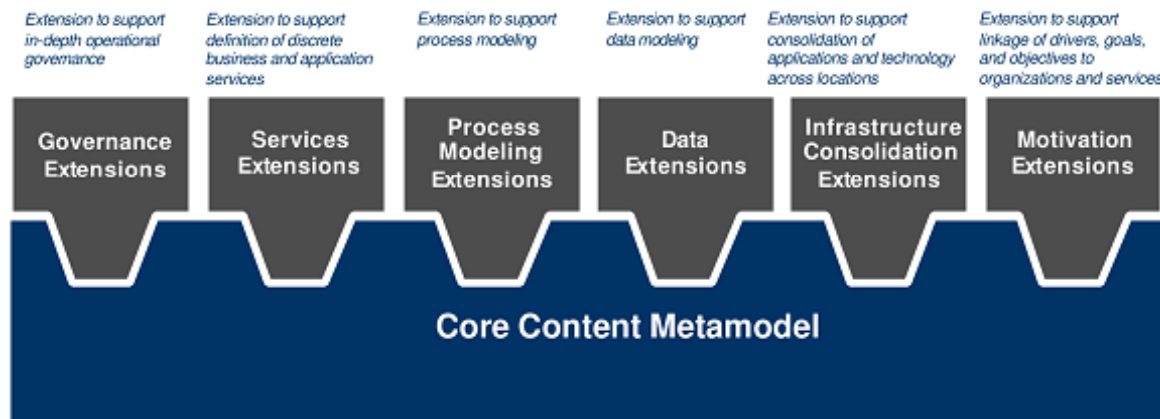
# Metamodel Extensions from SAP EAF to TOGAF 9 - one renamed and one new (that we do not like!)



## EAF



## TOGAF 9





# There is significant new material to be found in the ADM Guidelines & Techniques area of TOGAF 9



## TOGAF 9

- Part I: Introduction
- Part II: Architecture Development Method
- **Part III: ADM Guidelines & Techniques**
  - ADM at different enterprise levels
  - Security Architecture in the ADM
  - Risk Management
- Part IV: Architecture Content Framework
- Part V: Enterprise Continuum & Tools
  - Architecture Partitioning
  - Architecture Repository
- Part VI: TOGAF Reference Models
- Part VII: Architecture Capability Framework
  - Architecture Capability

Applying the ADM at Different Enterprise Levels  
Security Architecture in the ADM  
Using TOGAF to define and govern SOAs  
Architecture Patterns  
Business Scenarios  
Migration Planning Techniques  
Interoperability Requirements  
Business Transformation Readiness Assessment  
Risk Management  
Capability-Based Planning

Summary - there are many significant and useful discussion materials on above topics delivered in a modular fashion

# There are numerous elements exclusive to SAP EAF that are relevant for TOGAF 9



## EAF

- SAP Mappings
- SAP Tooling
- SAP Services
- SAP EA Education & Certification

### SAP Mappings

- Mapping of EAF terminology (based on TOGAF) to the SAP taxonomy used within SAP products and tools
- Specific mappings of SAP product and tool content to the EAF metamodel
- Mappings of SAP products and tools to the TOGAF TRM

### SAP Tooling

- Evaluation guide for EA tools
- Metamodel implementation in ARIS IT Architect
- Integration to SAP Solution Manager / ESR

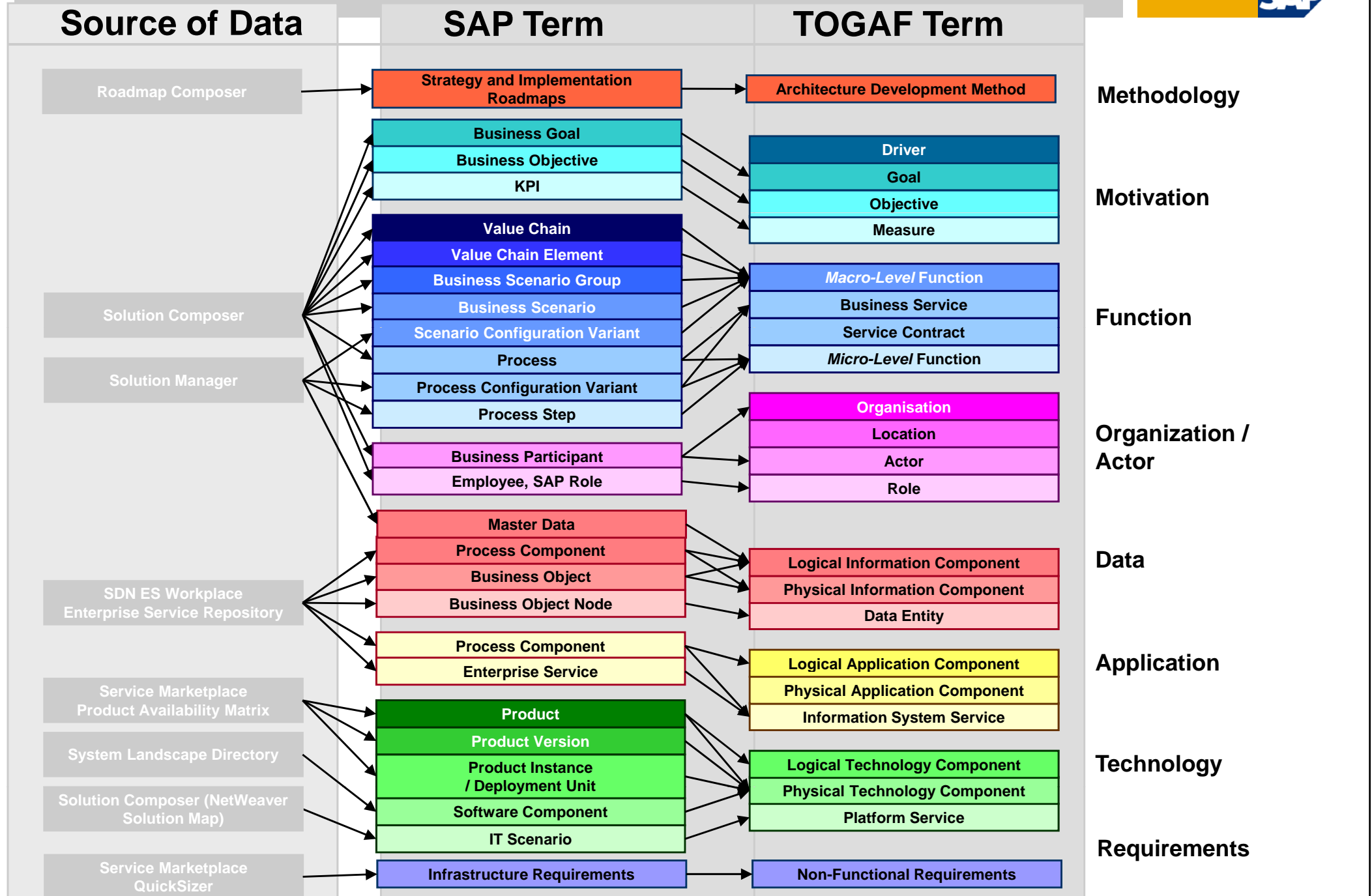
### SAP Services

- Aligned to EAF methodology for specific customer needs
  - EA Value & Vision
  - EA Maturity Assessment
  - EA Quickstart etc.

### SAP Education & Certification

- SAP Associate Enterprise Architect (SOA200)
- SAP Professional Enterprise Architect (SOA250)
- SAP Master Enterprise Architect (tbd)

# The full mapping of SAP Tools to TOGAF 9.0



# Agenda



1. Background to TOGAF 8.1 and SAP EAF
2. TOGAF 8.1 and 9
3. Major differences and similarities between SAP EAF and TOGAF 9
4. **Recommendations for TOGAF 9.1, 10...**

# Recommendations for TOGAF 9.1, 10...

## A personal view!



- The Technical Reference Model is showing its age and is in urgent need of a refresh. This could quickly be achieved through a fast-track submission, or a small working group under the auspices of the Architecture Forum comprising the following:
  - Architecture Forum representative
  - Open Group technical specialist
  - Hardware vendors (e.g. IBM, HP, Sun)
  - Software vendor (e.g. SAP)
- It is time to review and refresh the TOGAF ADM. Suggestions include:
  - Split Phase C into two separate Application and Data Architecture phases
  - Consolidate Phases E and F
  - Consolidate Phases G and H
- Develop templates and examples for TOGAF artefacts and deliverables:
  - Catalogs, matrices and diagrams first...
  - Followed by other TOGAF 9 artefacts and deliverables
  - Work with consultants, service providers (content) and tool vendors (implementation)
- Update (or retire!) the Enterprise Continuum!

# Finally – the contributors to SAP EAF...



- Core team (ADM, guidelines, content metamodel)
  - Lee Morley (ex-SAP)
  - Simon Townson (SAP)
  - Mike Turner (Capgemini)
  - Ray Morley (Capgemini)
  
- Case study (proving the framework, example content)
  - Andreas Elting (SAP)
  - Sri Rajagopalan (SAP)
  - Tammy Johnson (SAP)
  - Alain Dumas (SAP)
  - Andrew LeBlanc (SAP)
  - Ashan Farooqi (ex-SAP)
  
- Tools (IDS Scheer/ARIS integration and implementation)
  - Oleg Figlin (SAP)
  - Matthieu Durif (IDS Scheer)
  
- SAP-specific mappings (not part of TOGAF 9 but key contributors to the team effort)
  - Joerg Wuennemann (ex-SAP)
  - Sang Choy (SAP)
  - Carsten Wedekind (ex-SAP)
  
- Special contributions (early direction and sensible decision-making)
  - Franck Lopez (SAP)
  - Stuart Crawford (Capgemini)
  - Jonathan Ebsworth (Capgemini)
  - Mendel Koerts (Capgemini)

# Questions



THANK YOU FOR YOUR  
ATTENTION!

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