

Best Practices of Systems of Systems Engineering: Applying the Unified Architecture Framework

Platinum Sponsor:

Gold Sponsors:



LAMAR UNIVERSITY
Center for Innovation, Commercialization
and Entrepreneurship





Aurelijus Morkevičius, PhD,
Head of Solutions @ No Magic
aurelijus.morkevicius@nomagic.com

Co-chair
and one of the leading architects
*for the current OMG **UPDM/UAF***
standard development group



Holds PhD. in Informatics Engineering



Barry Papke

Director of Professional Services for No Magic US
bpapke@nomagic.com

*30 years experience in Systems Engineering Project
Management in DoD and NASA programs*



BS Mechanical Engineering (Texas A&M)
MS Systems Engineering (Steven's Institute of Technology)

Aims and objectives



- Introduce to UAF and the best practices for architecting complex systems and systems of systems (SOS)
- Explain major UAF concepts and views
- Share worldwide experience building systems of systems models

Outline



- Introduction to UAF
- UAF Domains and Model Kinds
- Practical Exercise - Skinning Framework
- Applying Enterprise Architecture to SoS SE
- Discussion
- Wrap-up



Enterprise Architecture

←
Framework

→
Modeling Language

Combination of best practices from its predecessor
UPDM, DoDAF, MODAF, NAF, DNDAF...

... and beyond

Foundation for domain specific architecture
frameworks

Emerging OMG standard!

Why UAF?



- ▶ Proliferation of frameworks that UPDM was being asked to support
- ▶ Need to support industry and federal usage as well as military
- ▶ Ability to support other frameworks
- ▶ Need to support DMM that non-UML tool vendors could support
- ▶ Need to support a standard profile that can be used to implement the UAF in UML/SysML tool



1. Intuitive naming convention in grid format
2. Common Vocabulary
3. Model-based Enterprise Architecture (MBEA)
4. Integration with existing OMG standards, e.g. SysML, UML, BPMN
5. Support for new domains:
 - Security
 - Personnel
 - Requirements
 - Analysis and Simulation (Actual Resources)
6. Enterprise Architecting Guidance (UAF-EAG)

Standard means of expression – model kinds

		Taxonomy	Structure & Connectivity	Behavior	Information	Parameters	Constraints	Roadmap	Traceability
Different Domains	Strategic								Traceability across all domains
	Operational								
	Services								
	Personnel & Resources								
	Security								
	Projects								
	Standards								
	Requirements								

Modeling Solution is a combination of a modeling **language(s)**, a **methodology** and a modeling **tool** that together provide a productive infrastructure for applying model-driven development **in the context** of a particular organization.



Cameo Enterprise Architecture

Domains

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	Strategic Processes St-Pr						Strategic Roadmap St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr							
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr							
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes Pr-Pr							
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr							
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr							
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	Project Processes Pj-Pr							
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Metadata

- Purpose:**
 - provide information pertinent to the entire architecture
 - present supporting information rather than architectural models
- Stakeholders:** Enterprise Architects, people who want to discover the architecture, Technical Managers
- Concerns:** captures meta-data relevant to the entire architecture

Metadata

- **Purpose:**
 - provide information pertinent to the entire architecture
 - present supporting information rather than architectural models
- **Stakeholders:** Enterprise Architects, people who want to discover the architecture, Technical Managers
- **Concerns:** captures meta-data relevant to the entire architecture

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	-	Strategic States St-St	-			Strategic Constraints St-Ct	Strategic Deployment, St-Rm Strategic Phasing St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr	Operational States Op-St	Operational Interaction Op-Is			Operational Constraints Op-Ct		Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr	Service States Sv-St	Service Interaction Sv-Is			Service Constraints Sv-Ct		Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes Pr-Pr	Personnel States Pr-St	Personnel Interaction Pr-Is			Personnel Constraints Pr-Ct		Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Rs-Is			Resource Constraints Rs-Ct		Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	Security States Sc-St	Security Interaction Sc-Is			Security Constraints Sc-Ct		Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	Project Processes Pj-Pr	Project States Pj-St	Project Interaction Pj-Is			Project Constraints Pj-Ct		Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Strategic

- Purpose:**
 - describe capability taxonomy,
 - composition,
 - dependencies, and
 - evolution
- Stakeholders:** Capability Portfolio Managers
- Concerns:** capability management process

Strategic

- **Purpose:**
 - describe capability taxonomy,
 - composition,
 - dependencies, and
 - evolution
- **Stakeholders:** Capability Portfolio Managers
- **Concerns:** capability management process

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	-	Strategic States St-St	-			Strategic Constraints St-Ct	Strategic Deployment, St-Rm Strategic Phasing St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr	Operational States Op-St	Operational Interaction Scenarios Op-Is			Operational Constraints Op-Ct	-	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr	Service States Sv-St	Service Interaction Scenarios Sv-Is			Service Constraints Sv-Ct	Service Roadmap Sv-Rm	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes Pr-Pr	Personnel States Pr-St	Personnel Interaction Scenarios Pr-Is			Personnel Constraints Pr-Ct	Personnel Roadmap Pr-Rm	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is			Resource Constraints Rs-Ct	Resource Roadmap Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	Security States Sc-St	Security Interaction Scenarios Sc-Is			Security Constraints Sc-Ct	Security Roadmap Sc-Rm	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	Project Processes Pj-Pr	Project States Pj-St	Project Interaction Scenarios Pj-Is			Project Constraints Pj-Ct	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	Standards Connectivity Sd-Cn	Standards Processes Sd-Pr	Standards States Sd-St	Standards Interaction Scenarios Sd-Is			Standards Constraints Sd-Ct	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity Ar-Cn	Actual Resources Processes Ar-Pr	Actual Resources States Ar-St	Actual Resources Interaction Scenarios Ar-Is			Actual Resources Constraints Ar-Ct	Actual Resources Roadmap Ar-Rm	Actual Resources Traceability Ar-Tr

Operational

- **Purpose:**
 - describe the requirements, operational behavior, structure, and exchanges required to support (exhibit) capabilities
 - define all operational elements in an implementation/solution independent manner
- **Stakeholders:** Business Architects, Executives
- **Concerns:** illustrate the Logical Architecture of the enterprise

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-	Conceptual Data Model	Environment Pm-En	Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	-	Strategic States St-St	-			Strategic Constraints St-Ct	Strategic Deployment, St-Rm Strategic Phasing St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr	Operational States Op-St	Operational Interaction Scenarios Op-Is			Operational Constraints Op-Ct	-	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr	Service States Sv-St	Service Interaction Scenarios Sv-Is			Service Constraints Sv-Ct	Service Roadmap Sv-Rm	Service Traceability Sv-Tr

Services

- **Purpose:** show Service Specifications and required and provided service levels of these specifications required:
 - to exhibit a Capability
 - to support an Operational Activity
- **Stakeholders:** Enterprise Architects, Solution Providers, Systems Engineers, Software Architects, Business Architects
- **Concerns:** specifications of services required to exhibit a Capability

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-	Conceptual Data Model, Logical Data Model,	Environment Pm-En	Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	-	Strategic States St-St	-			Strategic Constraints St-Ct	Strategic Deployment, St-Rm Strategic Phasing St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr	Operational States Op-St	Operational Interaction Scenarios Op-Is			Operational Constraints Op-Ct	-	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr	Service States Sv-St	Service Interaction Scenarios Sv-Is			Service Constraints Sv-Ct	Service Roadmap Sv-Rm	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes Pr-Pr	Personnel States Pr-St	Personnel Interaction Scenarios Pr-Is			Competence, Drivers, Performance Pr-Ct	Personnel Availability, Personnel Evolution,	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is			Resource Constraints Rs-Ct	Resource Roadmap Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	Security States Sc-St	Security Interaction Scenarios Sc-Is			Security Constraints Sc-Ct	Security Roadmap Sc-Rm	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	Project Processes Pj-Pr	Project States Pj-St	Project Interaction Scenarios Pj-Is			Project Constraints Pj-Ct	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	Standards Connectivity Sd-Cn	Standards Processes Sd-Pr	Standards States Sd-St	Standards Interaction Scenarios Sd-Is			Standards Constraints Sd-Ct	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure Ar-Sr	Actual Resources Connectivity Ar-Cn	Actual Resources Processes Ar-Pr	Actual Resources States Ar-St	Actual Resources Interaction Scenarios Ar-Is			Actual Resources Constraints Ar-Ct	Actual Resources Roadmap Ar-Rm	Actual Resources Traceability Ar-Tr

Personnel

- **Purpose:** aim to clarify the role of Human Factors (HF) when creating architectures in order to facilitate both Human Factors Integration (HFI) and Systems Engineering (SE)
- **Stakeholders:** Human resources, Solution Providers, PMs
- **Concerns:** human factors

Metadata Md	Metadata Taxonomy Md-Tx	Archit Viewp Mo
Strategic St	Strategic Taxonomy St-Tx	Strategic St
Operational Op	Operational Taxonomy Op-Tx	Opera Struc Op
Services Sv	Service Taxonomy Sv-Tx	Service S Sv
Personnel Pr	Personnel Taxonomy Pr-Tx	Perso Struc Pr

Resources

- **Purpose:** capture a solution architecture consisting of resources, e.g. software, artifacts, capability configurations, natural resources that implement the operational requirements. Further design of a resource is typically detailed in SysML or UML.
- **Stakeholders:** Systems Engineers, Resource Owners, Implementers, Solution Providers, IT Architects
- **Concerns:** definition of solution architectures to implement operational requirements

Resource	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is	Physical Data Model	Measurements Pm-Me	Pr-Rm		
									Resource Constraints Rs-Ct	Resource evolution, Resource forecast Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-

Dictionary * Dc

Summary & Overview Sm-Ov

Requirements Req

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr									
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr									
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr									
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr									
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr									
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Interaction Scenarios Rs-Is	Physical Data Model	Measurements Pm-Me	Resource Constraints Rs-Ct	Resource evolution, Resource forecast Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Security

- Purpose:** illustrate the security assets, security constraints, security controls, families, and measures required to address specific security concerns
- Stakeholders:** Security Architects, Security Engineers. Systems Engineers, Operational Architects
- Concerns:** addresses the security constraints and information assurance attributes that exist on exchanges between resources and OperationalPerformers

Security

- **Purpose:** illustrate the security assets, security constraints, security controls, families, and measures required to address specific security concerns
- **Stakeholders:** Security Architects, Security Engineers. Systems Engineers, Operational Architects
- **Concerns:** addresses the security constraints and information assurance attributes that exist on exchanges between resources and OperationalPerformers

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr									
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr									
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr									
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr									
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr									
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is	Physical Data Model	Measurements Pm-Me	Resource Constraints Rs-Ct	Resource evolution, Resource forecast Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Projects

- Purpose:** describe projects and project milestones, how those projects deliver capabilities, the organizations contributing to the projects and dependencies between projects
- Stakeholders:** PMs, Project Portfolio Managers, Enterprise Architects
- Concerns:** project portfolio, projects and project milestones

Projects

- **Purpose:** describe projects and project milestones, how those projects deliver capabilities, the organizations contributing to the projects and dependencies between projects
- **Stakeholders:** PMs, Project Portfolio Managers, Enterprise Architects
- **Concerns:** project portfolio, projects and project milestones

UAF	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr									
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr									
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr									
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr									
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr									
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr									
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Processes Sc-Pr	-	-			Constraints Sc-Ct	-	Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Standards

- Purpose:**
 - show the technical, operational, and business Standards applicable to the architecture
 - define the underlying current and expected Standards
- Stakeholders:** Solution Providers, Systems Engineers, Software Engineers, Systems Architects, Business Architects
- Concerns:** technical and non-technical Standards applicable to the architecture

Standards

- **Purpose:**
 - show the technical, operational, and business Standards applicable to the architecture
 - define the underlying current and expected Standards
- **Stakeholders:** Solution Providers, Systems Engineers, Software Engineers, Systems Architects, Business Architects
- **Concerns:** technical and non-technical Standards applicable to the architecture

UAF	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr		
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr		
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	-	Strategic States St-St	-			Strategic Constraints St-Ct	Strategic Deployment, St-Rm Strategic Phasing	Strategic Traceability St-Tr		
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr	Operational States Op-St	Operational Interaction Scenarios Op-Is			Operational Constraints Op-Ct	Operational Roadmap Op-Rm	Operational Traceability Op-Tr		
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr	Service States Sv-St	Service Interaction Scenarios Sv-Is			Service Constraints Sv-Ct	Service Roadmap Sv-Rm	Service Traceability Sv-Tr		
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes Pr-Pr	Personnel States Pr-St	Personnel Interaction Scenarios Pr-Is			Personnel Constraints Pr-Ct	Personnel Roadmap Pr-Rm	Personnel Traceability Pr-Tr		
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is			Resource Constraints Rs-Ct	Resource Roadmap Rs-Rm	Resource Traceability Rs-Tr		
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	Security States Sc-St	Security Interaction Scenarios Sc-Is			Security Constraints Sc-Ct	Security Roadmap Sc-Rm	Security Traceability Sc-Tr		
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr		
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr		
Actual Resources Ar	Actual Resources Taxonomy Ar-Tx	Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-		
Dictionary * Dc													
Summary & Overview Sm-Ov													
Requirements Req													

Actual Resources

- **Purpose:** illustrate the expected or achieved actual resource configurations and actual relationships between them
- **Stakeholders:** Solution Providers, Systems Engineers, Business Architects, Human Resources
- **Concerns:** the analysis e.g. evaluation of different alternatives, what-if, trade-offs, V&V on the actual resource configurations

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr									
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr									
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr									
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr									
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr									
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr									
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dy * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Dictionary

- Purpose:** present all the elements used in an architecture. Can be used specifically to capture elements and relationships that are involved in defining the environments applicable to capability, operational concept or set of systems
- Stakeholders:** Architects, users of the architecture, Capability Owners, Systems Engineers, Solution Providers
- Concerns:** definitions for all the elements in the architecture

Dictionary

- Purpose:** present all the elements used in an architecture. Can be used specifically to capture elements and relationships that are involved in defining the environments applicable to capability, operational concept or set of systems
- Stakeholders:** Architects, users of the architecture, Capability Owners, Systems Engineers, Solution Providers
- Concerns:** definitions for all the elements in the architecture

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr									
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr									
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr									
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr									
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr									
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr									
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary Overview Sm-Ov											
Requirements Req											

Summary & Overview

- Purpose:** provide executive-level summary information in a consistent form that allows quick reference and comparison between architectural descriptions. Includes assumptions, constraints, and limitations that may affect high- level decisions relating to an architecture-based work programme
- Stakeholders:** Executives, PMs, Enterprise Architects
- Concerns:** executive-level summary information in a consistent form

Summary & Overview

- **Purpose:** provide executive-level summary information in a consistent form that allows quick reference and comparison between architectural descriptions. Includes assumptions, constraints, and limitations that may affect high-level decisions relating to an architecture-based work programme
- **Stakeholders:** Executives, PMs, Enterprise Architects
- **Concerns:** executive-level summary information in a consistent form



UAF	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr									
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr									
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr									
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr									
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr									
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is	Physical Data Model	Measurements Pm-Me	Resource Constraints Rs-Ct	Resource evolution, Resource forecast Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary Review Sm-Ov											
Requirements Req											

Requirements

- Purpose:** used to represent requirements, their properties, and relationships (trace, verify, satisfy, refine) to UAF architectural elements
- Stakeholders:** Requirement Engineers, Solution Providers, Systems Engineers, Software Engineers, Systems Architects, Business Architects
- Concerns:** requirements traceability

Requirements

- Purpose:** used to represent requirements, their properties, and relationships (trace, verify, satisfy, refine) to UAF architectural elements
- Stakeholders:** Requirement Engineers, Solution Providers, Systems Engineers, Software Engineers, Systems Architects, Business Architects
- Concerns:** requirements traceability

Model Kinds

	Taxonomy	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx										Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx										Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx										Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx										Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx										Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx										Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx										Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx										Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-

Taxonomy

- **Recommended Implementation:** SysML Block Definition Diagram, SysML Internal Block Diagram, tabular format
- **Example: Services Taxonomy**

#	Name	Supported Operational Activity
1	⌘ Automated Process Optimization Service	⚙ Manufacture Product
2	⌘ Automated Tests Data Provision Service	⚙ Perform Quality Check
3	⌘ Identifying Failures Service	⚙ Perform Quality Check
4	⌘ Logging Service	⚙ Perform Quality Check
5	⌘ Optimizing Service	⚙ Manufacture Product
6	⌘ Reporting Service	⚙ Report Flaw ⚙ Send Feedback
7	⌘ Viewing Service	⚙ Review Prototype

Dictionary * Dc

Summary & Overview Sm-Ov

Requirements Req

UAF	Taxonomy	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Viewpoints ^a St-Sr	Strategic Connectivity St-Cn	Strategic Processes ^a St-Pr	-	-			Strategic Constraints St-Ct	Strategic Deployment, St-Rm Strategic Phasing St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Viewpoints ^a Op-Sr	Operational Connectivity Op-Cn	Operational Processes ^a Op-Pr	-	-			Operational Constraints Op-Ct	-	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Viewpoints ^a Sv-Sr	Service Connectivity Sv-Cn	Service Processes ^a Sv-Pr	-	-			Service Constraints Sv-Ct	Service Roadmap Sv-Rm	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Viewpoints ^a Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes ^a Pr-Pr	-	-			Competence, Drivers, Performance Pr-Ct	Personnel Availability, Personnel Evolution, Personnel Forecast Pr-Rm	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Viewpoints ^a Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes ^a Rs-Pr	-	-			Resource Constraints Rs-Ct	Resource evolution, Resource forecast Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Viewpoints ^a Sc-Sr	Security Connectivity Sc-Cn	Security Processes ^a Sc-Pr	-	-			Security Constraints Sc-Ct	-	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

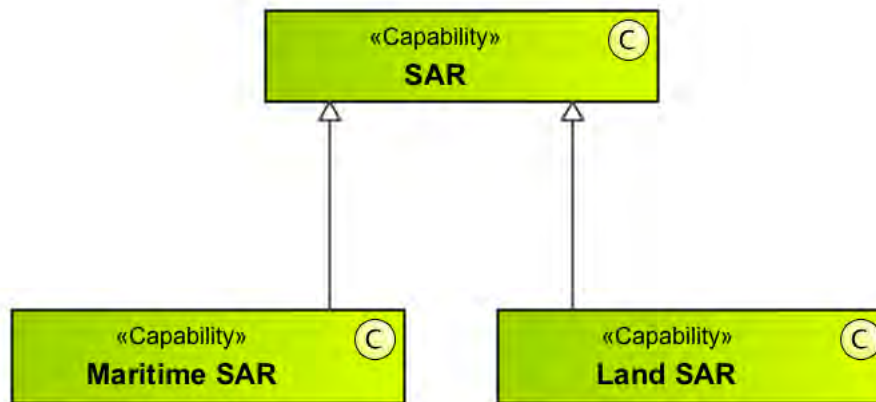
Taxonomy

- Example: Capability Taxonomy

```
graph BT; MSAR[«Capability» Maritime SAR] --> SAR[«Capability» SAR]; LSAR[«Capability» Land SAR] --> SAR;
```

Taxonomy

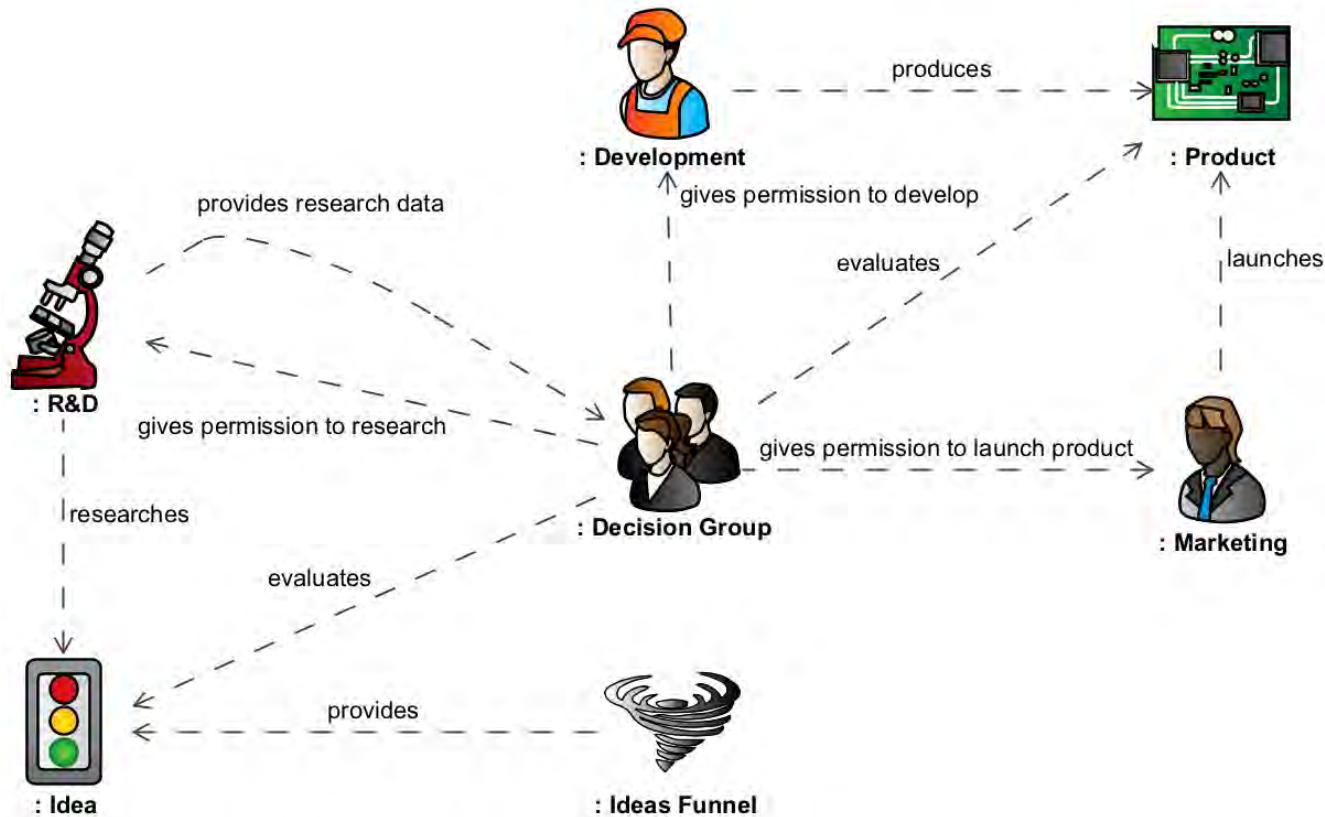
- Example: Capability Taxonomy



	Taxonomy	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx										Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx										Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx										Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx										Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx										Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx										Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx										Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx										Standards Traceability Sd-Tr
Actuals Resources Ar											

Taxonomy

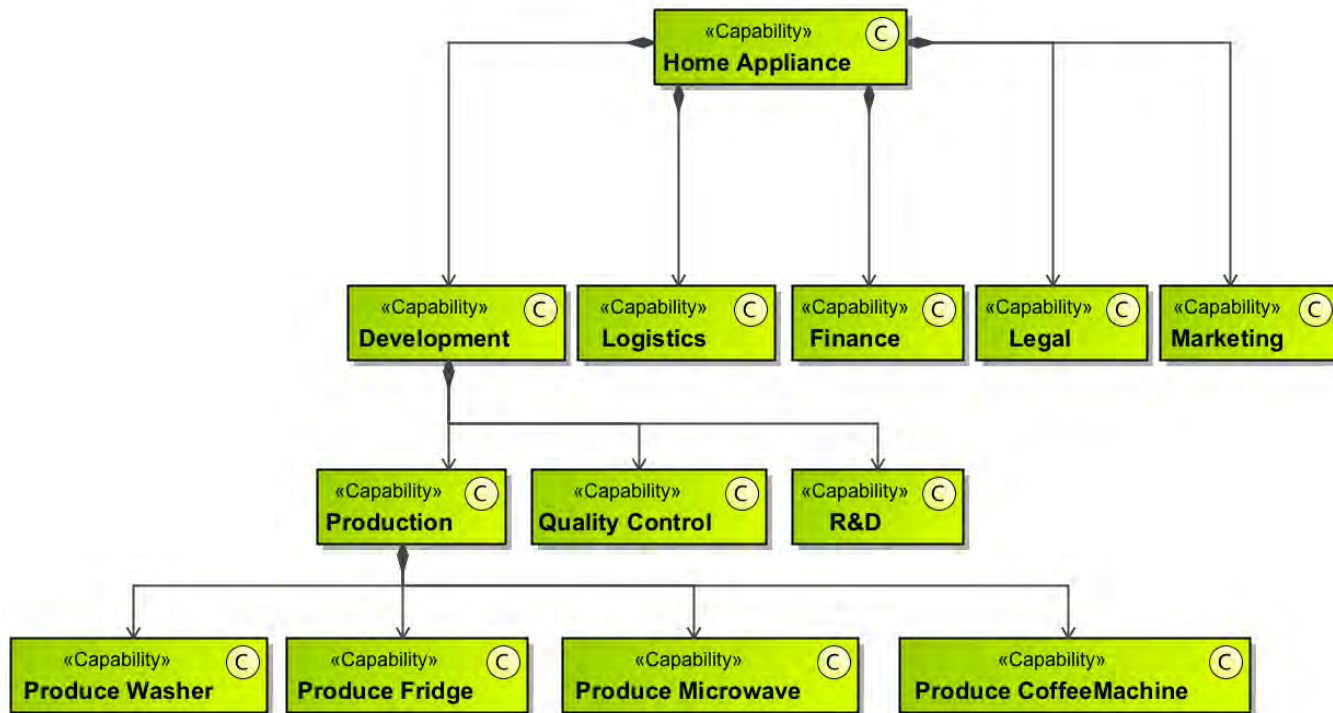
- Example: Operational Taxonomy



Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-		Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

Structure

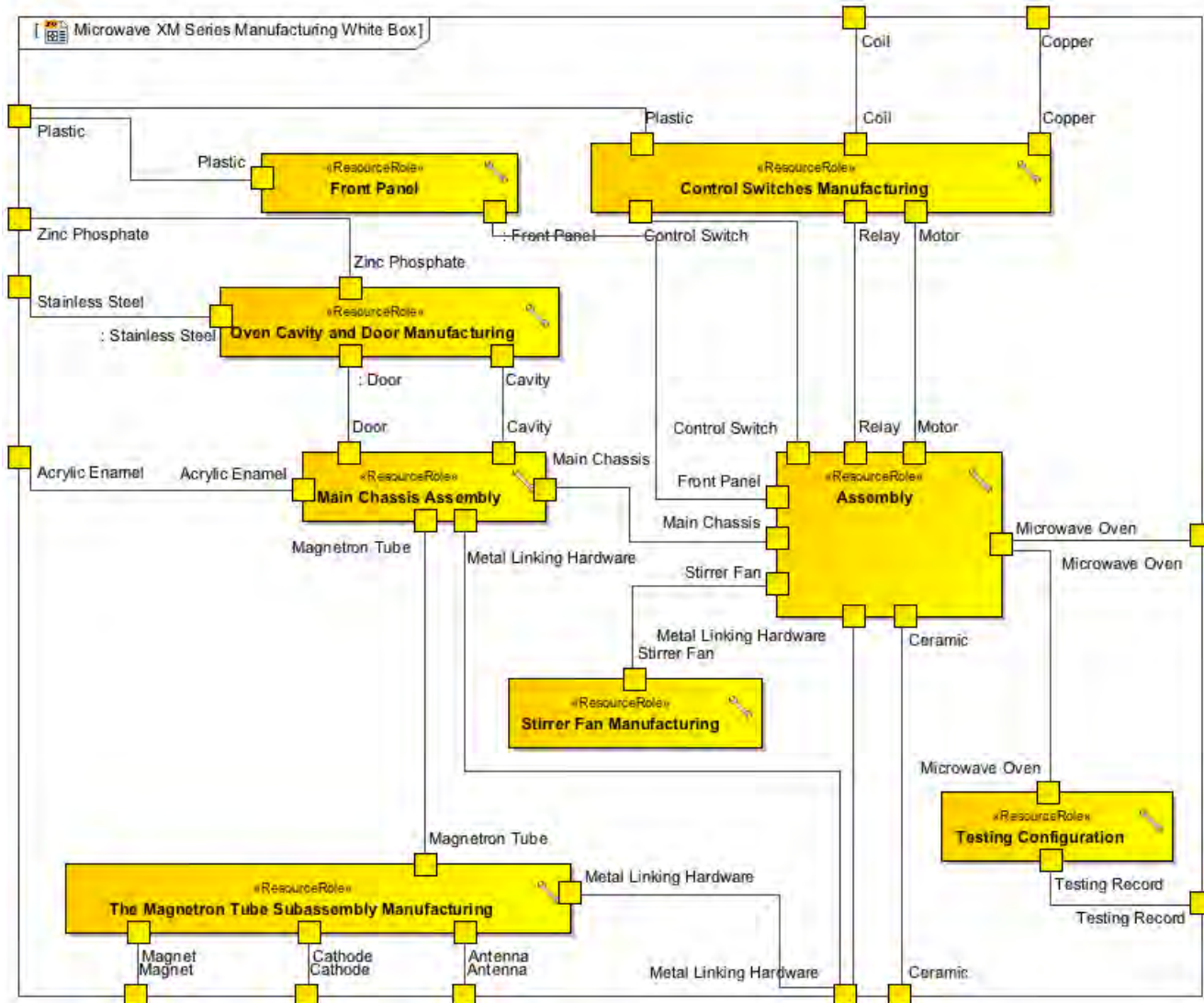
- **Recommended Implementation:** SysML Block Definition Diagram, SysML Internal Block Diagram
- **Example: Capability Structure**



	Taxonomy Tx	Structure S	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture	Metadata	Metadata							Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic									Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational									Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service									Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel									Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resources									Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security									Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Projects									Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards									Standards Traceability Sd-Tr
Actuals Resources Ar		Actuals									

Structure

• Example: Resources Structure



	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

Connectivity

- Recommended Implementation:** SysML Block Definition Diagram, SysML Internal Block Diagram, tabular format
- Example: Operational Connectivity**

#	Exchange ID	Operational Exchange Item	Sending Operational Performer	Receiving Operational Performer	Producing Operational Activity	Consuming Operational Activity	confidentiality
1	OE17	IE11 Requirements Specification	Requirements Engineering	Design	Specify Requirements	Identify Functional Prototype	Confidential
2	OE13	Prototype	Design	Modular Development	Review Prototype	Develop Module	
3	OE16	IE10 Market Launch Plan	Marketing	Decision Group			Confidential
4	OE6	Product	Decision Group	Marketing	Evaluate Product	Launch Product	
5	OE5	Product	Development	Decision Group	Manufacture Product	Evaluate Product	
6	OE20	IE8 Scope & Concepts	Decision Group	Development	Evaluate Scope & Concepts	Manufacture Product	Confidential
7	OE4	IE8 Scope & Concepts	R&D	Decision Group	Develop Scope & Concepts	Evaluate Scope & Concepts	Confidential
8	OE1	IE4 Prototype	Design	Design			
9	OE14	Prototype	Design	Design	Create Prototype Identify Functional Prototype	Review Prototype Create Prototype	
10	OE19	IE2 Idea	Decision Group	R&D	Evaluate Idea	Develop Scope & Concepts	Confidential
11	OE3	IE6 Module Flaw	Quality Assurance	Modular Development	Report Flaw	Develop Module	
12	OE2	IE9 Requirements Flaw	Quality Assurance	Requirements Engineering	Report Flaw	Specify Requirements	
13	OE12	IE5 Design Flaw	Quality Assurance	Design	Report Flaw	Identify Functional Prototype	
14	OE11	IE7 Integration Flaw	Quality Assurance	Modular Integration	Report Flaw	Integrate Modules	
15	OE7	Product	Modular Integration	Quality Assurance	Integrate Modules	Perform Quality Check	
16	OE10	IE3 Feedback	Modular Integration	Modular Development	Send Feedback	Develop Module	
17	OE9	IE3 Feedback	Modular Development	Design	Send Feedback	Identify Functional Prototype	
18	OE8	IE3 Feedback	Design	Requirements Engineering	Send Feedback	Specify Requirements	
19	OE15	System Module	Modular Development	Modular Integration	Develop Module	Integrate Modules	
20	OE18	IE2 Idea	Ideas Funnel	Decision Group			Confidential

Actuals Resources Ar	Actual Resources Structure, Ar-Sr	Resources Connectivity, Ar-Cn	Simulation ^b			Parameter Execution/ Evaluation ^b	-	-
----------------------------	---	-------------------------------------	-------------------------	--	--	--	---	---

Dictionary * Dc

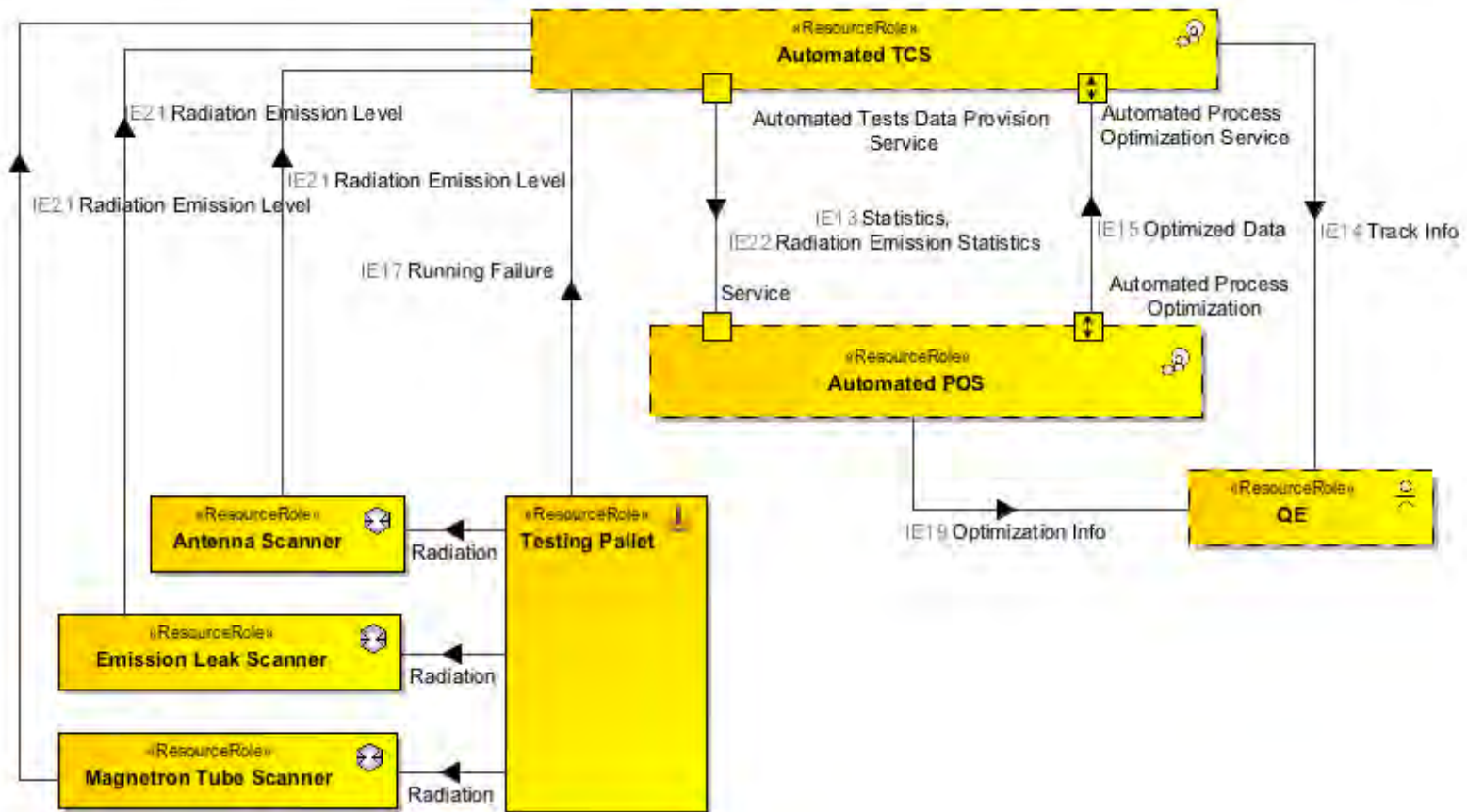
Summary & Overview Sm-Ov

Requirements Req

	Taxonomy Tx	Structure Sr	Connectivity Co	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

Connectivity

- Example: Resources Connectivity



Dictionary * Dc

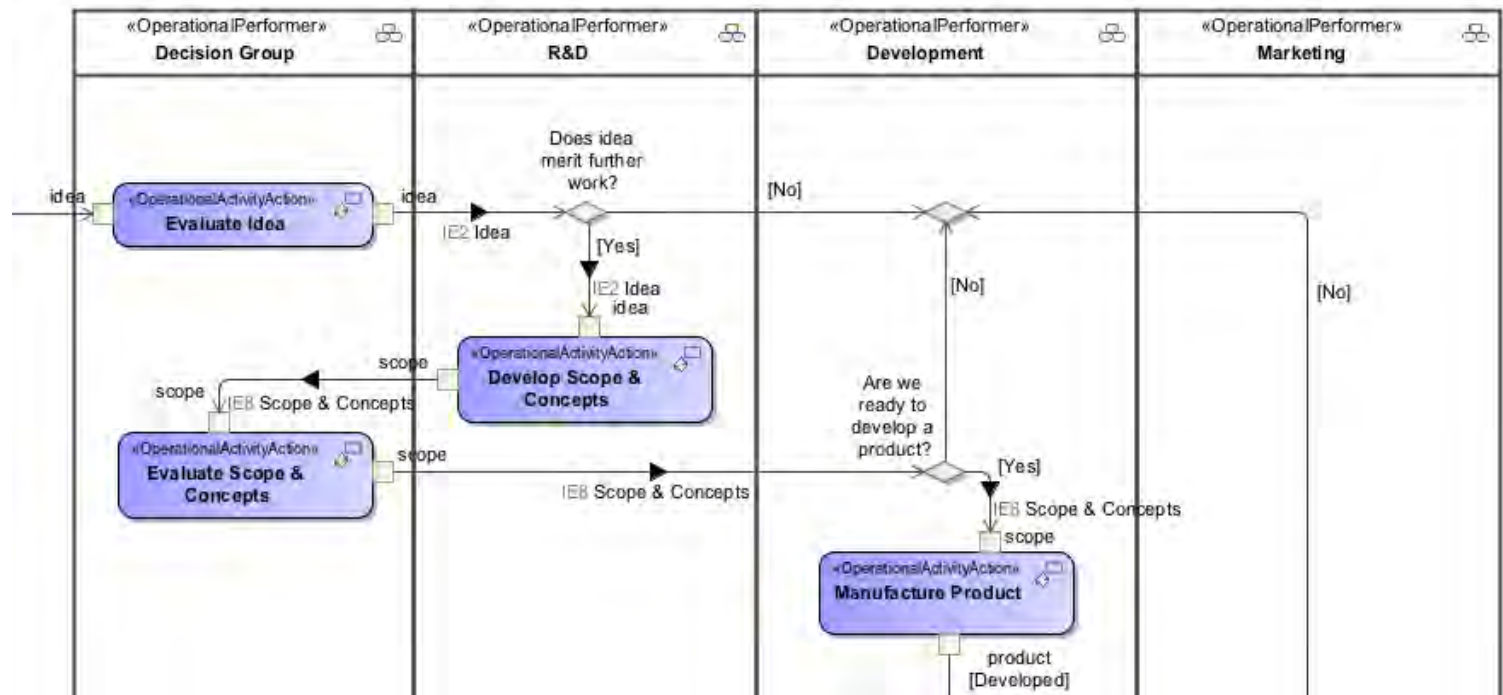
Summary & Overview Sm-Ov

Requirements Req

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

Processes

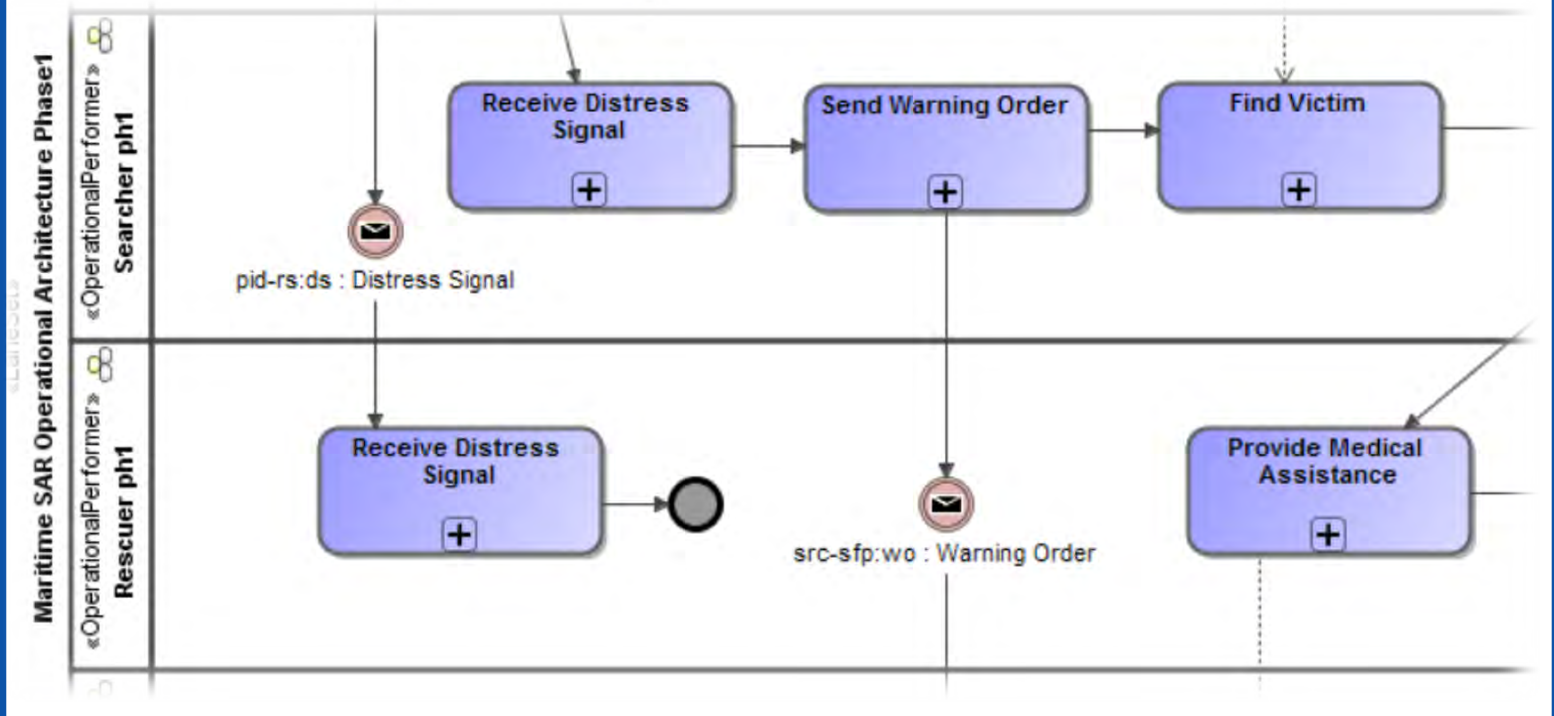
- **Recommended Implementation:** SysML Activity Diagram, SysML Block Definition Diagram, BPMN Process Diagram
- **Example: Operational Processes**



	Taxonomy Tx	Structure Sr	Connectivity Cn	Parameters Pm	States S*	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

Processes

- **Recommended Implementation:** SysML Activity Diagram, SysML Block Definition Diagram, BPMN Process Diagram
- **Example: Operational Processes BPMN**



Dictionary * Dc

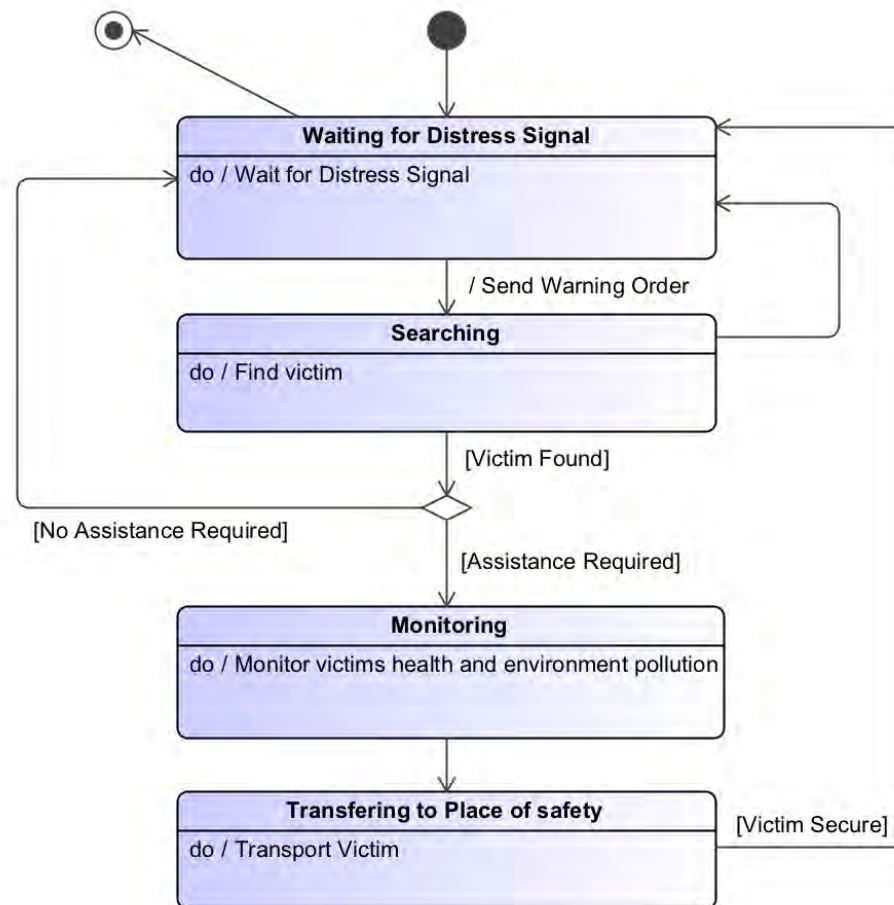
Summary & Overview Sm-Ov

Requirements Req

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-		Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

States

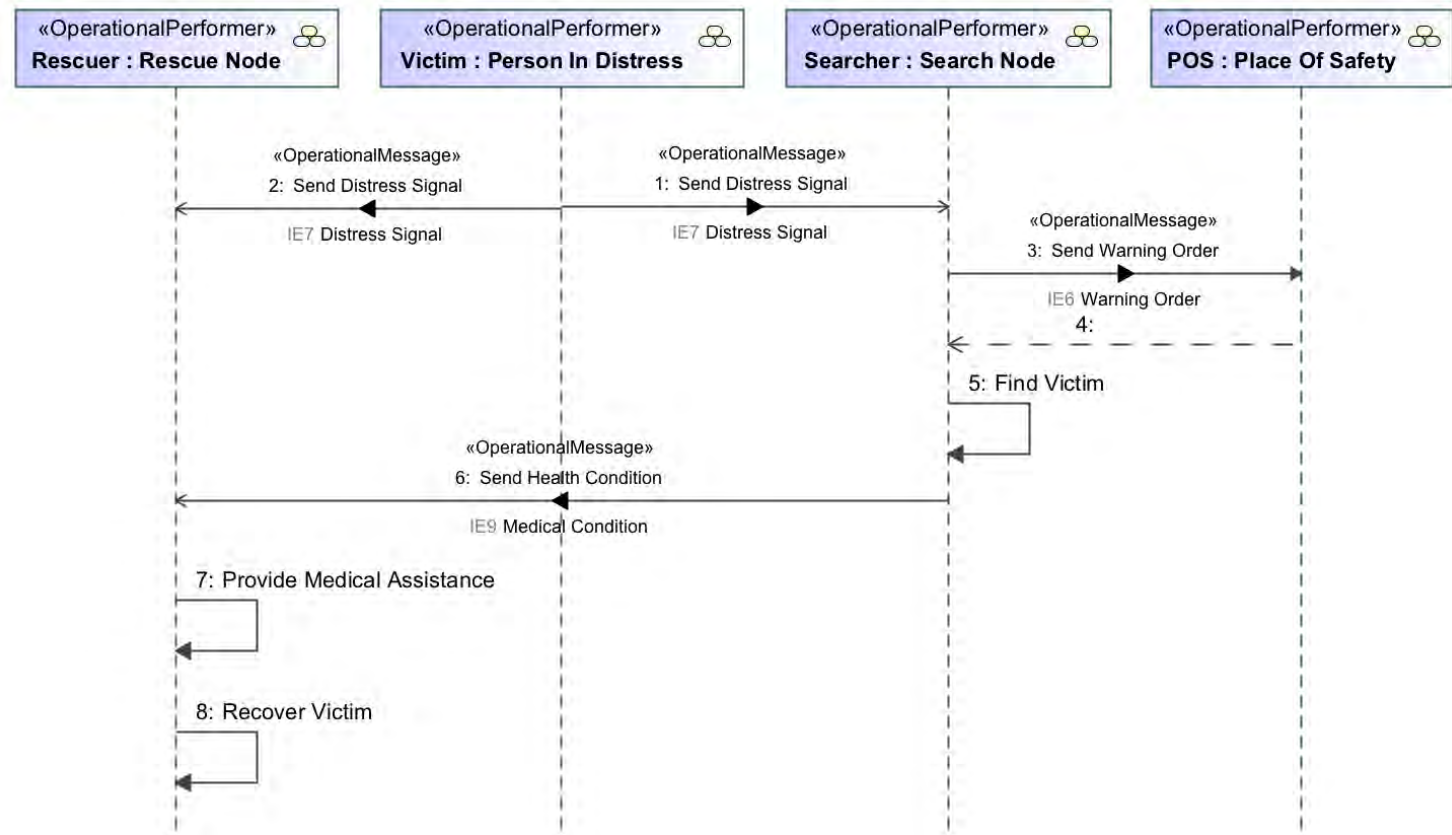
- Recommended Implementation: SysML State Diagram
- Example: Operational States



	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Inter Scen	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity ^a Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx										
Operational Op	Operational Taxonomy Op-Tx										
Services Sv	Service Taxonomy Sv-Tx										
Personnel Pr	Personnel Taxonomy Pr-Tx										
Resources Rs	Resource Taxonomy Rs-Tx										
Security Sc	Security Taxonomy Sc-Tx										
Projects Pj	Project Taxonomy Pj-Tx										
Standards Sd	Standard Taxonomy Sd-Tx										
Actuals Resources Ar											

Interaction Scenarios

- **Recommended Implementation:** SysML Sequence Diagram
- **Example:** Operational Interaction Scenario



UAF	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Architecture Viewpoints ^a St-Sr	Strategic Metadata Connectivity ^a St-Cn	Strategic Metadata Processes ^a St-Pr	-	-			Strategic Metadata Constraints ^a St-Ct	Strategic Roadmap ^a St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Architecture Viewpoints ^a Op-Sr	Operational Metadata Connectivity ^a Op-Cn	Operational Metadata Processes ^a Op-Pr	-	-			Operational Metadata Constraints ^a Op-Ct	Operational Roadmap ^a Op-Rm	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Architecture Viewpoints ^a Sv-Sr	Service Metadata Connectivity ^a Sv-Cn	Service Metadata Processes ^a Sv-Pr	-	-			Service Metadata Constraints ^a Sv-Ct	Service Roadmap ^a Sv-Rm	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Architecture Viewpoints ^a Pr-Sr	Personnel Metadata Connectivity ^a Pr-Cn	Personnel Metadata Processes ^a Pr-Pr	-	-			Personnel Metadata Constraints ^a Pr-Ct	Personnel Roadmap ^a Pr-Rm	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Architecture Viewpoints ^a Rs-Sr	Resource Metadata Connectivity ^a Rs-Cn	Resource Metadata Processes ^a Rs-Pr	-	-			Resource Metadata Constraints ^a Rs-Ct	Resource Roadmap ^a Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Architecture Viewpoints ^a Sc-Sr	Security Metadata Connectivity ^a Sc-Cn	Security Metadata Processes ^a Sc-Pr	-	-			Security Metadata Constraints ^a Sc-Ct	Security Roadmap ^a Sc-Rm	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Architecture Viewpoints ^a Pj-Sr	Project Metadata Connectivity ^a Pj-Cn	Project Metadata Processes ^a Pj-Pr	-	-			Project Metadata Constraints ^a Pj-Ct	Project Roadmap ^a Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Information

- Purpose:** allow analysis of an architecture's information and data definition aspect, without consideration of implementation specific issues
- Stakeholders:** Data Modelers, Software Engineers, Systems Engineers
- Concerns:** address the information perspective on operational, service, and resource architectures
- Recommended Implementation:** SysML Block Definition Diagram

Information

- **Purpose:** allow analysis of an architecture's information and data definition aspect, without consideration of implementation specific issues
- **Stakeholders:** Data Modelers, Software Engineers, Systems Engineers
- **Concerns:** address the information perspective on operational, service, and resource architectures
- **Recommended Implementation:** SysML Block Definition Diagram

UAF	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information In	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx										Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx										Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx										Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx										Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx										Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx										Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx										Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx										Standard Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b				Parametric Execution/Evaluation ^b	-	-	
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Information

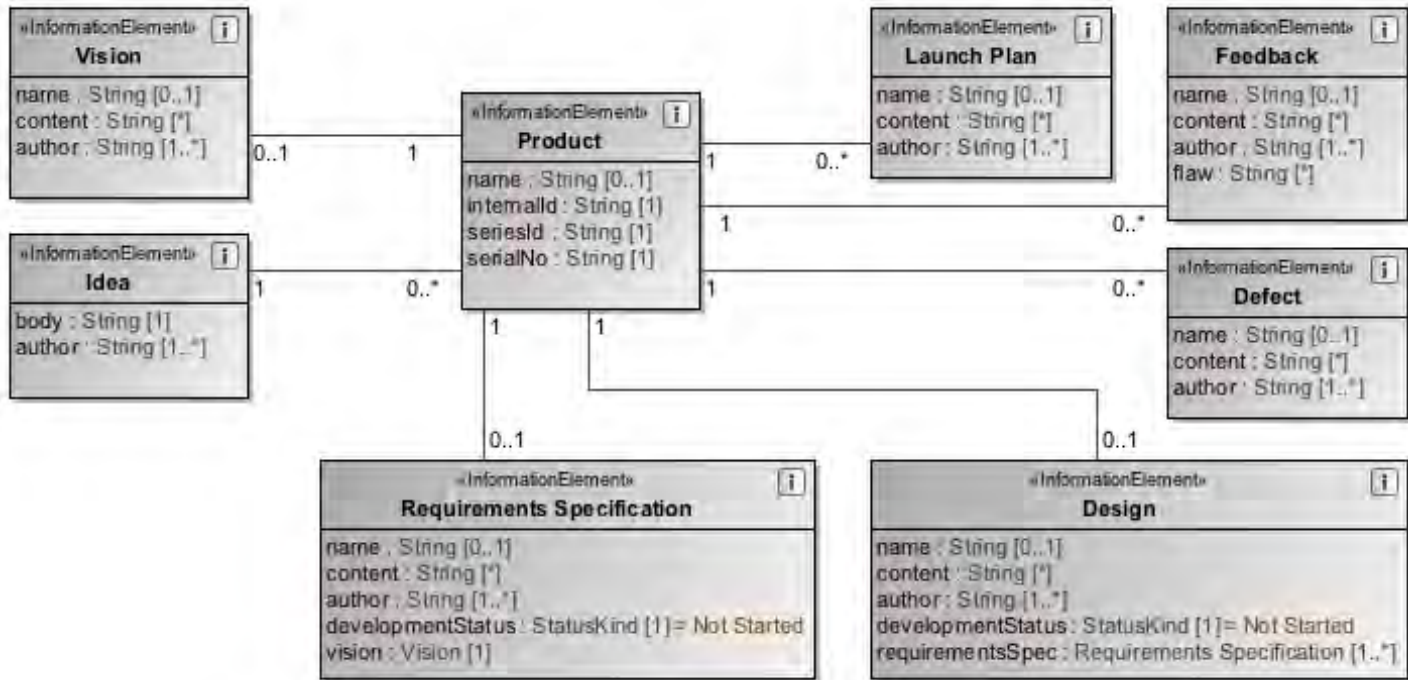
- Example: Operational Information

```
classDiagram
    class Vision {
        name : String [0..1]
        content : String [*]
        author : String [1..*]
    }
    class Product {
        name : String [0..1]
        internalId : String [1]
        seriesId : String [1]
        serialNo : String [1]
    }
    class LaunchPlan {
        name : String [0..1]
        content : String [*]
        author : String [1..*]
    }
    class Feedback {
        name : String [0..1]
        content : String [*]
        author : String [1..*]
        flaw : String [*]
    }
    class Idea {
        body : String [1]
        author : String [1..*]
    }
    class Defect {
        name : String [0..1]
        content : String [*]
        author : String [1..*]
    }
    class RequirementsSpecification {
        name : String [0..1]
        content : String [*]
        author : String [1..*]
        developmentStatus : StatusKind [1] = Not Started
        vision : Vision [1]
    }
    class Design {
        name : String [0..1]
        content : String [*]
        author : String [1..*]
        developmentStatus : StatusKind [1] = Not Started
        requirementsSpec : RequirementsSpecification [1..*]
    }

    Vision "0..1" -- "1" Product
    Product "1" -- "0..*" LaunchPlan
    Product "1" -- "0..*" Feedback
    Product "1" -- "0..*" Idea
    Product "1" -- "0..*" Defect
    Product "1" -- "0..1" RequirementsSpecification
    Product "1" -- "0..1" Design
```

Information

- Example: Operational Information



	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pa	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Viewpoints ^a St-Sr	Strategic Connectivity ^a St-Cn	Strategic Processes ^a St-Pr	-	-			Strategic Constraints ^a St-Ct	Strategic Roadmap ^a St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Viewpoints ^a Op-Sr	Operational Connectivity ^a Op-Cn	Operational Processes ^a Op-Pr	-	-			Operational Constraints ^a Op-Ct	Operational Roadmap ^a Op-Rm	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Viewpoints ^a Sv-Sr	Service Connectivity ^a Sv-Cn	Service Processes ^a Sv-Pr	-	-			Service Constraints ^a Sv-Ct	Service Roadmap ^a Sv-Rm	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Viewpoints ^a Pr-Sr	Personnel Connectivity ^a Pr-Cn	Personnel Processes ^a Pr-Pr	-	-			Personnel Constraints ^a Pr-Ct	Personnel Roadmap ^a Pr-Rm	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Viewpoints ^a Rs-Sr	Resource Connectivity ^a Rs-Cn	Resource Processes ^a Rs-Pr	-	-			Resource Constraints ^a Rs-Ct	Resource Roadmap ^a Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Viewpoints ^a Sc-Sr	Security Connectivity ^a Sc-Cn	Security Processes ^a Sc-Pr	-	-			Security Constraints ^a Sc-Ct	Security Roadmap ^a Sc-Rm	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Viewpoints ^a Pj-Sr	Project Connectivity ^a Pj-Cn	Project Processes ^a Pj-Pr	-	-			Project Constraints ^a Pj-Ct	Project Roadmap ^a Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standard Viewpoints ^a Sd-Sr	Standard Connectivity ^a Sd-Cn	Standard Processes ^a Sd-Pr	-	-			Standard Constraints ^a Sd-Ct	Standard Roadmap ^a Sd-Rm	Standard Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/Evaluation ^b	-	-

Parameters

- **Purpose:** show the measurable properties of something in the physical world and elements and relationships that are involved in defining the environments applicable to capability, operational concept or set of systems
- **Stakeholders:** Capability owners, Systems Engineers, Solution Providers
- **Concerns:** identifies measurable properties that can be used to support engineering analysis and environment for the Capabilities
- **Recommended Implementation:** SysML Block Definition Diagram, tabular format

Dictionary * Dc

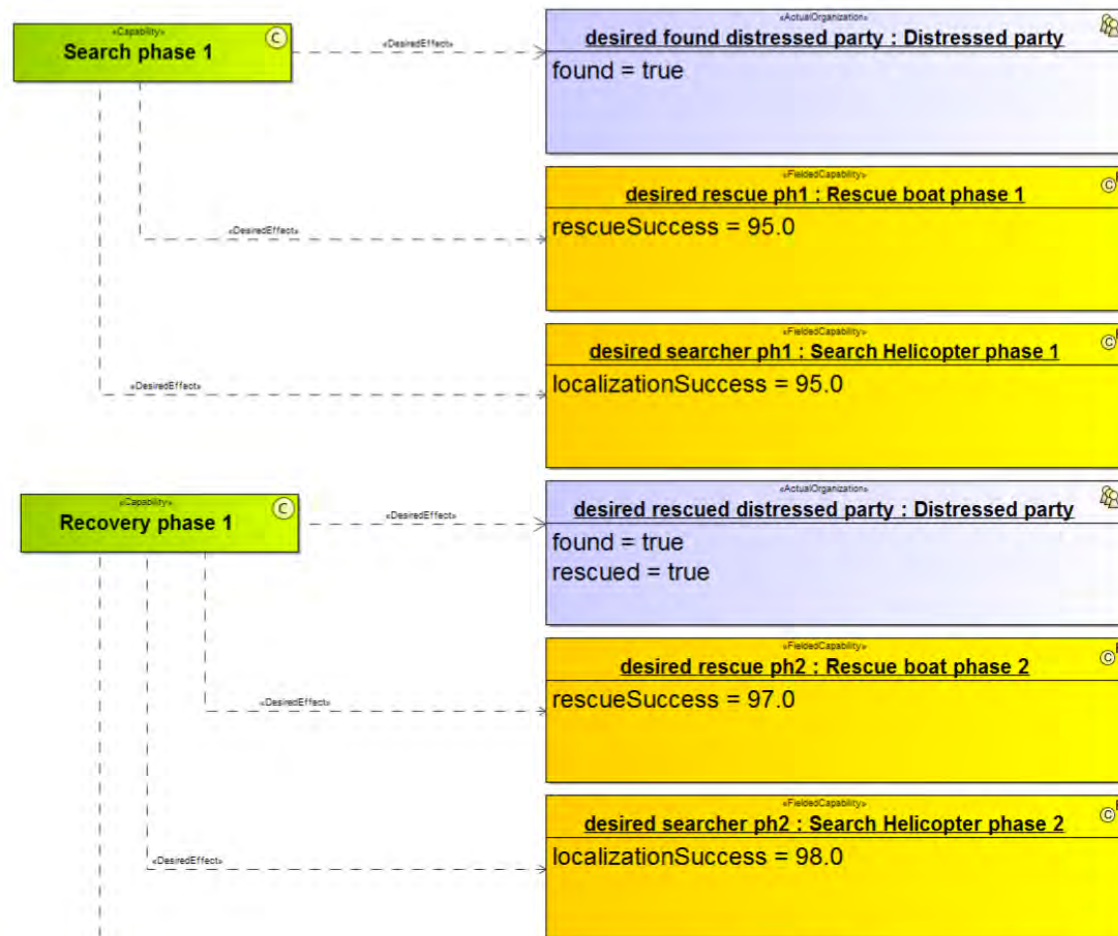
Summary & Overview Sm-Ov

Requirements Req

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pa	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Architecture Viewpoints ^a St-Sr	Strategic Metadata Connectivity Md-Cn	Strategic Metadata Processes ^a Md-Pr	-	-			Strategic Metadata Constraints ^a Md-Ct	Strategic Roadmap St-Rm	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Architecture Viewpoints ^a Op-Sr	Operational Metadata Connectivity Md-Cn	Operational Metadata Processes ^a Md-Pr	-	-			Operational Metadata Constraints ^a Md-Ct	Operational Roadmap Op-Rm	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Architecture Viewpoints ^a Sv-Sr	Service Metadata Connectivity Md-Cn	Service Metadata Processes ^a Md-Pr	-	-			Service Metadata Constraints ^a Md-Ct	Service Roadmap Sv-Rm	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Architecture Viewpoints ^a Pr-Sr	Personnel Metadata Connectivity Md-Cn	Personnel Metadata Processes ^a Md-Pr	-	-			Personnel Metadata Constraints ^a Md-Ct	Personnel Roadmap Pr-Rm	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Architecture Viewpoints ^a Rs-Sr	Resource Metadata Connectivity Md-Cn	Resource Metadata Processes ^a Md-Pr	-	-			Resource Metadata Constraints ^a Md-Ct	Resource Roadmap Rs-Rm	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Architecture Viewpoints ^a Sc-Sr	Security Metadata Connectivity Md-Cn	Security Metadata Processes ^a Md-Pr	-	-			Security Metadata Constraints ^a Md-Ct	Security Roadmap Sc-Rm	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Architecture Viewpoints ^a Pj-Sr	Project Metadata Connectivity Md-Cn	Project Metadata Processes ^a Md-Pr	-	-			Project Metadata Constraints ^a Md-Ct	Project Roadmap Pj-Rm	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standard Architecture Viewpoints ^a Sd-Sr	Standard Metadata Connectivity Md-Cn	Standard Metadata Processes ^a Md-Pr	-	-			Standard Metadata Constraints ^a Md-Ct	Standard Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar											

Parameters

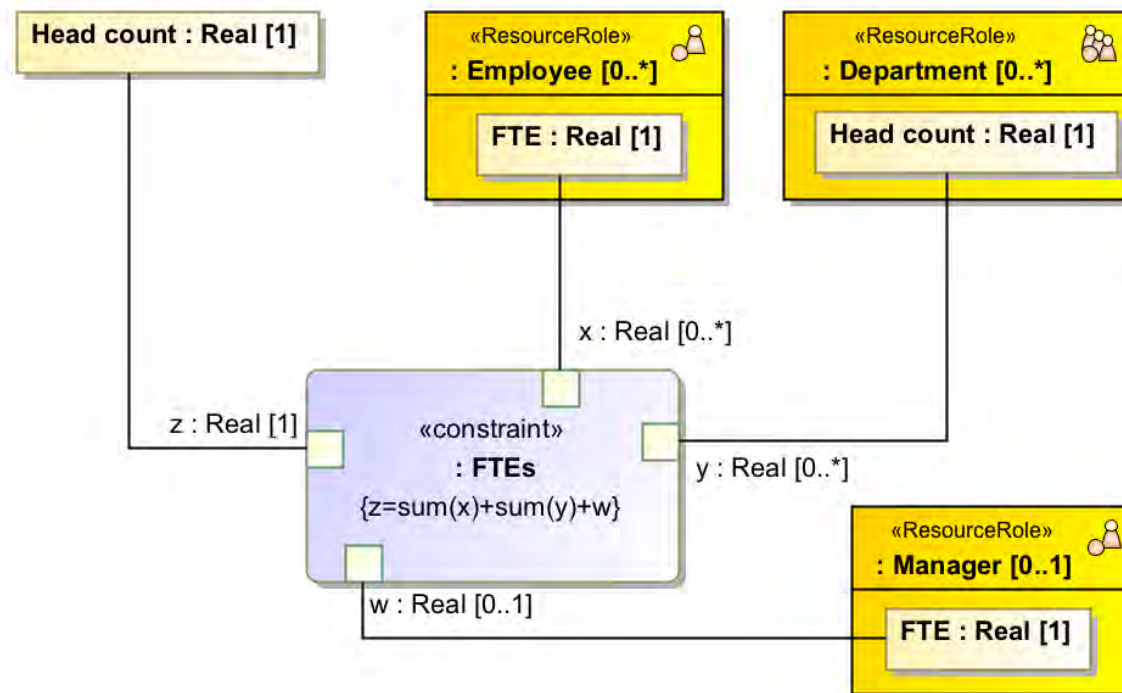
- Example: Capability Parameters



	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr		-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx										Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx										Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx										Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx										Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx										Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx										Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx										Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx										Standards Traceability Sd-Tr
Actuals Resources Ar											

Constraints

- Recommended Implementation:** tabular format, SysML Block Definition Diagram, SysML Parametric Diagram.
- Example: Personnel Constraints**



	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St											Strategic Traceability St-Tr
Operational Op											Operational Traceability Op-Tr
Services Sv											Service Traceability Sv-Tr
Personnel Pr											Personnel Traceability Pr-Tr
Resources Rs											Resource Traceability Rs-Tr
Security Sc											Security Traceability Sc-Tr
Projects Pj											Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-
Dictionary * Dc											
Summary & Overview Sm-Ov											
Requirements Req											

Constraints

- Example: Operational Constraints

#	Applies To	Rule Specification	Rule Kind
1	 Search Node  Rescue Node  Monitoring Node	Respond to emergencies 24 hours a day	Constraint
2	 Rescue Node	Minimize the risk of pollution of the marine environment from ships	Constraint
3	 Rescue Node  Search Node	Where the coverage provided by military SAR assets meets the civil SAR requirement, they will be made available for civil aeronautical, ...	Constraint
4	 Monitoring Node  Search Node	The organization is based upon a continuous communications watch on VHF, VHF/DSC, MF and MFDSC radio at 19 MRCC/MRSCs, which ...	Constraint
5	 Monitoring Node	Satellite communications extend coverage throughout the UKSRR and worldwide.	Constraint
6	 SAR Asset Controller	SAR Operations are supported by a computerized command & control system, which ...	Constraint

Constraints

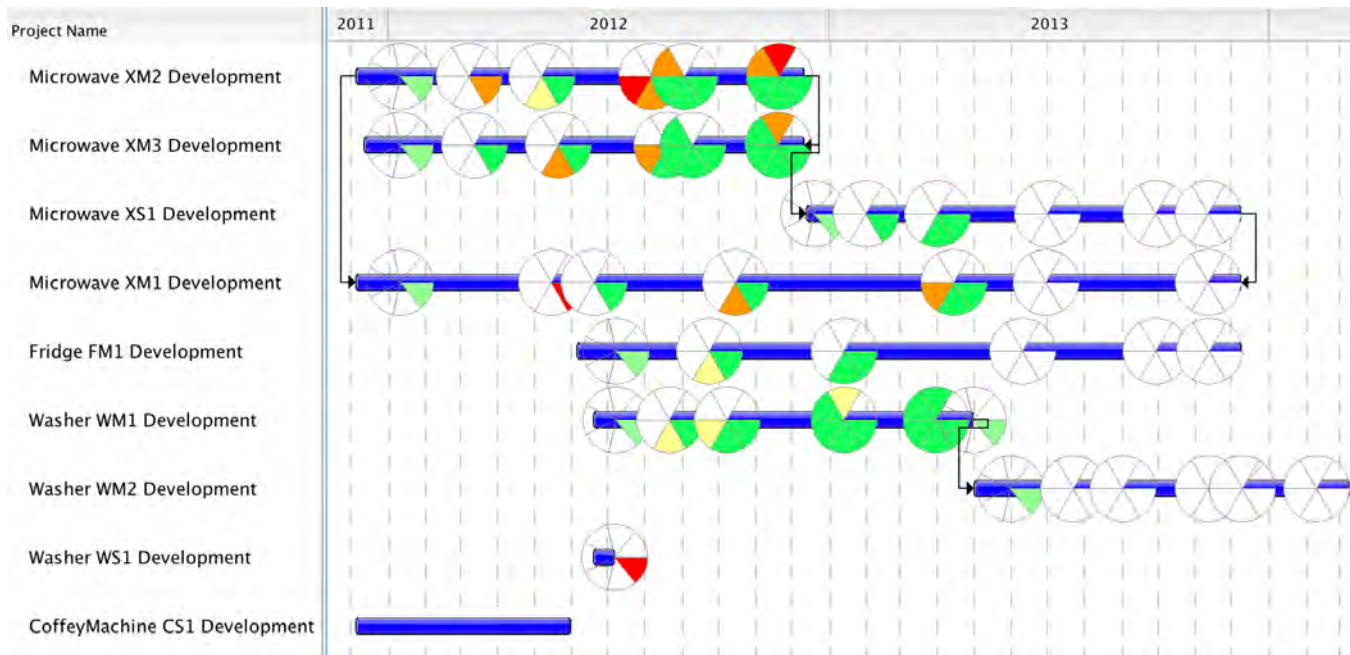
- Example: Operational Constraints

#	Applies To	Rule Specification	Rule Kind
1	 Search Node  Rescue Node  Monitoring Node	Respond to emergencies 24 hours a day	Constraint
2	 Rescue Node	Minimize the risk of pollution of the marine environment from ships	Constraint
3	 Rescue Node  Search Node	Where the coverage provided by military SAR assets meets the civil SAR requirement, they will be made available for civil aeronautical, ...	Constraint
4	 Monitoring Node  Search Node	The organization is based upon a continuous communications watch on VHF, VHF/DSC, MF and MFDSC radio at 19 MRCC/MRSCs, which ...	Constraint
5	 Monitoring Node	Satellite communications extend coverage throughout the UKSRR and worldwide.	Constraint
6	 SAR Asset Controller	SAR Operations are supported by a computerized command & control system, which ...	Constraint

	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Resources R	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr	-	-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr
Strategic St	Strategic Taxonomy St-Tx	Strategic Structure St-Sr	Strategic Connectivity St-Cn	Strategic Processes St-Pr	Strategic States St-St	Strategic Interaction Scenarios St-Is	Strategic Information St-If	Strategic Parameters St-Pm	Strategic Constraints St-Ct	Strategic Resources St-R	Strategic Traceability St-Tr
Operational Op	Operational Taxonomy Op-Tx	Operational Structure Op-Sr	Operational Connectivity Op-Cn	Operational Processes Op-Pr	Operational States Op-St	Operational Interaction Scenarios Op-Is	Operational Information Op-If	Operational Parameters Op-Pm	Operational Constraints Op-Ct	Operational Resources Op-R	Operational Traceability Op-Tr
Services Sv	Service Taxonomy Sv-Tx	Service Structure Sv-Sr	Service Connectivity Sv-Cn	Service Processes Sv-Pr	Service States Sv-St	Service Interaction Scenarios Sv-Is	Service Information Sv-If	Service Parameters Sv-Pm	Service Constraints Sv-Ct	Service Resources Sv-R	Service Traceability Sv-Tr
Personnel Pr	Personnel Taxonomy Pr-Tx	Personnel Structure Pr-Sr	Personnel Connectivity Pr-Cn	Personnel Processes Pr-Pr	Personnel States Pr-St	Personnel Interaction Scenarios Pr-Is	Personnel Information Pr-If	Personnel Parameters Pr-Pm	Personnel Constraints Pr-Ct	Personnel Resources Pr-R	Personnel Traceability Pr-Tr
Resources Rs	Resource Taxonomy Rs-Tx	Resource Structure Rs-Sr	Resource Connectivity Rs-Cn	Resource Processes Rs-Pr	Resource States Rs-St	Resource Interaction Scenarios Rs-Is	Resource Information Rs-If	Resource Parameters Rs-Pm	Resource Constraints Rs-Ct	Resource Resources Rs-R	Resource Traceability Rs-Tr
Security Sc	Security Taxonomy Sc-Tx	Security Structure Sc-Sr	Security Connectivity Sc-Cn	Security Processes Sc-Pr	Security States Sc-St	Security Interaction Scenarios Sc-Is	Security Information Sc-If	Security Parameters Sc-Pm	Security Constraints Sc-Ct	Security Resources Sc-R	Security Traceability Sc-Tr
Projects Pj	Project Taxonomy Pj-Tx	Project Structure Pj-Sr	Project Connectivity Pj-Cn	Project Processes Pj-Pr	Project States Pj-St	Project Interaction Scenarios Pj-Is	Project Information Pj-If	Project Parameters Pj-Pm	Project Constraints Pj-Ct	Project Resources Pj-R	Project Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standard Structure Sd-Sr	Standard Connectivity Sd-Cn	Standard Processes Sd-Pr	Standard States Sd-St	Standard Interaction Scenarios Sd-Is	Standard Information Sd-If	Standard Parameters Sd-Pm	Standard Constraints Sd-Ct	Standard Resources Sd-R	Standard Traceability Sd-Tr
Actuals Resources Ar											

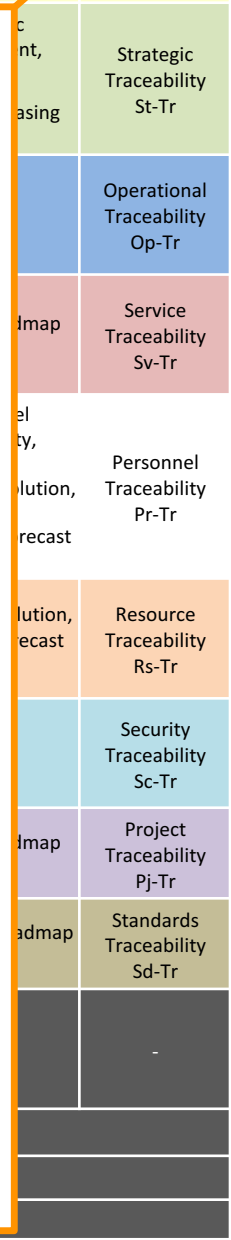
Roadmap

- **Recommended Implementation:** timeline, tabular format, SysML Block Definition Diagram
- **Example: Projects Roadmap**



- **Recommended Implementation:** matrix format, SysML Block Definition Diagram, graph
- **Example: Operational Traceability**

- **Recommended Implementation:** matrix format, SysML Block Definition Diagram, graph
- **Example: Operational Traceability**



	Taxonomy Tx	Structure Sr	Connectivity Cn	Processes Pr	States St	Interaction Scenarios Is	Information If	Parameters Pm	Constraints Ct	Roadmap Rm	Traceability Tr
Metadata Md	Metadata Taxonomy Md-Tx	Architecture Viewpoints ^a Md-Sr	Metadata Connectivity Md-Cn	Metadata Processes ^a Md-Pr		-			Metadata Constraints ^a Md-Ct		Metadata Traceability Md-Tr

Traceability

- **Recommended Implementation:** matrix format, SysML Block Definition Diagram, graph
- **Example: Strategic Traceability**



Projects Pj	Taxonomy Pj-Tx	Project Structure Pj-Sr	Connectivity Pj-Cn	-	-	-			-	Project Roadmap Pj-Rm	Traceability Pj-Tr
Standards Sd	Standard Taxonomy Sd-Tx	Standards Structure Sd-Sr	-	-	-	-			-	Standards Roadmap Sd-Rm	Standards Traceability Sd-Tr
Actuals Resources Ar		Actual Resources Structure, Ar-Sr	Actual Resources Connectivity, Ar-Cn	Simulation ^b					Parametric Execution/ Evaluation ^b	-	-

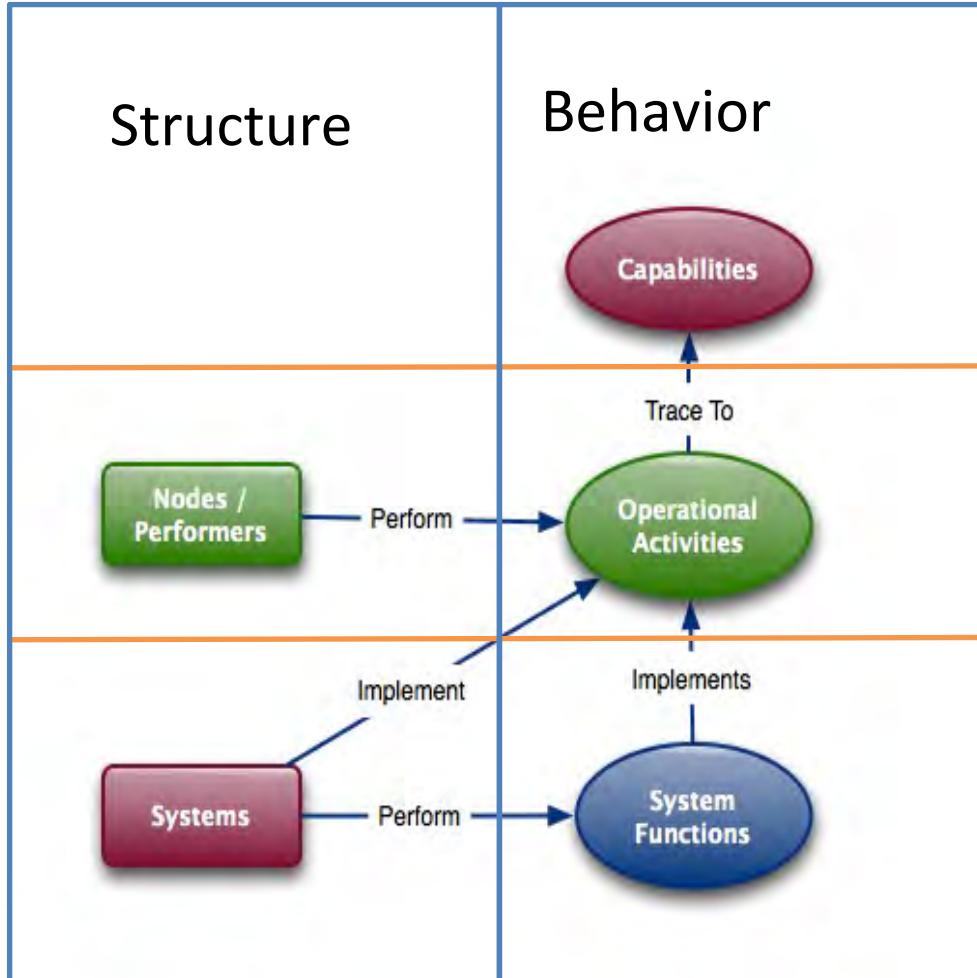
Dictionary * Dc

Summary & Overview Sm-Ov

Requirements Req

Approach

UAF On One Slide



High Level Need

WHAT
Functional/Organizational

How
Physical

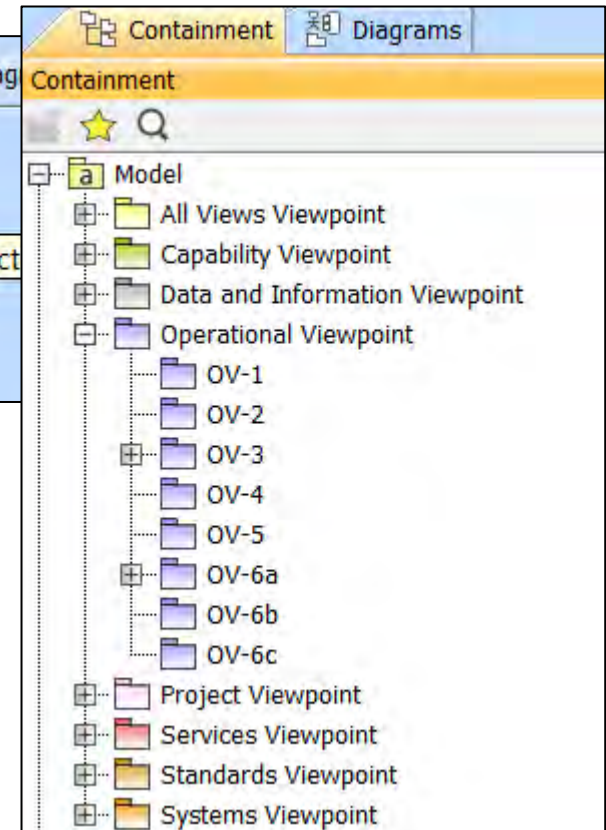
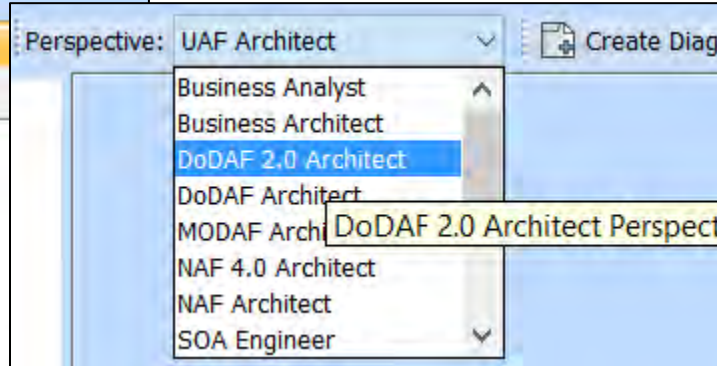
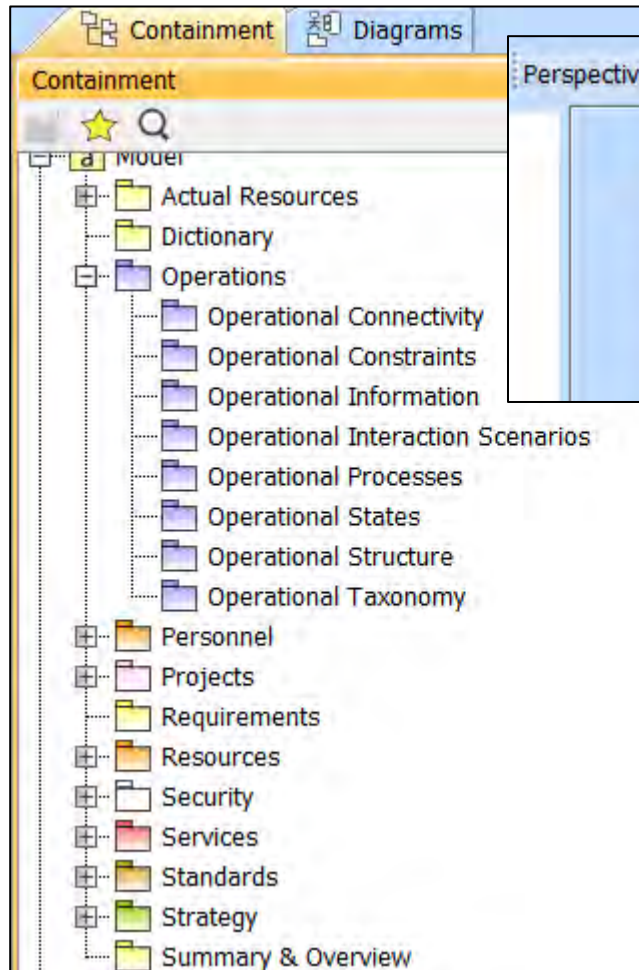
User Environment



UAF



DoDAF



Summary 1st Part



Patterns. Same pattern applied across different domains

Fit for Purpose. Grid approach allows different industries to reuse, extend or create new views appropriate to them.

UAF-EAG. Work in progress: Unified Architecture Framework
Enterprise Architecting Guidance

Up to the tool.

- Visualize UAF Views
- Provide role-based user environment, e.g. DoDAF Architect, Soa Engineer, IT Architect, Systems Engineer

What's New

What's New DEMO



- **Services**
- **Personnel**
- **Actual Resources**
- **Security**

Practical Exercise

Skinning Framework